



Oxford COVID-19 Evidence Service

Are there any evidence-based ways of assessing dyspnoea (breathlessness) by telephone or video?

Trish Greenhalgh, Koot Kotze and Helene-Mari Van Der

On behalf of the Oxford COVID-19 Evidence Service Team
Nuffield Department of Primary Care Health Sciences,
University of Oxford

Correspondence to trish.greenhalgh@phc.ox.ac.uk

VERDICT

We found no validated tests for assessing breathlessness in an acute primary care setting. We found no evidence that attempts to measure a patient's respiratory rate over the phone would give an accurate reading, and experts do not use this test in telephone consultations. Our search identified a potentially promising test (the Roth score), which needs further research.

BACKGROUND

Many health systems around the world are escalating their response to the COVID-19 pandemic. To reduce the potential community spread of the virus, most GP practices in the UK are minimising all face to face patient contact, using alternatives, such as [telephone or video conference](#) as the first point of patient contact. However, without a physical examination, practitioners will have to rely on history alone to provide advice to patients. In this rapid review, we searched for information on whether dyspnoea (breathlessness), a potential characteristic of the COVID-19 disease, could be reliably assessed over the telephone or through video.

CURRENT EVIDENCE

We found **no validated evidence** to support the use of a tool to assess dyspnoea through telephone or video. Pending further research, **the recommendations below**

are based on expert opinion. A rapid survey of 50 clinicians who regularly assess patients by phone (on 20.3.20) recommended not using the Roth score (though opinions were mixed) and gave the following advice:

1. Ask the patient to **describe the problem with their breathing in their own words**, and assess the ease and comfort of their speech. Ask open-ended questions and listen to **whether the patient can complete their sentences**.

“How is your breathing today?”

2. **Align with NHS111 symptom checker**, which asks three questions (developed through user testing but not evaluated in formal research):

“Are you so breathless that you are unable to speak more than a few words?”

“Are you breathing harder or faster than usual when doing nothing at all?”

“Are you so ill that you've stopped doing all of your usual daily activities?”

3. Focus on change. **A clear story of deterioration** is more important than whether the patient currently feels short of breath. Ask questions like

“Is your breathing faster, slower or the same as normal?”

“What could you do yesterday that you can't do today?”

“What makes you breathless now that didn't make you breathless yesterday?”

4. Interpret the breathlessness in the **context of the wider history and physical signs**. For example, a new, audible wheeze and a verbal report of blueness of the lips in a breathless patient are concerning.

The tools and instruments and tools identified were as follows:

1. **Roth Score**. Easy to use and has been validated in one study against pulse oximetry in healthy volunteers and hospital inpatients but has not been validated in primary care. Ask the patient to take a deep breath and count out loud from 1 to 30 in their native language. Count the number of seconds before they take another breath. If the “counting time” is 8 seconds or less, this has a sensitivity of

78% and specificity of 71% for identifying a pulse oximeter reading of <95%. If the counting time is 5 seconds or less, sensitivity is 91%. Of 50 experts, only 6 used the score (most had never heard of it). They were concerned that if used indiscriminately and as a substitute for holistic clinical assessment in the COVID crisis, this score could lead to harm by increasing the number of patients called in for physical examination.

2. **Smartphone apps for oximetry:** Very limited published research, but one small, single-centre study in hospitalised patients reported high (>98%) correlation between the smartphone reading and the reference device. There are many devices and apps; use readings cautiously in the context of a wider clinical assessment.
3. **Oximetry devices supplied to patients.** Commonly used in respiratory medicine clinics but have not yet been evaluated in a primary care setting.

-

CONCLUSIONS

- There does not appear to be a validated tool to assess breathlessness over the telephone or by video
- Clinical judgement, through careful history taking and questioning, may currently be the best available method
- The Roth tool has not been sufficiently validated yet to be used for this purpose

End.

Disclaimer: the article has not been peer-reviewed; it should not replace individual clinical judgement and the sources cited should be checked. The views expressed in this commentary represent the views of the authors and not necessarily those of the host institution, the NHS, the NIHR, or the Department of Health. The views are not a substitute for professional medical advice.