Fact Sheet: Assessing Respiratory Symptoms via Video

This Fact Sheet is intended to provide clinicians with information to support the use of video to assess respiratory status and has been prepared to assist with the response to COVID-19.

This document assumes that:

- the reader has familiarized themselves with the use of video in a clinical application;
- has reviewed the Public Health Agency of Canada case definition and related information about COVID-19 https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals.html including the Interim National Case Definition for COVID-19 https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/national-case-definition.html; and
- is familiar with the Covid-19 guidance published by Public Health Ontario https://www.publichealthontario.ca/en/diseases-and-conditions/infectious-diseases/respiratory-diseases/novel-coronavirus.

Using Video to Screen for COVID-19

Using the endorsed screening guidelines noted above to identify a **Person Under Investigation**, screening is straightforward using phone or video. Screening for COVID-19 can be conducted verbally and does not require an in-person physical examination. Video enables the clinician to assess non-verbal cues while taking a history for screening purposes. The clinician can do this without risking exposure to an infected patient.

Using Video to Assess Patients in a Non-Clinical Setting

Video provides the opportunity for clinicians to assess the severity of the patient's symptoms and determine the best care setting for the patient. If a patient's symptoms are mild, they can be managed at home. If not, the patient may need closer observation and treatment in a health care facility.

Using video, the clinician can elicit a history of:

- fever
- myalgia
- cough and/or
- shortness of breath

The clinician can observe respiratory rate and whether the patient:

- looks unwell
- is coughing
- is short of breath while speaking and/or
- is using accessory muscles to breathe

Through these observations, the clinician can determine if the patient looks well enough to self-treat at home, or ill enough to warrant an in-person examination. A follow-up assessment may be required if the patient's symptoms exacerbate.

In the case where the clinician requires additional clinical information to determine the treatment plan, for example where an O2 saturation or chest auscultation is required, the patient will need to be seen in person. If this is the case, alerting the care facility in advance that the patient will be attending in person is advised.

Other References

The following publications may also be helpful for clinicians assessing respiratory symptoms via video.

1. Gattu R., et al. Telemedicine: A Reliable Tool to Assess the Severity of Respiratory Distress in Children, Hospital Pediatrics 2016 Aug:6(8):476-82 doic 10.154/hpeds2014-0272

https://www.ncbi.nlm.nih.gov/pubmed/27450148

Abstract:
BACKGROUND AND OBJECTIVES:
Remote assessment of respiratory distress using telemedicine enabled audio-video conferencing (TM) is of value for medical decision-making. Our goal was to evaluate the interobserver reliability (IOR) of TM compared with face-to-face (FTF) assessment of respiratory distress in children.

METHODS:
A prospective, cohort study was performed in pediatric emergency department from July 2012 to February 2013. Children (aged 0-18 years) who presented with signs of respiratory distress were included in the study. The respiratory score is a 4-item, 12-point scale (respiratory rate [1-3], retractions [0-3], dyspnea [0-3], and wheezing [0-3]) that assesses the severity of a child's respiratory distress. Each child was evaluated by a pair of observers from a pool of 25 observers. The first observer evaluated the patient FTF, and the second observer simultaneously and independently evaluated remotely via TM. The overall respiratory distress severity is based on the respiratory scale and reported as nonsevere (≤8) and severe (≥9) respiratory distress. The IOR reliability between FTF and TM assessment was measured using a 2-way mixed model, absolute agreement and average measure intraclass correlation coefficient (ICC).

RESULTS:
Forty-eight patients and 135 paired observations were recorded. IOR between the FTF and TM groups for total respiratory score had an ICC of 0.95 (confidence interval 0.93-0.96) and for subscores, the ICC range was as follows: respiratory rate = 0.92, retractions = 0.85, dyspnea = 0.94, and wheezing = 0.77.

CONCLUSIONS:
TM is a reliable tool to assess the severity of respiratory distress in children.

2. Infectious Diseases Society of America Position Statement on Telehealth and Telemedicine as Applied to the Practice of Infectious Diseases

https://academic.oup.com/cid/article/68/9/1437/5372646

Abstract:
Over the last 2 decades, telemedicine has effectively demonstrated its ability to increase access to care. This access has the ability to deliver quality clinical care and offer potential savings to the healthcare system. With increasing frequency, physicians, clinics, and medical centers are harnessing modern telecommunications technologies to manage a multitude of acute and chronic conditions, as well as incorporating telehealth into teaching and research. The technologies spanning telehealth, telemedicine, and mobile health (mHealth) are rapidly evolving, and the Infectious Diseases Society of America (IDSA) has prepared this updated position statement to educate its membership on the use of telemedicine and telehealth technologies. IDSA supports the appropriate and evidence-based use of telehealth technologies to provide up-to-date, timely, cost-effective subspecialty care to resource-limited populations.

Other References (cont'd)

3. Assessment of Respiratory Distress by the Roth Score

Ehud Chorin, MD, PhD, Allison Padegimas, MD, Ofer Havakuk, MD, Edo Y. Birati, MD, Yacov Shacham, MD, Anat Milman, MD, Guy Topaz, MD, Nir Flint, MD, Gad Keren, MD, and Ori Rogowski, MD

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6490799/

Abstract:
INTRODUCTION
Health care demand is increasing due to greater longevity of patients with chronic comorbidities. This increasing demand is occurring in a setting of resource scarcity. To address these changes, high- value care initiatives, such as telemedicine, are valuable resource-preservation strategies. This study introduces the Roth score as a telemedicine tool that uses patient counting times to accurately risk-stratify dyspnea severity in terms of hypoxia.

HYPOTHESIS
The Roth score has correlation with dyspnea severity.

METHODS
This is a prospective, controlled-cohort study. Roth score index is measured by having the patient count from 1 to 30 in their native language, in a single breath, as rapidly as possible. The primary result of the Roth score is the duration of time and the highest number reached.

RESULTS
There was a strongly positive correlation between pulse oximetry and both maximal count achieved in 1 breath ($r = 0.67$; $P < 0.001$) and counting time ($r = 0.59$; $P < 0.001$). For oxygen saturation <95%, the maximal count number area under the curve is 0.828 and counting time area under the curve is 0.764. Counting time >8seconds had a sensitivity of 78% and specificity of 73% for pulse oximetry <95%.

CONCLUSIONS
The Roth score has strong correlation with dyspnea severity as determined by hypoxia. This tool is reproducible, low resource-utilization, and amenable to telemedicine. It is not intended to replace full clinical workup and diagnosis of respiratory distress, but it is useful in risk-stratifying severity of dyspnea that warrants further clinical evaluation.