The role of a rapid assessment zone/pod on reducing overcrowding in emergency departments: a systematic review


CRD summary
This generally well-conducted review concluded that although the results appeared to suggest a positive effect of rapid assessment zone/pod in mitigating emergency department overcrowding, the available evidence to support its implementation was limited and weak. The authors’ conclusions appropriately acknowledge the limitations of the evidence base and seem reliable.

Authors’ objectives
To evaluate the effectiveness of a rapid assessment zones/pods to mitigate emergency department overcrowding.

Searching
EMBASE, MEDLINE, EMB Reviews, Cochrane Central Register of Controlled Trials (CENTRAL), HealthStar, Science Citation Index Expanded, Dissertation Abstracts and ABI/INFORM Global were searched from 1966 to May 2009 for articles in any language. Search terms were reported. A previous systematic review was used to identify studies prior to 2004. Major relevant scientific conferences between October 2004 and May 2009 were handsearched. Clinical trial registries and Google Scholar were searched. Reference lists were screened manually. Primary authors and experts in the field were contacted for unpublished studies.

Study selection
Randomised controlled trials (RCTs), cluster RCTs, controlled trials, cohort studies (prospective or retrospective), interrupted time-series, case-control studies and before-and-after studies of rapid assessment zones/pods to mitigate overcrowding in emergency departments serving adults (17 years or older) were eligible for inclusion. Studies had to report on at least one of the outcomes of length of stay, physician initial assessment and proportion of patients who left without being seen. Studies that used the term fast trac in their titles were excluded. Studies that compared two levels of the same intervention were excluded.

The included studies considered rapid assessment zones/pods/clinics or patient assessment rooms implemented in various ways and functioning from when the emergency department was in gridlock to between the hours of 9am and 11pm versus care without the intervention. The interventions were generally developed by co-opting existing treatment spaces as assessment and treatment areas rather than allowing patients to continuously occupy a stretcher. Intervention durations ranged from one month to 120 days. The studies were conducted in Canada, New Zealand and Saudi Arabia. All studies were single centre.

Pairs of reviewers independently performed full-text study selection. Disagreements were resolved by consensus.

Assessment of study quality
Two reviewers independently assessed study quality using a tool developed by Effective Public Health Practice Project to appraise selection bias, study design, confounders, blinding, data collection and withdrawals and drop-outs. Each criterion was rated as weak, moderate or strong and studies were classified using the same terminology. Disagreements between reviewers were resolved by consensus.

Data extraction
Two reviewers independently extracted data on length of stay, physician initial assessment and proportion of patients who left without being seen and used these data to calculate relative risks (RRs) and mean differences, together with 95% confidence intervals (95% CIs). Study authors were contacted for missing data.

Methods of synthesis
A narrative synthesis was undertaken. Studies were grouped by outcome.
Results of the review
Four studies were included in the review (23,189 participants): one RCT, one controlled trial and two before-and-after studies. Study sample size ranged from 200 to 12,305. One study was rated as moderate quality and three studies were deemed weak quality.

Two studies showed a reduction in length of emergency department stay with intervention. Reductions ranged from a non-significant minus 20 minutes in length of emergency department stay with the RCT (95% CI -47.2 to 7.2) to a statistically significant minus 192 minutes with the before-and-after study (95% CI -211.6 to -172.4).

Three studies showed statistically significant reductions in physician initial assessment with intervention that ranged from a reduction of eight minutes in one RCT (95% CI -13.8 to -2.2) to a reduction of 33 minutes (95% CI -42.3 to -23.6) in one controlled trial.

Two studies showed a reduction in left without being seen with intervention. The reduction was not statistically significant in the RCT (RR 0.93, 95% CI 0.77 to 1.12) but was statistically significant in the before-and-after study (RR 0.68, 95% CI 0.63 to 0.73).

Subgroup analysis in the individual studies showed conflicting results for patients with an acuity score of 5 (one study showed a positive effect and one study showed no effect).

Authors' conclusions
Although the results appeared to suggest a positive effect of rapid assessment zone/pod in mitigating emergency department overcrowding, the available evidence to support its implementation was limited and weak.

CRD commentary
Inclusion criteria for the review were clearly defined. Several relevant databases were searched without language restrictions. Grey literature was searched, which should minimise the risk of publication bias. Attempts were made to reduce error and bias throughout the review. Quality assessment was undertaken using a valid tool that indicated that most studies were of weak methodological quality. There were differences across the studies in terms of how the rapid assessment zones were implemented. The authors noted that the studies differed in populations, settings and study periods and so interpretation of results was difficult. A narrative synthesis seemed appropriate given the variation in studies.

The review was generally well conducted. The authors' conclusions appropriately acknowledge the limitations of the evidence base and seem reliable.

Implications of the review for practice and research
Practice: The authors stated that developing standardised protocols for rapid assessment pods/zones would facilitate their implementation and provide a platform to compare results among centres.

Research: The authors stated that further studies with high quality study methods and standardised outcome reporting were required. Subgroups such as low/high acuity patients needed to be studied. Cost evaluations were needed.

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