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Updated: April 28, 2020

**We have modified the final sentence of the bottom line to more clearly reflect the take home message. We apologize for any confusion this may have caused.**

### *COVID-19 Rapid Reviews*

*Along with regular Tools for Practice, the PEER team will be writing rapid reviews to address COVID-19 topics relevant for primary care. The evidence is changing rapidly and it is possible that as you read this, new evidence will already be available. We will try our best to stay in front and keep you up-to-date during these challenging times.*



#### **Are there tools to help assess dyspnea virtually?**

**Clinical Question: Are there any techniques (like the Roth Score) to augment a typical history when assessing dyspnea/pneumonia over the phone or by video?**

**Bottom Line: Unfortunately, no specific technique, including the Roth Score, is reliable in assuring dyspneic patients are not at risk and safe to stay home. Furthermore, no studies have evaluated dyspnea assessment in COVID-19 patients. Clinicians are encouraged to use available tools (<https://www.bmj.com/content/368/bmj.m1182/infographic>) and have patients assessed in-person if there are any concerns.**

#### **Evidence:**

- 1) Roth Score for virtual (phone/video) assessment of dyspnea.<sup>1</sup> Patients count upward from "1" as quickly as possible after a single deep breath. Can repeat after 3 deep breaths. Measure highest number attained and time (seconds) to highest number. Only one study:
  - 103 healthy people (mean age 56). In one breath:
    - 100% counted to  $\geq 15$ .
    - 94% counted to  $\geq 20$ .
  - 93 patients with dyspnea (mean age 76) admitted to internal medicine or cardiac intensive care (conditions like heart failure and pneumonia). Roth Score compared to pulse oximetry on room air:
    - Area-under-the-curve (assesses overall test utility):
      - Predicted <95% O<sub>2</sub> pulse oximetry: 0.83 (pretty good).
      - Predicting <90% O<sub>2</sub> pulse oximetry: 0.84 (pretty good).

- Sensitivity and specificity appear to be presented incorrectly. It is impossible to determine predictive cut-offs for helping make or exclude diagnosis.
  - *[We emailed the authors twice without response.]*
- 2) Clinical features of pneumonia: Systematic review of 13 diagnostic studies (outpatient or emergency departments) with 11,144 patients:<sup>2</sup>
  - Small-moderate help making the diagnosis of pneumonia (Likelihood Ratio ~3.5):
    - Respiratory rate  $\geq 20$ /minute or fever  $\geq 38^{\circ}\text{C}$ .
  - No individual clinical features helpful in excluding pneumonia.
- 3) Patient self-rating of dyspnea on numerical rating scale (0-10, higher=worse).
  - 253 emergency patients (mean age 61) with complaint of dyspnea.<sup>3</sup>
    - Correlated quite well with respiratory rate ( $r=0.77$ ) and okay with oxygen saturation ( $r=0.43$ ).
  - In 188 chronic COPD patients, did not correlate with oxygen saturation.<sup>4</sup>

**Context:**

- Dyspnea encompasses more than oxygen saturation and has no gold standard for assessment.<sup>5</sup>
- None of these studies assessed patients with COVID-19 which may have distinct clinical characteristics.
- BMJ provides a helpful resource for assessment of COVID-19 patients virtually [<https://www.bmj.com/content/368/bmj.m1182/infographic>].<sup>6</sup>

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**Disclosures:**

Authors do not have any conflicts of interest to declare.

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