

Title: Essential COVID-19 information for all AHS staff on predictive risk tests for clinical deterioration.

Question: For patients with suspected/confirmed COVID-19 in the community, are there predictive risk tools or tests (e.g., Roth test; oxygen saturation where possible) that can assist in deciding who is at risk of clinical deterioration and should be assessed in the emergency department?

Context:

- The question came from clinicians working in primary care settings and relates the need to determine which patients with suspect or confirmed COVID-19 should be assessed in the emergency department, which is particularly challenging for primary care physicians assessing patients in a virtual setting.
- Hypoxia is a major risk factor that predicts clinical deterioration in patients. However the availability of oxygen saturation measurements (i.e., saturation monitor) in the community varies widely and is particularly restricted for virtual care; any validated tools for predicting hypoxia without the use of a saturation monitor would be potential usefully (e.g., Roth Score).
- Anecdotally, there are reports of primary care providers using non-validated tools (i.e., Roth Score, heart rate apps) to assess patients through virtual care (e.g., telephone assessments) for evidence of clinical deterioration (e.g. hypoxia, shortness of breath, increased heart rate) despite mixed evidence.
- The review was not limited to any specific populations, but would likely be most applicable to ambulatory adult populations with suspected or confirmed COVID-19.

Recommendations: – Provided by: AHS COVID-19 Scientific Advisory Group

There are no validated predictive risk tools or tests to identify patients at risk of clinical deterioration. Therefore, based on this lack of validated tools, the following pragmatic recommendations are proposed:

1. Given that suspected/confirmed COVID-19 patients can present with a multitude of symptoms (e.g., fever, cough, shortness of breath), assessing clinical deterioration in mild to moderate disease can be challenging in a primary care environment where virtual assessments are increasingly being used. Increasing dyspnea (i.e., shortness of breath) appears to be the most common indicator of potential decompensation in mild-to-moderate cases, but is likely neither sensitive nor specific to identify COVID-19. Primary care providers should consider facilitating in person assessment of patients including a measurement of oxygen saturation and other vital signs through outreach if available, or sending patients with worsening dyspnea to the emergency department or urgent assessment clinics where oxygen saturation and other vital signs can be measured.
2. The use of repeated clinical assessment (virtual or in person) including structured questions, and review of critical information contained within available electronic

medical records (EMR) such as patient history, problem lists, is the most feasible and effective way to assess suspected or confirmed COVID-19 patients for clinical deterioration. The symptoms should be clearly documented, allowing an assessment of change over time.

3. The Roth Score is not validated amongst COVID-19 patients; there is mixed evidence around whether it should be used for virtual assessment in primary care or community settings. However, in the absence of objective measurement (i.e., if the patient is being assessed over the phone or via video monitor) use of the Roth Score could be considered as one component within a broader clinical evaluation of dyspnea including consideration of trajectory of symptoms and patient characteristics, such as age and comorbid conditions. If the Roth Score is used, it must be combined with other forms of clinical evaluation, given no validated tools exist to predict hypoxia.

Summary of evidence:

- In primary care settings, the presence of dyspnea (i.e., shortness of breath) appears to be the most common and prevalent symptom for assessing potential decompensation in mild-to-moderate suspected/confirmed COVID-19 patients. Decompensating patients with increasing dyspnea are likely experiencing a rapid decrease in oxygen saturation and should present to the emergency department.
- There are also reports of COVID patients being significantly hypoxic despite the absence of shortness of breath. Checking SpO2 is an important component of the patients' assessment.
- There are no predictive risk stratification tools that have been empirically derived or validated to assist physicians in deciding who is at risk of clinical deterioration from COVID-19 and should be assessed in the emergency department. There is minimal existing evidence to support the use of non-validated tests, such as the Roth Score. Emerging literature suggests the Roth Score is not sufficient to accurately identify a patient with hypoxia, especially when conducted in a virtual setting.
- Self-monitoring devices, like Smartphone apps, that measure heart-rate, respiratory rate and oxygen saturation in suspected/confirmed COVID-19 patients are not recommended for use without appropriate clinical monitoring. Published studies are potentially biased due to small sample sizes and improper interpretation of the majority of statistical findings.
- Recommendations to guide which patients should be assessed in the emergency department will be largely based on clinical judgement of the primary care provider and knowledge of patient's baseline status, age, social situation and comorbidities (e.g., heart disease, COPD, immunocompromised status) which place patients at higher risk for complications.