A systematic review of emergency department technology-based behavioral health interventions
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CRD summary
This review concluded that computer technologies for addressing health behaviours in emergency departments could be feasible and acceptable. Further research was needed to establish their efficacy for meaningful health outcomes and to overcome barriers to dissemination and sustainability of the interventions. Limited reporting of study results make it difficult to evaluate the reliability of the authors' conclusions.

Authors' objectives
To evaluate the role of computer technologies for addressing health behaviours in emergency departments.

Searching
Fourteen databases were searched including EMBASE, PubMed and PsycINFO from 1990 to February 2011. The search strategy was provided. ClinicalTrials.gov was searched for ongoing studies and investigators contacted for unpublished studies. The bibliographies of all included articles and related review articles were searched for further studies. Articles needed to be in English, Spanish or French.

Study selection
Any studies were eligible for the review if they used computer technology for behavioural screening, interventions and/or referrals for patients presenting to the emergency department. They needed to address high-risk behaviours (as defined by individual study authors). Studies were excluded if they used personnel to deliver the intervention unless the key component of the intervention involved computers.

Most included studies targeted adults, but a small number focused on adolescents. The studies addressed: alcohol or substance abuse; injury; mental health issues; HIV risks; or a variety of behaviours. Most assessed screening for health behaviours but half also assessed interventions and a small number evaluated specialist referral. Comparisons were frequently made with some form of usual care although several studies did not use a comparison group. Most studies were conducted at a single centre with interventions ranging from one minute to 35 minutes where stated. Most of the studies were conducted in the USA. Finally, most addressed the feasibility and acceptability of the screening/intervention rather than patient-related outcomes.

More than one reviewer was involved in study selection for the review with discrepancies referred to a further researcher.

Assessment of study quality
Studies were assessed using a modification of the Downs and Black instrument which uses 27 criteria to judge the quality of reporting, power and internal and external quality of a study. Scores of 19 to 27 out of 27 were deemed to indicate "high quality" studies, scores of 10 to 18 "moderate quality" and scores of 9 or below "low quality".

Two reviewers independently assessed the quality of the studies with disagreements resolved through consensus.

Data extraction
A standardised data form was used to extract data from the studies.

One reviewer extracted the data and a second reviewer checked the data extraction.

Methods of synthesis
Studies were combined in a narrative synthesis.

Results of the review
Twenty studies were included in the review (at least 28,500). Ten of the studies were randomised controlled trials (RCTs), three were of a quasi-experimental design, two were prospective cohort studies and five were cross-sectional in design. Studies scored between 9 and 24 on the quality scale.

Eight studies evaluated alcohol and substance use. Overall, these studies showed acceptability and feasibility and some evidence of efficacy in reducing high-risk alcohol use. Seven studies addressed violence and unintentional injuries of which five focused on intimate partner violence. Overall these studies showed high feasibility and acceptability and few negative consequences. Four studies assessed mental health issues and showed high acceptability and feasibility of screening but limited clinical outcomes. Two further studies (one focusing on a variety of health behaviours and the other on HIV risk) did not assess behaviour change.

Authors’ conclusions
The available evidence suggests that computer technologies for addressing health behaviours in emergency departments were feasible and acceptable. Further research was needed to establish their efficacy for meaningful health outcomes and to overcome barriers to dissemination and sustainability of the interventions.

CRD commentary
This review was based on defined inclusion criteria and was underpinned by a comprehensive search. Studies were quality assessed. More than one reviewer was involved in the processes of study selection, data extraction and quality assessment which helped minimise bias and error in these processes. Study quality was presented by awarding individual studies a single score; this meant that it was not possible to evaluate the possible biases present. Furthermore, the authors did not use the quality assessment results to help assess the reliability of the review results. A narrative synthesis was appropriate given the diversity of the studies. Details of results (including levels of statistical significance) were not presented. Limited reporting in relation to both study quality results and primary study results make it difficult to evaluate the reliability of the authors’ conclusions.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that further research was needed to establish the efficacy of computer technologies for meaningful health outcomes. Further research was needed on approaches to overcoming barriers to dissemination and sustainability of the interventions.

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