Systematic review of adherence to infection control guidelines in dentistry

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Authors' objectives
To determine the knowledge and attitudes of dental health care workers (DHCWs) towards infection control procedures, to examine DHCWs' practice in respect of infection control, and to determine whether a relationship exists between knowledge, attitudes and behaviour.

Searching
MEDLINE, EMBASE, the Science Citation Index and Social Sciences Citation Index (via BIDS), the Cochrane Library, NHS EED, SIGLE and the British Dental Association library were searched for reports in any language. Papers published between 1980 and 1999 were included. In addition, three journals were handsearched, abstracts were retrieved from professional meetings and conferences, and a panel of key researchers in the field were contacted. Sensitive search strategies were also developed from keywords and abstracts of papers identified through the review team's previous work. The search terms were not specified.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials, clinical controlled trials, controlled before-and-after studies, interrupted time series studies, observational studies, surveys and reports of infection control procedure uptake were included.

Specific interventions included in the review
The included studies described a standard of practice which implicitly met the definition of an infection control guideline in dental practice.

Participants included in the review
The participants were DHCWs including: dentists, dental nurses, oral dental surgery assistants, dental hygienists, dental therapists, dental students and dental laboratory workers.

Outcomes assessed in the review
The outcome measures were: glove use, mask use, use of protective eyewear and the changing of these items between patients; the wearing of protective clothing; the sterilisation of instruments and handpieces between patients; the disinfection of surfaces; hepatitis B vaccination of clinical staff; the use of disposable items and waste disposal; the training of staff in the principles of infection control; the knowledge of the dental team regarding blood borne infections; the willingness to treat HIV-infected patients; and an infection control policy in place, an accident book for the recording of occupational injuries in place, and post-exposure protocol for each practice. Both the observed and self-report measures of these outcomes were considered.

How were decisions on the relevance of primary studies made?
All studies which met the predefined criteria were included in the review. Two reviewers independently selected the studies to be included, and any disagreements were resolved by discussion with all review team members.

Assessment of study quality
Validity was assessed using a checklist based on the standard checklist produced by the NHS Centre for Reviews and Dissemination. Two researchers independently performed the quality assessment, and any discrepancies were resolved by discussion.

Data extraction
The data extraction was performed by one reviewer and checked by a second.
Methods of synthesis
How were the studies combined?
A qualitative synthesis was performed, grouped around the following outcomes: knowledge and attitudes; personal protective equipment; immunisation; sterilisation and disinfection; waste disposal; and occupationally-acquired injuries.

How were differences between studies investigated?
Differences between the studies were discussed by the authors but were not assessed statistically.

Results of the review
Only one randomised controlled trial was found that attempted to manipulate compliance.

The authors noted that the quality of the reviewed studies was poor, and that many studies presented research several years prior to the date of publication. Furthermore, the comparison of the studies reviewed and their results must be considered in relation to the guidelines that were in place at the time. The authors state these guidelines are being constantly issued and amended. The data produced indicated that, over the period of the review, there have been substantial improvements with compliance in some areas of infection control in dentistry, e.g. glove wearing. However, there are other areas which remain problematic, namely the effective management of needle-stick injuries.

Authors’ conclusions
‘Considerable improvements need to be made in terms of the quality of the research in this area and the means of assessing compliance with guidelines, if more explicit and reliable answers are to be found to the many questions posed.’

CRD commentary
The review started with a clear question and stated the inclusion criteria. The literature search was relatively comprehensive, although no search terms were given. There were no language restrictions. No attempts were made to locate unpublished studies. Details were given on some aspects of the review methodology, and a quality assessment was performed. A qualitative synthesis was undertaken; this was appropriate given the nature of the data.

The authors’ conclusions appear to follow the narrative presented, but these need to be interpreted with caution given the poor quality of the included studies.

Implications of the review for practice and research
Practice: The authors state that the policing of the implementation of current guidelines requires improvement, by setting up an independent body to deal with practice inspections. Inspection systems must be put in place to monitor and check levels of infection control and adherence to guidelines.

Research: The authors state that more studies with scientific rigour are needed to assess accurately the adherence of dental team members to infection control guidelines.

Funding
NHS Research and Development Programme, UK grant number RDO/90/91.

Bibliographic details

PubMedID
Indexing Status
Subject indexing assigned by NLM

MeSH
Attitude of Health Personnel; Clinical Competence; Dental Auxiliaries; Dental Waste; Dentists; Disinfection; Gloves, Surgical; Guideline Adherence; Health Knowledge, Attitudes, Practice; Humans; Infection Control, Dental /methods /standards; Medical Waste Disposal; Needlestick Injuries /prevention & control; Occupational Diseases /prevention & control; Outcome Assessment (Health Care); Practice Guidelines as Topic; Protective Devices; Research Design; Sample Size; Sterilization; Vaccination

AccessionNumber
12001002840

Date bibliographic record published
28/02/2003

Date abstract record published
28/02/2003

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.