Accuracy of telephone triage for predicting adverse outcomes in suspected COVID-19: An observational cohort study

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Aims/Objectives/Background To reduce the risk of spreading infection and hospitals being overwhelmed, on the 18th March 2020, NHS England advised patients with suspected COVID infection to contact NHS 111 instead of attending health care providers. In March 2020, 3 million NHS 111 calls were made; a record number and double the number of the previous year. Concerns have been raised that telephone triage may not be sufficiently accurate in identifying need for emergency care.

We aim to assess accuracy of telephone triage in identifying patients who need emergency care amongst those with suspected COVID-19 and identify factors which affect triage accuracy.

Methods/Design A cohort study of adults who contacted NHS 111 services provided by Yorkshire Ambulance Service between the 18th March 2020 and 29th June 2020 with symptoms indicating possible COVID-19 infection was completed. Callers were linked to ONS death registrations and routine health care data collected by NHS Digital.

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. Multivariable logistic regression was used to identify factors associated with risk of false negative or false positive triage.

Results/Conclusions 3% of the 40,261 callers experienced an adverse outcome. Self-care/non-urgent assessment was recommended for 60%, with a small but non-negligible (1.3%) risk of subsequent deterioration. Triage achieved 74.2% sensitivity (95% CI: 71.6 to 76.6%), and 61.5% specificity (61% to 62%) for the primary outcome. Multivariable analysis suggested some co-morbidities (e.g. respiratory disease) may be over-estimated, and others (e.g. diabetes) underestimated, as predictors of deterioration.

Repeat contact with services appears to be an important under recognised predictor of adverse outcomes with 2 contacts (OR 1.77 95% CI: 1.14 to 2.75) and 3+ contacts (OR 4.02 95% CI: 1.68 to 9.65) associated with clinical deterioration when not provided with an ambulance/urgent clinical assessment.

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Abstract 798 Figure 1 STROBE flow diagram of study population selection

Abstract 798 Table 1 Performance of binary NHS 111 triage (ambulance or urgent assessment 4 hours or less) for composite outcome (death or organ support)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>No Adverse</th>
<th>Adverse</th>
<th>N=40,261</th>
<th>Adverse Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulance/urgent assessment</td>
<td>890</td>
<td>15,035</td>
<td>Sensitivity 74.2% (71.6-76.6%)</td>
<td></td>
</tr>
<tr>
<td>Self-care/non-urgent assessment</td>
<td>310</td>
<td>24,025</td>
<td>Specificity 67.5% (61% - 62%)</td>
<td></td>
</tr>
</tbody>
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