



March 21, 2020
1st Edition

COVID-19 Report

Finding the evidence for you

A weekly report to answer clinically relevant questions by summarizing the most recent evidence.

This information is intended for health care professionals.

This report was produced by a collaboration of fellows, residents, medical students, faculty leads, and librarians from the University of Manitoba and the Medical Microbiology and Infectious Diseases community.

The information presented reflects the data that is currently available to us. In the context of a pandemic where rapid dissemination of information is essential, we have included information from evolving medical literature which may be awaiting peer-review.

Clinical Description & Epidemiology

What is the incubation period of COVID-19?

- Based on the best available data, COVID-19 appears to have an incubation period between 2 and 12 days, with a median of about 5 days.¹ Rarely, it may be longer.¹ This suggests that an active surveillance window of 14 days after exposure will catch the majority of symptomatic patients.
- This is generally consistent with SARS and MERS. Both had an incubation period of roughly 2 to 14 days.^{2,3}

Is asymptomatic carriage a concern with COVID-19? What is the infectious potential of asymptomatic cases?

- Asymptomatic carriers appear to be potential sources of infection, but data in this area is evolving.
- Currently, the most robust data is from Italy where approximately 3,300 inhabitants of the town of Vò, near Venice, were tested regardless of symptoms. 50-75% of

those testing positive were asymptomatic at the time. This data has not yet been formally published.^{1,2}

- In one study, median serial interval period (i.e. time from illness onset between two cases in a transmission chain) was 4.0 days in probable linked cases (95%CI: 3.1, 4.9) and 4.6 days in confirmed linked cases (95%CI: 3.5, 5.9).³ This is shorter than or similar to the incubation period, raising the potential that people are infectious prior to developing symptoms.

Can symptoms help identify or rule out COVID-19?

- Meta-analyses of cross-sectional studies show the most common symptoms in hospitalized patients are fever (89.1%) and cough (72.2%).¹ Dyspnea, myalgia, headache, chills, sore throat, sputum production, and fatigue were reported in fewer than half of cases. Rare symptoms (<10% of patients) include diarrhea, hemoptysis, nasal congestion, conjunctival congestion, nausea, or vomiting.^{1,2,3}
- The literature suggests that there are no symptoms or known combination of symptoms at illness onset that have sensitivity high enough to reasonably rule out COVID-19.

Are certain comorbidities associated with more severe disease or worse outcomes?

- A large (n=1099) cross-sectional study of COVID-19 from China showed an increased rate of severe disease (defined by the American Thoracic Society guidelines for community acquired pneumonia) in those with cardiovascular disease, hypertension, diabetes, and respiratory disease (specifically COPD).¹
- A preprint systematic review and meta-analysis reaffirmed the increased risk for cardiovascular disease, hypertension, and respiratory disease, but did not find a significant increased risk for those with diabetes.²

Diagnostics & Surveillance

In the context of a growing national shortage of supplies for sample collection and testing reagents, what are the current guidelines for testing?

- Most countries are screening symptomatic individuals (fever, cough, LRTI) with epidemiologic risk factors (<14 day international travel, including US).^{1,2,3}
- In Manitoba, priority testing is being given to ICUs, outbreaks, Northern RHA residents, and healthcare workers.

- At the national level, investigations are ongoing for alternative testing strategies (specimen type, swab type, media, PCR protocols, etc.).

What is the effectiveness of screening? *Screening ≠ Testing*

- Current data suggests that arrival and/or departure screening (mainly looking for fever) is likely to detect only 30-53% of true cases.^{1,2}
- Contact tracing is crucial to containment and may help identify asymptomatic patients. In a cohort of 24 asymptomatic COVID-19 positive individuals identified by contact tracing, 70.8% had abnormal chest CT findings and 16.7-33.4% had lymphopenia and/or leukopenia.³

Therapeutics

Do steroids help in the treatment of severe COVID-19?

- Observational studies suggest that steroids do not provide morbidity or mortality benefit in severe COVID-19 and instead may cause harm and prolong viral shedding.^{1,2,3}
- Most guidelines recommend against the use of steroids in the management of COVID-19.^{4,5}
- Due to methodological limitations, these statements remain controversial and until large randomized controlled trials become available, certain physicians suggest that steroids may be considered exclusively among COVID-19 cases with ARDS.⁶

Should patients taking ACE inhibitors (or ARBs) stop these agents and change to a new antihypertensive?

- SARS-COV2 enters lung cells by binding to angiotensin-converting enzyme 2 (ACE2).¹
- Patients with hypertension, diabetes mellitus, and congestive heart failure are at increased risk for worse outcomes with COVID-19.² These conditions are indications for ACEi.
- No studies have explicitly examined the clinical impact of ACEi on COVID-19. ACEi are theorized to increase levels of ACE2, based on preclinical and animal studies.^{3,4} However, human studies do not show an increase in ACE2 with ACEi.⁵
- Due to the lack of evidence that ACEi and ARBs change COVID-19 clinical outcomes, professional societies⁶, including the Canadian Cardiovascular Society and Hypertension Canada⁷ have recommended the continued use of these agents.

Should patients avoid NSAIDs for symptomatic management of COVID-19?

- There is no published clinical evidence that NSAIDs worsen COVID-19.
- Social media and the press have published articles advising patients to stop using NSAIDs based on anecdotal evidence from France.¹
- WHO officially clarified their recommendations: “WHO does not recommend against the use of ibuprofen”.²

Does lopinavir-ritonavir (Kaletra) improve outcomes in patients with severe COVID-19?

- To date, no therapeutics have been proven effective for treating COVID-19.
- A RCT published in NEJM March 18 did not show any significant benefit of lopinavir-ritonavir over standard care for severe COVID-19 in time to clinical improvement (primary outcome). However, lopinavir-ritonavir was initiated a median of 12 days after onset of symptoms.¹

Infection Prevention & Control

What is the viability of coronavirus (SARS-COV-2) on surfaces?

- As with other pathogens, viable viral particles can persist on surfaces such as stainless steel and plastics. Surface viability is lower on cardboard and copper.¹
- The exact persistence time depends on amount of virus, atmospheric conditions, and the surface.
- Although surface contamination was a known contributor of nosocomial spread, earlier data of other similar coronaviruses suggests routine cleaning procedures and surface disinfectants are effective.^{2,3}
- Currently at our health care facilities, there is enhanced attention to housekeeping practices to ensure the safest possible environment for patients, staff and visitors.

Take home points:

- (1) Follow all posted instructions for infection prevention and control (hand hygiene, personal protective equipment).
- (2) When in doubt: wash your hands



Pediatric Corner

What is the symptomatology and illness severity amongst pediatric patients with COVID-19?

- Children seem to have milder presentations compared to adults.^{[1,2,3,4,5,6](#)}
- Most common symptoms are cough and fever, with nasal congestion, rhinorrhea, sore throat, and in some cases diarrhea.^{[1,2,3,4,5,6](#)} Some test positive and/or have findings on chest CT while remaining asymptomatic.^{[3,4,5,6,7,8](#)}
- There are limited reports of severe cases including acute respiratory distress syndrome and septic shock.^{[1](#)}
- Children with underlying illness may be at a higher risk for hospitalization and respiratory distress.^{[2](#)} Small studies of children hospitalized with COVID-19 reported good short term prognosis^{[3,4,5](#)} and an average length of stay of 12.9 days.^{[2](#)}

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