The four hour target to reduce emergency department 'waiting time': a systematic review of clinical outcomes

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CRD summary
The authors concluded that evidence was unclear on the impact of the emergency department completion target on the quality of care in UK emergency departments. This conclusion reflects the limited evidence presented and is likely to be reliable. The authors drew attention to some of the methodological difficulties and confounding factors in this topic area.

Authors' objectives
To evaluate the effects on clinical outcomes of the UK four-hour target for emergency department length of stay.

Searching
The Cochrane Library, MEDLINE, EMBASE and CINAHL were searched without language restrictions. Search dates were from 1937 onward. Search terms were reported. Additional studies were sought by handsearching Emergency Medicine Journal and Health Services Research (2004 to 2009) and by reviewing reference lists of retrieved articles. Conference abstracts from Faculty of Accident and Emergency Medicine (now College of Emergency Medicine) and World Health Organization clinical trials registry were searched. An author was contacted for an unpublished conference abstract.

Study selection
All studies that applied the UK four-hour target (98% of patients discharged or admitted within four hours of arrival) in an emergency department setting and that reported on at least one outcome other than time target were eligible for inclusion. Outcomes had to be measured before and after introduction of the final target in 2004.

Included studies were from the UK NHS setting and presented both hospital-level and NHS aggregated data. Outcomes included emergency department presentations, time to seeing a treating clinician, treatment within one hour, times to paediatric analgesia and X-ray radiograph for hip fracture in older patients, orthopaedic/trauma surgery wait time, number of tests per patient, admissions for less than 24 hours, return visits within seven or 30 days of emergency department attendance and mortality.

Two independent reviewers carried out the study selection. Disagreements were resolved by consensus.

Assessment of study quality
Study quality was assessed using the Cochrane risk of bias tool for randomised controlled trials or the Newcastle-Ottawa Scale for non-randomised studies.

It appeared that two independent reviewers assessed study quality and disagreements were resolved by consensus.

Data extraction
Data were extracted on length of time and percentages and ranges in relation to achieving the outcomes of interest.

The authors did not state how many reviewers carried out data extraction.

Methods of synthesis
A limited narrative synthesis was provided for quantitative studies.

Results of the review
Six controlled before-and-after or time series studies were included (n=not reported). Study quality of these studies appeared to be less than optimal.

There was wide variation among hospital-level data and between hospital-level and NHS aggregate data in terms of the number of emergency presentations and admissions (four studies), time to seeing a treating clinician (two studies) and mortality (two studies). Two studies reported a fall in return visits within seven days (0.1% per month) and within 30 days (2.3%) of emergency department attendance.

Three studies included qualitative data to assess attitudes and beliefs after the introduction of the four hour target (reported in the paper).

**Authors’ conclusions**
Evidence was unclear on the impact of the emergency department completion target on the quality of care in emergency departments in the UK.

**CRD commentary**
The research question was clear. Inclusion criteria were reported and potentially reproducible. The search strategy covered a wide range of data sources. Attempts were made to minimise language and publication biases. The reported review process suggested that efforts to minimise error and bias were applied to study selection and quality assessment, but not data extraction. Appropriate quality assessment tools were used and the scores suggested suboptimal standards. Some study details were presented, but patient and hospital characteristics were not reported and this limited the generalisability of the review findings. Given the clinical heterogeneity, a narrative synthesis was appropriate.

The authors' conclusion reflects the limited evidence presented and is likely to be reliable. The authors drew attention to some of the methodological difficulties and confounding factors in this topic area.

**Implications of the review for practice and research**
**Practice:** The authors stated that countries seeking to emulate the UK NHS emergency department target should proceed cautiously.

**Research:** The authors did not state any implications for research.

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