A pragmatic triage system to reduce length of stay in medical emergency admission: feasibility study and health economic analysis

Record Status
This is an economic evaluation that meets the criteria for inclusion on NHS EED.

CRD summary
This study aimed to assess whether triage-driven care could speed up treatment and discharge, and make financial savings, for patients who were admitted to an Acute Medical Unit (AMU) at a very low risk of death. The authors concluded that triage-driven care, with a Navigator in the AMU, shortened hospital stay and reduced costs. The study methods and reporting were generally appropriate, but the cost reporting was limited. The authors' conclusions appear to be reasonable.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The aim was to assess whether triage-driven care could speed up treatment and discharge, and make financial savings, for patients who were admitted to an Acute Medical Unit (AMU), with a very low risk of death.

Interventions
Triage-driven care was compared with usual care. With usual care, patients who were admitted to the AMU by general practitioners or emergency physicians, were assessed by a junior doctor, who reviewed the patient notes, initiated investigations, and classified the patient using the Simple Clinical Score (SCS) and Clinical Frailty Scale (CFS), before referring them to the senior doctor.

With triage care, the junior doctor was replaced with an advanced practitioner, called a Navigator. The Navigator assessed whether patients who were at very low risk of death, with no frailty issues, could be treated as out-patients on day one, and discharged that day after consultation with a senior doctor. The Navigator could request a specialist opinion without consulting the senior doctor. The Navigator only worked four days a week, for funding reasons, so some patients receiving triage care were triaged by junior doctors, who followed a similar process to the Navigator, but could only refer the patient to a specialist after review by the senior doctor.

Location/setting
Wales/secondary care.

Methods
Analytical approach:
The cost-effectiveness analysis was based on a prospective cohort study. The study had a before-and-after design, comparing six months of intervention with the six months before intervention. The time horizon was six months. No study perspective was stated.

Effectiveness data:
The analysis included all patients admitted to the AMU during the study period, except those with possible cardiac chest pain, who were admitted directly to the Acute Cardiac Unit. The primary clinical outcome was the length of hospital stay, which was corrected for age, gender, time of presentation, SCS and CFS score. Length of stay was censored 50 days after the collection period; any censored data were imputed using a predictive distribution. An analysis of covariance (ANCOVA) was conducted.

Monetary benefit and utility valuations:
Not relevant.
Measure of benefit:
The principal measure of benefit was length of hospital stay.

Cost data:
The cost data were from the prospective cohort study, with retrospective control. The cost of the Navigator was the difference in staff costs, with the intervention, compared with control. The cost of bed days in the acute and community hospitals, day care centres, intensive care, follow-up appointments in specialist clinics, and key radiological investigations were included. Resource use was monitored by cross-referencing patients admitted to the AMU against admission lists for intensive care, regional intermediate care services, imaging requests (computed tomography or Magnetic Resonance Imaging) and out-patient clinic appointments for all sub-specialties. NHS tariffs were used. All costs were reported in UK £.

Analysis of uncertainty:
Standard deviations and probabilities were reported for the clinical and cost outcomes.

Results
From all risk groups, there were 3,084 patients in the six months before intervention and 3,680 patients after intervention. The overall adjusted mean stay was 10.32 days for before, and 11.06 days for after intervention (p=0.09). Comparing patients seen by the Navigator, with those who were not, the unadjusted and adjusted mean stay was statistically significantly shorter (p<0.001).

There were 1,276 very low risk patients before, and 1,489 after intervention. Their mean stay was 4.8 days before and 2.95 days after intervention (p=0.04). With triage care, patients not seen by the Navigator had a mean stay of 3.21 days, while those seen by the Navigator had a mean stay of 2.51 days (p=0.001).

The total costs for very low-risk patients were lower with triage care, than with usual care. The mean cost per very low risk patient was reduced by £482 (Mann Whitney U Test p<0.05), leading to an overall cost reduction, for very low risk patients, for the intervention period, of £250,158.

Authors' conclusions
The authors concluded that triage-driven care, with a Navigator in the AMU, resulted in shorter hospital stay and saved costs for patients at a very low risk of death.

CRD commentary
Interventions:
The interventions were well described. The cost-effectiveness analysis was based on one clinical study, so it was restricted to the two interventions in that study. The authors noted the existence of other triage procedures.

Effectiveness/benefits:
An ANCOVA was conducted, but it was not clear if the covariates were independent of the intervention group, so the result should be interpreted in the context of the covariates added. Length of stay was used as a proxy for health benefit, but it was not clear how well this captured it. The analysis seems to have been more of a health organisation efficiency analysis than a full economic evaluation.

Costs:
The costs were not reported in detail. The unit costs for each resource category were not reported, nor were the total costs for either of the interventions. It appears that there were significant resource use differences for low-risk patients, but the data were not reported. This makes it difficult to assess the validity of the cost data. The length of hospital stay appeared to be the primary driver of the cost differences, so the authors’ cost findings seem valid. The study perspective was not explicitly stated, but appears to have been that of the UK NHS. The price year was not explicitly stated, which limits generalisability.

Analysis and results:
The methods and effectiveness data were well reported. The analysis was generally clearly reported, but the poor reporting on of the costs limits the assessment of the cost findings. The uncertainty in the clinical and cost outcomes
was evaluated. Since the measure of benefit was at best a proxy for a health outcome, and the focus of the study was more on hospital efficiency than full cost-effectiveness, uncertainty in the cost-effectiveness of triage care was not assessed.

Concluding remarks:
The study methods and reporting were generally appropriate, but the cost reporting was limited. The authors’ conclusions appear to be reasonable.

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