The role of organisational and cultural factors in the implementation of system-wide interventions in acute hospitals to improve patient outcomes: protocol for a systematic literature review

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ABSTRACT

Introduction: Little is known about the role of the organisational culture in the success and sustainability of the hospital-wide interventions, and how local culture affects patient outcomes in acute hospitals.

Methods and analysis: A systematic literature review will be conducted to identify organisational factors influencing hospital-wide interventions and patient outcomes. A search of English language articles will be performed in MEDLINE, CINAHL, EMBASE, Web of Science, PsychInfo and Global Health databases using Medical Subject Headings and keywords. Randomised controlled trials, quasi-randomised trials, controlled before and after design studies and interrupted time-series analysis studies will be included. ‘Grey literature’ will be excluded, however peer-reviewed journals that are likely to publish relevant studies (JAMA, BMJ, BJM Quality and Safety, Lancet and New England Journal of Medicine and Implementation Science) will be hand searched for the last 5 years. Two reviewers will independently undertake a title and abstract review using inclusion and exclusion criteria. Studies will be excluded only after discussion between at least two reviewers, who will assess and agree on the inclusion, risk of bias and quality rating of the studies. One author will extract summary descriptive data from these studies; the other author will review this documentation for accuracy and completeness.

Results: It is likely that the studies will be heterogeneous in nature, therefore a narrative synthesis of the findings will be conducted.

Conclusions: We will discuss characteristics of the studies and stratify the results according to the type of hospital-wide interventions, organisational factors associated with them and outcomes measured.

INTRODUCTION

Despite the remarkable advances in healthcare delivery and considerable changes in hospital patient populations and expectations associated with modern medicine, the
fundamental organisation of hospitals has changed little for the 21st century. The system is constructed around the admitting doctor and patient relationship.\(^1\) In acute hospitals, wards are able to manage the day-to-day aspects of a patient’s condition, but the system can fail when the patient’s condition deteriorates and the admitting doctor no longer has the skills and knowledge to neither recognise nor manage the deteriorating patient.\(^1\)–\(^3\) One of the first organization-wide and patient-centred systems known as the Medical Emergency Team (MET) or Rapid Response System (RRS) has been implemented in many hospitals around the world to address this situation.\(^2\) When the criteria that define an at-risk or deteriorating patient are met, a team of clinicians with appropriate skills urgently responds to the patient. However, because of the nature of hospitals, and depending on the existence of necessary infrastructure to provide the continuity of care,\(^4\)\(^5\) the effectiveness of the few implemented hospital-wide interventions, such as an RRS, varies significantly from one health organisation to another.\(^6\) Ultimately, we are interested in determining why interventions such as MET are successful in some settings but not in others. By examining hospital-wide interventions in acute care systems (including non-MET interventions) via this systematic literature review, we hope to shed some light on the problem.

While there is keen interest in how to optimise and implement the system, little is known about the role of organisational culture\(^7\)–\(^10\) in the success and sustainability of the hospital-wide interventions, and how the culture could affect patient outcomes in acute hospitals. Patient safety interventions working at an organisational level that include participative principles, such as the involvement of workers in design and implementation, may provide the greatest hope of improving patient safety.\(^11\)–\(^13\) We note the identification of limitations in the literature such as those identified by Kaplan et al.,\(^14\) including the lack of a practical conceptual model, the lack of clear definitions of contextual factors and the lack of well-specified measures. This protocol details the processes of a systematic literature review that aims to identify the organisational and cultural factors\(^9\)\(^15\) affecting the adoption and success of hospital-wide interventions in acute hospitals, and to assess the effects of those factors on patient outcomes.

### METHODS AND ANALYSIS

#### Search strategy

We will search MEDLINE, CINAHL, EMBASE, Web of Science, PsycINFO and Global Health, using Medical Subject Headings and keywords, from 1946, 1991, 1947, 1954, 1967 and 1910, respectively, to September 2012. The general search strategy is shown in box 1 and the subject heading will be adjusted for each database. We will use multiple terms to identify culture and intervention. The search will be restricted to English language articles (access to translation services is not available for the review), however we note that a recent systematic review of empirical studies on the effect of English-language restriction on systematic reviews found no evidence overall of a systematic bias from the use of language restrictions in systematic review-based meta-analyses in conventional medicine.\(^16\) In addition to searching the specified databases, to check that the database searches have not missed any studies that may be relevant to our review we will hand search the journals, JAMA, BMJ, BMJ Quality and Safety, Lancet and New England Journal of Medicine and Implementation Science, separately published during the last 5 years (from 2007 to 2012). The topic of hospital-wide interventions is broad and complex, and it is possible that relevant articles may be classified differently to the review search terms. The hand search will serve to check that our search criteria are broad enough, and that an extension of the search criteria is not required. These peer-reviewed journals were chosen as the most likely to publish studies that meet the inclusion criteria, in particular, validated patient outcomes. We will also hand search the reference lists of the relevant Cochrane systematic reviews. Two researchers will conduct the hand search; if disagreement about inclusion of a study occurs a third researcher will arbitrate.

#### Study selection and exclusion criteria

Under the review’s inclusion and exclusion criteria, research must focus on a hospital-wide intervention, that is, mere implementation in the operation theatre, a few general units or intensive care unit is not sufficient. Other inclusion criteria include investigating the organisational factors that may affect the implementation. Studies should also provide patient outcome data before and after the hospital-wide intervention. The review will only include interventions in an acute care setting, that is, rehabilitation centres, primary health cares, ambulatory services and psychiatric facilities will be excluded. Other inclusion criteria include that the study report on empirical research, in peer-reviewed, English language and scholarly journals, as well as the abstract and full text are available. The ‘grey literature’ will be excluded.
as it is unlikely to yield study designs that meet inclusion
criteria.

We will not limit our search to randomised controlled
trial studies, since we believe observational studies and
controlled before and after studies—with validated data
about patient outcomes—can provide useful information
to identify the organisational and cultural determinants
of hospital-wide interventions.

References identified in the search will be reviewed for
inclusion by two researchers. Studies will be excluded only
after discussion between at least two reviewers, who will
assess and agree on the inclusion and quality rating of the
studies. The methodological quality of the reported
research will be assessed in accordance with Cochrane
Collaboration guidelines. The quality of the reporting
of the identified studies will be assessed using appropriate
critical appraisal tools, such as CONSORT. Strengthening
the Reporting of Observational Studies in Epidemiology
(STROBE) or Preferred Reporting Items for Systematic
Reviews and Meta-Analyses (PRISMA). All papers
excluded by consensus will be depicted in a document
explaining reason for exclusion. Our review will be con-
ducted according to PRISMA guidelines and literature
selection will be presented in a PRISMA flow chart. The
selection criteria may limit the generalisability of study
findings, however the scope of the search is appropriate to
identify the majority of articles published in the peer-
reviewed literature and meeting the study criteria.

Participants
Participating hospitals may include any acute care facility,
including metropolitan or rural, and private or
public hospitals.

Type of interventions
As noted, we will only include interventions that are
hospital-wide and are associated with patient outcomes
through validated data collected before and after imple-
mentation of the intervention. Also, the organisational
elements of the intervention should have been explained
in the study to make it qualified for our review.

Comparisons
Comparisons may include acute hospitals with similar
nursing–patient ratio, size and region with no
intervention.

Types of outcome measures
Patient outcomes may include death rate, the rate of
adverse events, patient satisfaction and infection rate.

Assessment of risk of bias
Two reviewers will independently assess risk of bias in eli-
gible studies as outlined in the Cochrane Handbook for
Systematic Reviews: selective outcome reporting and
blinding of the research personnel to data collection
and analysis. For any non-randomised trials included in
the review, the authors will assess any selection bias that
may lead to confounding of the outcome. Disagreement
regarding assessment of risk of bias will be resolved
through discussion between two reviewers. If a consensus
is not reached, a third reviewer will be consulted.

Data collection and analysis
Using a standard form created for the review, one author
will extract summary descriptive data from these studies.
The same author will compile a tabular presentation the
study participants and setting, objective, design and
method, type of hospital-wide intervention, organisational/
cultural factors, patient/process outcomes and
findings. The second author will independently review
this documentation for accuracy and completeness.

Strategy for data synthesis
If suitable data are available, a meta-analysis will be com-
pleted; however, it is likely that included studies will be
heterogeneous in nature. Where trial data cannot be
combined, two of the authors will conduct a narrative
synthesis of the findings in accordance with the review
objectives. We will discuss characteristics of the studies
and stratify the results according to the type of hospital-
wide interventions, organisational factors associated with
them and outcomes measured.

Limitations
The review findings will be limited by the number and
quality of studies identified by the search strategy. A
potential limitation is in selection of the search terms.
The concept of a ‘hospital-wide intervention’ is subject
to classification, and it is possible that studies could be
published that would meet our inclusion criteria, but
are not identified by the search engines owing to the
use of alternate terms or categorisation. We have
attempted to ameliorate this with a hand search over the
last 5 years of six prominent general medical journals
that we believe are likely to publish studies relevant to
our review. The hand searching provides an additional
check on the reliability of the search strategy of the elec-
tronic databases and will serve to check that an exten-
sion of the search criteria is not required. By restricting
the search to English language articles we are also
potentially eliminating relevant studies from inclusion in
our review.

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FC, KH and JB revised it for a methodological and clinical content. All authors
critically revised successive drafts of the manuscripts and approved the final
version.

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