



Single or double checking of hospital procedures

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Abstract

- Background:** The Centre for Clinical Effectiveness (CCE) was requested to examine the available evidence regarding single or double checking of details regarding hospital procedures. An independent double check is defined as a check by a second, independent person who should arrive at their own conclusion without verbal or visual clues from the initial decision maker.
- A recently completed CCE report on single or double checking of medications prior to administration concluded that there is some limited evidence to suggest that having two nurses check medication orders before dispensing the medication may significantly reduce the incidence of medical errors. The generalisability of this evidence to a Southern Health population is unclear. The full report can be accessed from the CCE website.¹
- Clinical Question:** In hospital procedures, does double checking by a second, independent person, as compared to single person checking, reduce errors?
- Methods:** We searched The Cochrane Library, including The Cochrane Database of Systematic Reviews, DARE, CENTRAL, HTA and NHS Economic Evaluations in April 2007. We also searched Medline and CINAHL. In addition we reviewed previous reports prepared by the CCE.
- Studies were selected and appraised by one reviewer, in consultation with colleagues, using inclusion, exclusion and appraisal criteria established a priori. Studies comparing single or double checking prior to medication administration were excluded.
- Results:** Our search identified over 4,300 potentially relevant titles. Other than for the checking of medications prior to administration, no systematic reviews or comparative studies were found that compared single checking with independent double checking of a hospital procedure or practice.
- Discussion:** The lack of comparative studies identified in the area of single or independent double checking prior to hospital procedures means we are unable to give a conclusive answer to this question.
- The nature of this topic made the search for evidence very broad and although we reviewed over 4,000 articles we are concerned that some relevant literature may have been missed. When searching databases such as Medline and CINAHL the more specific the question being reviewed, the more confident we can be in our search strategy.
- If there is a particular area of concern in Southern Health, such as transfusion of blood products or sterilisation of equipment, it may be appropriate to develop and research a more specific question.
- Conclusions:** The advantages and disadvantages of single checking compared with independent double checking of details prior to a hospital procedure are unclear. Other than checking of medication prior to administration we found no comparative studies to answer this question.

Background

Correct hospital procedures are vital to ensure the safety and well being of patients. Many systems and methods have been proposed to improve the quality of health care delivery including independent double checking.

The Centre for Clinical Effectiveness (CCE) was requested to examine the available evidence regarding single or double checking of details prior to hospital procedures. An independent double check is defined as a check by a second, independent person who should arrive at their own conclusion without verbal or visual clues from the initial decision maker.

A recently completed CCE report on single or double checking of medications prior to administration was based on a systematic review that included only two studies about single or double checking of medications prior to administration. These were both Australian studies in adult populations. One of these showed a reduction in medication errors with double checking and the other did not. The report concluded that there is some limited evidence to suggest that having two nurses check medication orders before dispensing the medication may significantly reduce the incidence of medical errors. The generalisability of this evidence to a Southern Health population is unclear. The full report can be accessed from the CCE website.¹

Clinical Question

In hospital procedures, does double checking by a second, independent person, as compared to single person checking, reduce errors?

Methods

Study Selection Criteria

Inclusion criteria

Patient/Population	All hospital patients and procedures
Intervention	Double checking procedures by a second, independent person
Comparison	Single checking procedures
Outcomes	Any
Study Type	Any comparative study
Publication Date	1980 to present
Language	English

Exclusion criteria

- Studies based on computer modelling
- Double checking in community based facilities
- Double checking of pharmacists' dispensing
- Double checking prior to medication administration
- Verification of procedures or processes after a treatment decision has been made

Search Strategy

Evidence Source	Date of Search
All EBM (Ovid) (including The Cochrane Database of Systematic Reviews, DARE, CENTRAL and ACP Journal Club)	18 th April, 2007
The Cochrane Library HTA database and NHS Economic Evaluation Database	20 th April, 2007
Medline (Ovid)	18 th April, 2007
CINAHL (Ovid)	18 th April, 2007

Search Terms in Medline

Patient	-
Intervention	(check\$ adj3 multiple) OR (check\$ adj3 double) OR (check\$ adj3 cross) OR (check\$ adj3 repeat\$) OR (check\$ adj3 twice) OR (check\$ adj3 second) OR (check\$ adj3 two) OR (check adj3 independent\$)
Comparison	-
Outcomes	-

\$=truncation

adj=adjacency

Data Collection & Analysis

We included all trials published in English between 1980 and April 2007.

We searched The Cochrane Library, including The Cochrane Database of Systematic Reviews, DARE, CENTRAL, HTA and NHS Economic Evaluations. We also searched Medline and CINAHL. In addition we reviewed previous reports produced by the CCE.

Studies were examined by one reviewer, in consultation with colleagues, using study selection and appraisal criteria established a priori.

The search detailed above returned over 4300 articles which were reviewed by title. After the first review, 160 articles remained for further review.

Upon further review of abstract and, where necessary full text, none of the reviewed articles met the inclusion and exclusion criteria.

Results

Though many narrative reviews and guidelines recommend double checking, no systematic reviews or comparative studies were found that compared single checking with independent double checking of a hospital procedure or practice other than those previously found regarding the single or double checking of medication prior to administration.

Discussion

The lack of comparative studies identified in the area of single or independent double checking prior to hospital procedures means we are unable to give a conclusive answer to this question.

The nature of this topic made the search for evidence very broad and although we reviewed over 4,000 articles we are concerned that some relevant literature may have been missed. When searching databases such as Medline and CINAHL the more specific the question being reviewed, the more confident we can be in our search strategy.

If there is a specific area of concern in Southern Health, such as transfusion of blood products or sterilisation of equipment, it may be appropriate to develop and research a more specific question.

Conclusions

The advantages and disadvantages of single checking or independently double checking details prior to a hospital procedure are unclear. Other than the area of single or independently double checking of medication prior to administration we found no comparative studies to answer this question. In the case of single or double checking of medications prior to administration there is some limited evidence to suggest that double checking reduces errors.

References

1. Allen K, Turner T and Harris C. (2006) Single or double checking of medications prior to administration. Evidence Report. The Centre for Clinical Effectiveness, Monash Institute of Health Services Research. Available at: <http://www.mihsr.monash.org/cce/pdf/ers/singleordoublechecking.pdf>

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