



Title Evaluation of Triage Methods Used to Select Patients with Suspected Pandemic Influenza for Hospital Admission: Cohort Study

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Aim

To use the initial waves of the 2009 H1N1 pandemic to evaluate existing triage methods in patients presenting with suspected pandemic influenza (PI), and to determine whether an improved triage method could be developed.

Conclusions and results

Data were collected and analyzed from 481 cases across 3 hospitals. Most of the cases were children, with 347 of 481 (72%) aged 16 years or less. There were 5 poor outcomes: 2 deaths and 3 survivors who required respiratory support. The 5 patients with poor outcomes had CURB-65 scores of 0, 1 (3 cases), and 2, and PMEWS scores of 1, 5, 6, 7, and 8. The swine flu hospital pathway was positive in 3 of 5 cases. The C-statistic for each method was CURB-65 0.78 (95% confidence interval [CI] 0.58 to 0.99), PMEWS 0.77 (95% CI 0.55 to 0.99), and the swine flu hospital pathway 0.70 (95% CI 0.45 to 0.96). Patients with a higher CURB-65 score were more likely to be admitted ($p < 0.001$): 25 out of 101 (25%) with a score of 0; 11 of 24 (46%) with a score of 1; 7 of 8 (88%) with a score of 2; and the patient with a score of 3 were admitted. Admitted patients had a higher mean PMEWS score (4.6 vs 2.0, $p < 0.001$). The C-statistics for CURB-65, PMEWS and the swine flu hospital pathway in adults in terms of discriminating between those admitted and discharged were 0.65 (95% CI 0.54 to 0.76), 0.76 (95% CI 0.66 to 0.86), and 0.62 (95% CI 0.51 to 0.72) respectively. Concerns were raised about the use of existing triage methods for patients with suspected PI, as these methods may fail to discriminate between patients who will have an adverse outcome and those with a benign course. Clinicians in the study did not generally appear to admit or discharge on the basis of these methods, despite their recommended use. Further research is required to evaluate existing triage methods and develop new triage tools for suspected PI.

Recommendations

See Executive Summary link www.hta.ac.uk/2225.

Methods

We undertook a prospective cohort study of patients with suspected PI presenting to the emergency department (ED) of 4 hospitals during the second wave of the 2009 H1N1 pandemic. ED staff identified patients with suspected PI and completed a standardized assessment form that included the elements of the CURB-65 score, PMEWS, the swine flu hospital pathway, and other measures. Outcome assessment was based on researcher review of hospital computer records and case notes. Patients who died or required respiratory, cardiovascular, or renal support during the 30-day follow-up were defined as having a poor outcome. Patients who survived to 30 days without requiring respiratory, cardiovascular, or renal support were defined as having a good outcome. We recorded whether they were treated with antiviral agents or antibiotics, and the length and location of any hospital stay. We planned to assess CURB-65, PMEWS and the swine flu clinical pathway by calculating the area under the receiver-operator characteristic curve (C-statistic) for discriminating between cases with and without a poor outcome. We also planned to use multi-variable logistic regression to determine the independent predictive value of presenting clinical characteristics and routine tests and to develop two new triage scores: one based on initial assessment only and the other based on all ED data.

Further research/reviews required

Further research is required to: evaluate existing triage tools and develop new triage methods for suspected PI; and to determine the feasibility and acceptability to patients of undertaking research during a pandemic using confidential patient information without consent.