

# **Validation of the COVAS (Comorbidities, Obesity, Vitals, Age, Sex) Score as a Practical Tool for Assessing Need for Intensive Care Services in Suspected SARS-CoV2 Patients**

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## **Background and Hypothesis**

Various scoring instruments have been proposed to risk-stratify patients with suspected COVID-19. Here we test prognostic system derived and tested in the Kaiser Permanente health system (the COVAS score).

## **Experimental Design and Methods**

This was a primary analysis of the multicenter RECOVER registry, which includes patients tested for SARS-CoV-2 from 40 emergency departments around the US. We extracted components of COVAS score with two modifications, and computed a modified COVAS score, and used that as the “test” to compute the area under the receiver operating characteristic curve (AUROC) to predict any initial intensive care unit (ICU) admission or transfer to ICU.

## **Results**

For SARS-CoV-2 positive patients, for the prediction of ICU admission, the COVAS AUROC=0.74 (95% CI = 0.72 to 0.77), with overall mean = 7.4 (SD=4.7), and the mean for ICU admission was higher (10.1, SD=4.6) versus no ICU admission (6.8, SD=4.5),  $p < 0.001$  paired t-test. For SARS-CoV-2 negative patients, the COVAS score showed an AUROC= 0.70 (0.68-0.72) and the mean was 7.3, SD=4.2.

## **Potential Impact**

The modified COVAS scoring system had modest overall discriminative value at predicting ICU admission, but was more accurate in SARS-CoV-2 positive patients, compared with SARS-CoV-2 negative suggesting the instrument is calibrated to predict ICU requirements in patients with suspected COVID-19, as opposed to functioning as a generic risk-stratification tool.