

Use of the Roth score for phone assessment of breathlessness

Online screening tool: <https://www.mdcalc.com/roth-score-hypoxia-screening>

Roth Score for Hypoxia Screening

Screens for hypoxia in dyspneic patients.

IMPORTANT

- This score has been proposed as a gross attempt to suggest hypoxia via voice/telephone, and has **not** been validated. Launched during COVID-19 crisis. [COVID-19 Resource Center](#).
- It obviously does not at all substitute for pulse oximetry or an in-person evaluation of a patient, but these are very challenging times and it is difficult to assess hypoxia without exposing healthcare workers to possible COVID, expending PPE, etc.
- The score is based on only 93 patients being admitted for pulmonary reasons (pneumonia, COPD, CHF, etc).

INSTRUCTIONS

Instruct patient:

1. Take a deep breath.
2. In your native language, count clearly from 1 to 30 out loud, as fast as possible without stopping, until you are either out of breath or reach 30.

Clinician: **Time how many seconds** it takes the patient to reach 30, or until they must take another breath.

Also, **record the highest number** they can reach before they have to take another breath.

Yay:

Assessment of Respiratory Distress by the Roth Score

First published:04 October 2016

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 >8 seconds 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.

<https://onlinelibrary.wiley.com/doi/full/10.1002/clc.22586>

Nay:

The Centre for Evidence-Based Medicine

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

March 23, 2020

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. We list 7 key questions which experts have recommended.

<https://www.cebm.net/covid-19/are-there-any-evidence-based-ways-of-assessing-dyspnoea-breathlessness-by-telephone-or-video/>

In more detail:

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.

Their suggested assessment involves four questions: see link or go to shared drive/ClinicTools/COVID19/Breathlessness assessment.

<https://www.cebm.net/wp-content/uploads/2020/03/Are-there-any-evidence-based-ways-of-assessing-dyspnoea-breathlessness-by-telephone-or-video .pdf>

In conclusion

The Roth score may be a useful tool in assessing people with breathlessness over the phone, perhaps giving a relatively objective measure to the rest of your clinical assessment.

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Mar 31, 2020