What is novel coronavirus 2019 (COVID-19)?
COVID-19 was first described in Wuhan, Hubei Province, China and has spread within China and around the world; it has been declared a pandemic by the World Health Organization (WHO). COVID-19 refers to the illness caused by the virus SARS-CoV-2.

How does the virus spread?
Spread of this virus occurs person to person when an infected person generates respiratory droplets through sneezing or coughing; these droplets then come into contact with the eyes, nose, and mouth of other people who are nearby, similar to how influenza and other respiratory pathogens spread. The virus can also be spread by a person touching a contaminated surface with their hands and subsequently placing their hands on their face. The virus can live for several days on surfaces. It has become increasingly clear that persons who are asymptomatic or pre-symptomatic can also spread the virus and that they are playing a significant role in transmission of the virus. While SARS CoV-2 is not primarily spread via aerosols, there are situations where aerosol generation can occur (e.g. sneezing, nebulizer treatments) and thus can potentially lead to aerosolized transmission.

How wide spread is COVID-19 within our community at this time?
Testing in Kent County as of July 26, 2020 has resulted in just over 6,200 cases diagnosed via PCR testing. This does not include the number of undiagnosed cases and thus the true number of cases in Kent County is certainly higher but to what degree is not clear at this time.

What is the role of face mask in preventing spread of SARS CoV-2/COVID-19?
All Spectrum Health employees have been required to wear a medical facemask in all clinical areas since April. Recent research studies have shown that universal face masking of health care workers reduces the risk of health care workers acquiring COVID-19 in health care settings. Facemasks for the general public are also recommended in certain situations (e.g. public buildings, crowds). Several recent research studies and case studies have demonstrated the effectiveness of facemasks (cloth or medical masks) for the general public in reducing the transmission of SARS CoV-2 and thus reducing cases of COVID-19.

What are the symptoms of COVID-19?
Patients with this virus have had mild to severe respiratory illness with symptoms that can include:

<table>
<thead>
<tr>
<th>Primary</th>
<th>Secondary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>Nasal / Sinus Congestion</td>
</tr>
<tr>
<td>Cough</td>
<td>Myalgias</td>
</tr>
<tr>
<td>Shortness of Breath</td>
<td>Fatigue</td>
</tr>
<tr>
<td></td>
<td>Headache</td>
</tr>
<tr>
<td></td>
<td>Nausea and Vomiting</td>
</tr>
<tr>
<td></td>
<td>Diarrhea</td>
</tr>
<tr>
<td></td>
<td>Hemoptysis</td>
</tr>
<tr>
<td></td>
<td>Nasal Congestion</td>
</tr>
<tr>
<td></td>
<td>Loss of sense of taste and/or smell</td>
</tr>
</tbody>
</table>
Most patients with COVID-19 have mild illness and do not require hospitalization. A smaller percentage of cases are severe and can involve pneumonia with respiratory failure. Patients who are elderly or have underlying medical conditions seem to be at higher risk for severe infection.

The virus primarily affects the alveolar type 2 cells of the lungs, causing bilateral diffuse alveolar damage. The virus can also affect the heart, liver, and kidneys. Acute Respiratory Distress Syndrome (ARDS) can develop causing fluid to accumulate in the interstitial lining resulting in stiffening of the lungs. Impaired ventilation and reduced oxygenation of blood results in increased mortality.

Who is at higher risk of getting very sick from COVID-19?
Older adults and those with serious chronic medical conditions are at higher risk of getting sick from COVID-19. Chronic medical conditions placing patients at higher risk include: cardiovascular disease, respiratory disease, diabetes, immunocompromise, transplant.

What is considered an exposure and what should I do if exposed?
A team member who has interacted with someone who is COVID+ or presumed COVID+ should self-monitor for symptoms for 14 days. While you are self-monitoring, you can continue to work as long as you do not have symptoms. Symptoms to monitor include: a fever > 100°F, worsening shortness of breath in the last 48 hours, worsening cough in the last 48 hours or new onset sore throat in the last 48 hours. If any of these symptoms exist, please contact the Spectrum Health Team Member hotline at 1-833-559-0658.

A team member exposure has occurred when you have interacted with a COVID+ individual

- AND you were not wearing appropriate personal protective equipment,
- AND the COVID+ individual was not wearing a mask,
- AND you were within 6 feet of the individual
- AND the duration was for 10 minutes or longer.

If you have had an exposure, please complete a Job-Related Injury Report.

Who should be tested for COVID-19?
Any patient reporting symptoms suspicious for COVID-19 or had a potentially high risk exposure should be tested. At this time, a large proportion of all inpatient admissions (symptomatic or asymptomatic) are being tested and all patients undergoing a procedure (e.g. colonoscopy, surgery, cardiac cath) receive testing at least 96 hours before the procedure. Please refer to the COVID-19 Healthcare Professionals Resources page for most up to date information.

What specimens should be collected for COVID-19 testing?
A nasopharyngeal swab is the gold standard for COVID-19 testing. Swabs should be collected via a deep and vigorous technique. Nasal swabs and sputum cultures are alternative methods that can be utilized. Nasal swabs are recommended for testing of asymptomatic patients or patients that have anatomical or clinical contraindications to nasopharyngeal swabbing.

How do I know if my patient has COVID-19 vs a different type of coronavirus?
COVID-19 is caused by a novel coronavirus named SARS-CoV-2. Patients may test positive for other coronaviruses that are found on the respiratory viral panel, the Film Array. These coronaviruses include: HKU1, 229E, NL63, OC43. These are all different than SARS-CoV-2 and are often causes of the common cold.
The Film Array respiratory panel does not currently test for SARS-CoV-2, although that may change in the future. Spectrum Health has in house testing specific for SARS-CoV-2. Typical turnaround time depends on which testing platform is utilized.

Is COVID-19 antibody testing available and can it diagnose COVID-19 infection?
SARS-CoV-2 (etiologic agents of COVID-19) antibody testing for IgM & IgG antibodies is just starting to become commercially available. Spectrum Health now offers antibody testing. Please see the serology testing FAQ for additional information.

Can a person test negative and later test positive for COVID-19?
Using the CDC-developed diagnostic test, a negative result means that the virus that causes COVID-19 was not found in the person’s sample. In the early stages of infection, it is possible the virus will not be detected.

For COVID-19, a negative test result for a sample collected while a person has symptoms likely means that the COVID-19 virus is not causing their current illness. If there is continued concern that COVID-19 is present despite a negative test, the following clinical findings should be considered to determine course of treatment.

### SYMPTOMS

<table>
<thead>
<tr>
<th>Common Symptoms (&gt;75% prevalence)</th>
<th>Intermediate Symptoms (15-40% prevalence)</th>
<th>Uncommon Symptoms (&lt;5% prevalence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fever (&gt; or = to 100 degrees) present at any point during the admission • Cough</td>
<td>• Loss of sense of taste and/or smell • Myalgias • Fatigue • Sputum production • Shortness of breath on admission • Septic Shock</td>
<td>Uncommon Symptoms (&lt;5% prevalence) • Nausea and Vomiting • Diarrhea • Hemoptysis • Nasal Congestion</td>
</tr>
</tbody>
</table>

### LABORATORY FINDINGS

<table>
<thead>
<tr>
<th>Absolute lymphopenia &lt;1500 per mm3 (&gt;80% prevalence)</th>
<th>Elevated LDH (40% prevalence)</th>
<th>Elevated CRP (severe disease)</th>
<th>Elevated D-dimer (severe disease)</th>
<th>NORMAL WBC count + Procalcitonin</th>
</tr>
</thead>
</table>

### IMAGING FINDINGS

| Chest CT: Approximately 85% of all patients with COVID19 have abnormal Chest CT scan, findings include local or bilateral patchy shadowing, ground glass opacities | CXR: Abnormal in patients with non-severe disease, sometimes consistent with multifocal PNA. In this patient population with negative testing, non-severe disease, and equivocal or negative chest XR, non-contrast CT chest should be considered. | Uncommon: Pleural effusions and hilar adenopathy |

### CLINICAL GUIDANCE:

For patients with fever + cough + one or more of the above laboratory or imaging findings, maintain high suspicion of COVID-19. Keep patient in severe respiratory isolation and treat accordingly. Utilize positive or presumed positive COVID-19 discharge instructions upon discharge.
Is there treatment for COVID-19?
The vast majority of patients with COVID-19 will not require hospitalization and will fully recover at home with symptomatic management.

Currently, the main treatment for hospitalized COVID-19 patients is supportive care such as supplemental O2, bronchodilators, hemodynamic support, treating co-morbidities and diagnosing/treating any bacterial co-infections. Recently, clinical studies have indicated a survival benefit for certain patients receiving the steroid dexamethasone and this has been incorporated into Spectrum Health’s COVID-19 treatment recommendations. Immunomodulator therapy with medications such as tocilizumab or anakinra has also demonstrated promising results in clinical studies; they are available for select inpatients at Spectrum Health under the guidance of the inpatient Immunology Service.

The only available antiviral drug at this time specifically for COVID-19 is remdesivir. It has received emergency FDA approval and is available on a limited basis for patients that meet certain clinical and laboratory criteria. Use of remdesivir at Spectrum Health Grand Rapids currently requires consultation with the inpatient Infectious Disease Service. Spectrum Health is also participating in a research study on the use of convalescent plasma from COVID-19 survivors. Consultation for determination of patient eligibility is available through PerfectServe via “COVID-19 Research.” For detailed treatment information (including criteria for remdesivir, convalescent plasma and dexamethasone), please refer to “Therapeutic Options for Hospitalized Patients” on Insite.

There is NO vaccine available at this time; several are in development but are not likely to be ready until sometime in 2021.

If you have any questions regarding the treatment or care of a patient positive or with presumed to be positive with COVID-19, please contact the Spectrum Health Adult or Pediatric Infectious Disease Service via Perfect Serve. Questions on convalescent plasma can be directed via PerfectServe to “COVID-19 Research.”

What clinical interventions should be considered in caring for a patient with COVID-19?

- Stay calm - patients will be frightened and need a supportive presence
- Monitor for subtle changes such as (but not limited to):
  - Change in level of consciousness
  - Change in behavior
  - Dyspnea
  - Increased oxygen demands
  - Retractions, crackles and rhonchi, and tachycardia
- Ensure good nutritional intake including water and electrolytes
- Implement nursing interventions to promote respiratory health
  - Promote Optimum Oxygenation and Ventilation
  - Monitor and Manage Fluid Balance
  - Monitor for Patient Deterioration or Progression to Sepsis, ARDS
- Implement nursing interventions to reduce anxiety and/or promote coping with pandemic circumstances (visitor and societal restrictions)
- Nursing Team, consider the following Care Plan Guides for specific nursing intervention details:
  - Pneumonia
  - Mechanical Ventilation
  - Fever
  - ARDS (inpatient)
  - Breathing Pattern, Ineffective
- Dyspnea (ED)
- Anxiety
- Coping, Ineffective

**What are best practices pertaining to changing scrubs for personal (family) safety?**
Scrubs can be changed at home or work based upon team member preference. There is no documented differentiation of risk between either practice. Hand hygiene should be performed upon changing. Scrubs and/or work clothing in the hospital setting should be laundered daily.

**Is it safe to wash scrubs/work clothes with other laundry?**
Routine laundry detergent and use of high heat within the dryer will disinfect clothing of COVID-19. Laundering of scrubs / work clothes with other clothing is ok as long as the laundry is placed in the dryer. It is unclear how long COVID-19 can live on fabric, but on dry clothing it is likely to be less than 72 hours. If scrubs/work clothing is mixed with other laundry, hand hygiene should be performed after putting clothes in the washing machine.

**Is it safe to wear watches / jewelry?**
As always, the “bare below the elbows” approach is best practice when providing patient care.