Clinical features of COVID-19 (SARS-CoV2)
The clinical spectrum of COVID-19 ranges from mild disease with non-specific symptoms of acute respiratory illness to respiratory failure and septic shock. Asymptomatic infection with COVID-19 is common although the incidence is not known given the current limited availability of testing.

The incubation period following exposure is typically 4-5 days but may be as long as 14 days. In patients that progress to more severe disease, hospital admission typically occurs around day 7.

Frequent signs and symptoms of infection:

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Reported Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>77-98%</td>
</tr>
<tr>
<td>Cough</td>
<td>48-82%</td>
</tr>
<tr>
<td>Myalgia or fatigue</td>
<td>11-52%</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>3-31%</td>
</tr>
</tbody>
</table>

Fever and fatigue are the most common presenting symptoms often followed by dry cough and dyspnea. Other non-specific symptoms such as myalgias are common. GI symptoms have been reported but almost always accompanied or followed by respiratory symptoms. Anosmia and loss of taste have been suggested in case reports and if occurring in the absence of other known causes such as allergic rhinitis or sinusitis should prompt consideration of COVID-19 infection.

- Mild illness incidence around 80%
- Severe disease, associated with dyspnea, hypoxemia and/or significant lung infiltration, incidence around 15%
- Critical illness, associated with respiratory failure, ARDS, and/or shock incidence around 5%

Admission Criteria for patients with COVID-19
Most patients with COVID-19 will not require hospitalization and can be managed with supportive care and measures in place for careful monitoring.
Progression of dyspnea and/or hypoxemia are concerning signs that require further evaluation for acute management and/or hospitalization. Disposition will be determined on a case by case basis taking into consideration underlying chronic conditions, the ability for self-care at home and their ability to engage in monitoring.

**Diagnostic Testing**  
Refer to the Provider Referral Center document on the COVID page for Healthcare Professionals on [www.christianacare.org](http://www.christianacare.org) Test results may take up to 5 days to come back.

**Risk of Disease based on Age and Co-morbidities**  
Adults from 30-80 years of age account for 65-80% of confirmed cases with 80% of deaths occurring in persons aged 65 years or older. Only 2-5% of cases have been noted in patients less than 20 years of age and generally illness has been mild in nature.

Based upon available information to date, those at high-risk for severe illness from COVID-19 include:

- People aged 60 years and older  
- People who live in a nursing home or long-term care facility  
- Other high-risk conditions could include:  
  - People with chronic lung disease or moderate to severe asthma  
  - People with Chronic Kidney Disease  
  - People who have hypertension, cardiovascular disease, and cardiomyopathy  
  - People with diabetes  
  - People who are on immunosuppressive therapy  
  - People who are immunocompromised including cancer treatment  
  - People with HIV  
  - Transplant patients  
- People who are pregnant should be monitored since they are known to be at risk with severe viral illness, however, to date data on COVID-19 has not shown increased risk

**Specific Treatment Considerations for COVID-19 patients in the Ambulatory setting**

- Treatment is supportive for non-hospitalized patients with COVID-19
• There are no established pharmacological treatments for COVID-19 that are recommended for patients in the ambulatory setting at this time. Discussion of treatment for hospitalized patients is below.
• Patients may seek specific treatments (including prophylaxis) such as hydroxychloroquine, chloroquine, or combination of those with azithromycin, based on recent news reports. At this point these treatments should be avoided for ambulatory patients given the lack of evidence for efficacy AND potential drug supply limitations for those more ill in the community. The combination of azithromycin and hydroxychloroquine poses an added risk of QT prolongation.
• Post-exposure prophylaxis is currently NOT recommended. However, the University of Minnesota is conducting a post-exposure prophylaxis study for all healthcare providers or those sharing a home with a patient who is COVID-19 positive. To enroll email: covid19@umn.edu. Drug would be supplied through study.
• Self-issued prophylaxis – Physicians should not be writing medications (including hydroxychloroquine or azithromycin) for self or family prophylaxis.

• Maintenance Medications:
  o All patients should remain on their regularly prescribed medications. Optimal control of chronic disease is critical and despite published opinion pieces or news articles there is no evidence to support stopping inhaled or systemic steroids, immunosuppressive medications, biologic agents, or ACEi/ARB therapy to lessen the risk of developing COVID-19 infection. How to address these medications in the setting of an actual infection is addressed below.
  o Patients chronically on agents to control their cardiovascular disease such as aspirin and ACEi/ARB should be continued on these agents unless their clinical status dictates otherwise.
    ▪ ACE inhibitors/ARBs:
      • Hypothetical harm: COVID-19 binds to target cells through angiotensin – converting enzyme 2 (ACE2) which is expressed in the epithelial cells of lung, intestine, kidney and blood vessels. An increase in expression or upregulation of ACE2 would be anticipated in patients being treated with an ACEi or ARB for the management of diabetes or hypertension. It has been hypothesized that patients with diabetes or hypertension being treated with an ACEi or ARB could be at increased risk of developing a more severe or fatal COVID-19 infection.
- Hypothetical benefit: ACEi/ARB may have protective effect against lung damage or paradoxical effect on virus binding.
- American Heart Association (AHA), American College of Cardiology (ACC), Heart Failure Society of America (HFSA), European Society of Cardiology (ESC) recommend against stopping ACEi/ARB therapy in those who are currently prescribed for other indications and/or mortality benefit.
  - **Statins:**
    - Limited evidence supports for or against statin use in patients with viral pneumonia. There are no large-scale observational or randomized studies specific to COVID-19 evaluating the role of statin therapy. It is important to note there is no harm in continuing a statin, unless the patient is experiencing rhabdomyolysis.
    - The American College of Cardiology encourages the continuation of a statin if patient is currently receiving for clinical atherosclerotic cardiovascular disease, diabetes or those at high risk for ASCVD.

- Patients that are chronically on immunosuppressive medications, biologic agents, systemic steroids, or chemotherapeutic medications should have the continuation of these medications addressed with the prescribing physician in the setting of an infection.
- **Steroids:** Oral steroids have not been shown to be helpful in treatment and should be avoided specifically for COVID-19. These may be considered for alternative diagnosis such as exacerbations of chronic lung disease. Inhaled steroids can be continued.
- **Oseltamivir:** Oseltamivir is not effective for COVID-19.
- **Acetaminophen vs. NSAIDs:** Acetaminophen should be used for fever control. There is a hypothetical link between NSAID use and aggravation of COVID-19 symptoms, but this is not supported by the FDA as of March 19, 2020.

- **MDI and Nebulizer Treatment:**
  - Nebulized formulations of medications carry a higher risk of aerosolization of particles. *If possible, patients should utilize MDI’s for acute management of symptoms even if the medication is expired.*
  - For patients who require nebulized formulations of medications (due to lack of efficacy or availability of MDI’s) for ongoing control they should advised to use them in an isolated section of their home, preferably a garage or patio, and minimize exposure to other family members to that location. Aerosol droplets may remain in circulation for 2-3 hours.
Nebulized formulations in a healthcare setting should be administered only in an isolated setting with clear procedures regarding specialized PPE utilization for high risk aerosolization.

- **CPAP:** Patients on CPAP with COVID-19 infection should discuss options with you and their Sleep Medicine physician. When using CPAP, separate from other family members.

### Discontinuation of Isolation precautions for patients with COVID-19

The following guidelines are published on the CDC website, last revised March 23rd, 2020.

The decision to discontinue home isolation should be made in the context of local circumstances. Options now include both:

1. **Time-since-illness-onset and time-since-recovery strategy (non-test-based strategy)** Persons with COVID-19 who have symptoms and were directed to care for themselves at home may discontinue home isolation under the following conditions:
   - At least 3 days (72 hours) have passed since recovery defined as resolution of fever without the use of fever-reducing medications and improvement in respiratory symptoms (e.g., cough, shortness of breath); and,
   - At least 7 days have passed since symptoms first appeared.

2. **Test-based strategy**

Persons who have COVID-19 who have symptoms and were directed to care for themselves at home may discontinue home isolation under the following conditions:

- Resolution of fever without the use of fever-reducing medications and
- Improvement in respiratory symptoms (e.g., cough, shortness of breath) and
- Negative results of an FDA Emergency Use Authorized molecular assay for COVID-19 from at least two consecutive nasopharyngeal swab specimens collected ≥24 hours apart** (total of two negative specimens).

Individuals with laboratory-confirmed COVID-19 who have not had any symptoms may discontinue home isolation when at least 7 days have passed since the date of their first positive COVID-19 diagnostic test and have had no subsequent illness.
References


