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## Accuracy of telephone triage for predicting adverse outcomes in suspected COVID-19: An observational cohort study linking NHS 111 telephone triage, primary and secondary healthcare and mortality records.

Carl Marincowitz<sup>1</sup>, Tony Stone<sup>1</sup>, Peter Bath<sup>2</sup>, Richard Campbell<sup>1</sup>, Janette Turner<sup>1</sup>, Richard Pilbery<sup>3</sup>, Benjamin Thomas<sup>1</sup>, Laura Sutton<sup>1</sup>, Fiona Bell<sup>3</sup>, Katie Biggs<sup>1</sup>, Frank Hopfgartner<sup>2</sup>, Madina Hussein<sup>2</sup>, Suvodeep Mazumdar<sup>2</sup>, Jennifer Petrie<sup>1</sup>, and Steve Goodacre<sup>2</sup>

<sup>1</sup>School of Health and Related Research, University of Sheffield

<sup>2</sup>Information School, University of Sheffield

<sup>3</sup>Yorkshire Ambulance Service NHS Trust

### Objectives

To assess accuracy of telephone triage in identifying need for emergency care amongst those with suspected COVID-19 infection and identify factors which affect triage accuracy.

### Approach

An observational cohort study of adults who contacted the NHS 111 telephone triage service provided by Yorkshire Ambulance Service between March and June 2020 with symptoms indicating possible COVID-19 infection. Patient-level data encompassing triage call, primary care, hospital care and death registration records relating to 40,261 adults were linked.

The accuracy of triage outcome (self-care/non-urgent assessment versus ambulance/urgent assessment) was assessed for death or organ support 30 days from first contact. Multi-variable logistic regression was used to identify factors associated with risk of false negative or false positive triage.

### Results

Callers had a 3% (1,200/40,261) risk of serious adverse outcomes. Telephone triage recommended self-care or non-urgent assessment for 60% (24,335/40,261), with a 1.3% (310/24,335) risk of adverse outcomes 30 days from first contact. Telephone triage had 74.2% sensitivity (95% CI: 71.6 to 76.6%) and 61.5% specificity (61% to 62%) for the primary outcome. Analysis suggested respiratory comorbidities may be over-appreciated and diabetes under-appreciated as predictors of deterioration. Repeat contact with triage service appears to be an important under-recognised predictor of deterioration.

### Conclusions

Patients advised to self-care or receive non-urgent clinical assessment had a small but non-negligible risk of serious clinical deterioration. Repeat contact with telephone services needs recognition as an important predictor of subsequent adverse outcomes.

