

The Cochrane Collaboration: The Oral Health Group

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Submitted for publication 4/3/02; accepted 4/15/02

To help people make well-informed decisions about health care, it is important that systematic reviews of current best evidence are available. This is of particular importance in dentistry, where many dentists work in relative isolation, with no hope of critically evaluating the thousands of journal articles published each year, nor of verifying the claims of those advocating novel interventions or materials.

carried out by these Collaborative Review Groups (CRGs), who are responsible for preparing and maintaining Cochrane systematic reviews for publication in *The Cochrane Library* and maintaining a Specialized Register of all relevant studies within their scope. One of these CRGs is the Cochrane Oral Health Group.

The Cochrane Collaboration

In 1972 the British epidemiologist Archie Cochrane published an influential book entitled *Effectiveness and Efficiency: Random Reflections on Health Services*.¹ It drew attention to the great collective ignorance within the medical profession about the effects of health care and emphasized the importance of randomized controlled trials (RCTs) in guiding health care decisions.² In response to this criticism, the Cochrane Collaboration was established in 1992 under an NHS Research and Development Programme. It provided funding for a UK Cochrane Center based in Oxford to “facilitate the preparation of systematic reviews of randomised trials of health care.”³ Since then, the Cochrane Collaboration has grown into an international organization with fifteen centers worldwide supporting fifty specialist Collaborative Review Groups (CRGs).

The Cochrane Collaboration aims to help clinicians, researchers, purchasers, and patients make well-informed decisions about health care by preparing, maintaining, and promoting the accessibility of systematic reviews of the effects of health care interventions. The main work of the collaboration is

Cochrane Oral Health Group

The Cochrane Oral Health Group (OHG) was initially set up in New England by Alexia Antczak-Bouckoms in 1994. The group moved to Manchester (UK) in 1996 and secured NHS funding for the editorial base in 1997. The editorial base is situated in the Manchester Dental Education Centre, University Dental Hospital of Manchester under the Coordinating Editorship of Professor William Shaw and Dr. Helen Worthington.

The OHG’s scope is oral health, broadly conceived to include the prevention, treatment, and rehabilitation of oral, dental, and craniofacial diseases and disorders. With the release of Issue 2 in April 2002 of *The Cochrane Library*, the OHG will have published ten reviews and twenty-nine protocols. A full list of registered review topics and their status appears in Table 1.

Sylvia Bickley, Trials Search Coordinator, has been responsible for setting up, developing, and maintaining the OHG’s Specialized Register of controlled clinical trials. The register currently holds more than 11,000 reports of trials (RCTs, Case Controlled Trials) and related references from a wide range of

Table 1. Cochrane Oral Health Group progress**Published Reviews**

Orthodontic treatments for posterior crossbites – *Harrison J, Ashby D*
Interventions for treating oral lichen planus – *Chan ES-Y, Thornhill M, Zakrzewska J*
Interventions for preventing oral mucositis or oral candidiasis for patients with cancer receiving chemotherapy (excluding head and neck cancer) – *Clarkson JE, Worthington HV, Eden OB*
Guided tissue regeneration for periodontal infra-bony defects – *Needleman I, Giedrys-Leeper E, Tucker R, Worthington HV*
Potassium nitrate toothpaste for dentine hypersensitivity – *Poulsen S, Errboe M, Hovgaard O, Worthington HV*
Interventions for the treatment of burning mouth syndrome – *Zakrzewska JM, Glenny AM, Forssell H*
Interventions for treating oral leukoplakia – *Lodi G, Sardella A, Bez C, Demarosi F, Carrasi A*
Interventions for treating oral candidiasis for patients with cancer receiving treatment – *Clarkson JE, Worthington HV, Eden OB*
Interventions for treating oral mucositis for patients with cancer receiving treatment – *Worthington HV, Clarkson JE, Eden OB*
Fluoride gels for preventing dental caries in children and adolescents – *Marinho VCC, Higgins JPT, Sheiham A, Logan S*

Reviews in the Refereeing Process

Pit and fissure sealants for preventing dental decay in the permanent teeth of children and adolescents – *Ahuruo-Saloranta A, Hiiri A, Nordblad A, Mákelá H, Murtomaa H*
Stabilisation splint therapy for temporomandibular pain dysfunction syndrome – *Al-Ani MZ, Gray RJM, Davies SJ, Sloan P*

Published Protocols

Fluoride toothpastes for preventing dental caries in children and adolescents – *Marinho VCC, Higgins JPT, Sheiham A, Logan S*
Fluoride rinses for preventing dental caries in children and adolescents – *Marinho VCC, Higgins JPT, Sheiham A, Logan S*
Fluoride varnishes for preventing dental caries in children and adolescents – *Marinho VCC, Higgins JPT, Sheiham A, Logan S*
Combinations of topical fluorides versus one topical fluoride for preventing dental caries in children and adolescents – *Marinho VCC, Higgins JPT, Sheiham A, Logan S*
One topical fluoride versus another for preventing dental caries in children and adolescents – *Marinho VCC, Higgins JPT, Sheiham A, Logan S*
Topical fluoride for preventing dental caries in children and adolescents – *Marinho VCC, Higgins JPT, Sheiham A, Logan S*
Pit and fissure sealants versus fluoride varnishes for preventing dental decay in children and adolescents – *Ahuruo-Saloranta A, Hiiri A, Nordblad A, Mákelá H, Murtomaa H*
Glues for fixing dental braces onto teeth – *Mandall NA, Mattick CR, Millett DT, Harrison JE, Davies K, Hickman J, Worthington HV*
Interventions for replacing missing teeth with or without osseointegrated implants – *Esposito M, Coulthard P, Worthington HV, Thomsen P*
Interventions for replacing missing teeth: maintaining healthy tissues around dental implants – *Esposito M, Coulthard P, Worthington HV, Thomsen P*
Retention procedures for stabilising tooth position after treatment with orthodontic braces – *Littlewood SJ, Millett DT, Doubleday B, Bearn DR*
Manual versus powered toothbrushing for oral health – *Shaw WC, Walmsley AD, Deery C, Robinson P, Henué M, Deacon S*
Psychotherapy for dental anxiety – *McGoldrick P, de Jongh A, Durham R, Bannister J, Levitt J*
Conscious sedation for dental anxiety – *McGoldrick P, de Jongh A, Durham R, Bannister J, Levitt J*
Hyaluronate for the treatment of temporomandibular joint disorders – *Zongdao S, Awad M*
Pulp treatment for extensive decay in primary teeth – *Nadin G, Glenny AM, Yeung CA, Goel BR*
Feeding interventions for infants with cleft lip, cleft palate or cleft lip and palate – *Glenny AM, Hooper L, Shaw WC, Reilly S, Reid J*
Topical fluoride for treating dental caries – *Oliveria MF, Celeste RK, Rodrigues C*
Orthodontic treatment for children with prominent upper front teeth – *Harrison JE, O'Brien KD, Worthington HV, Bickley SR, Scholey JM, Shaw WC*
Orthodontic treatment for children with prominent lower front teeth – *Harrison JE, Shaw WC, Worthington HV, Bickley SR, Scholey JM, O'Brien KD*
Orthodontic treatment for crowded teeth in children – *Harrison JE, Scholey JM, Worthington HV, Bickley SR, O'Brien KD, Shaw WC*
Ceramic inlays for restoring teeth – *Hayashi M, Yeung CA*
Interventions for replacing missing teeth: hyperbaric oxygen therapy for irradiated patients who require dental implants – *Coulthard P, Esposito M, Worthington HV, Jokstad A*
Interventions for replacing missing teeth: bone augmentation techniques for dental implant treatment – *Coulthard P, Esposito M, Worthington HV, Jokstad A*
Interventions for replacing missing teeth: surgical techniques for placing dental implants – *Coulthard P, Esposito M, Worthington HV, Jokstad A*
Interventions for replacing missing teeth: preprosthetic surgery – *Coulthard P, Esposito M, Worthington HV, Jokstad*
Interventions for replacing missing teeth: resin bonded bridges and other restorations for the replacement of adult teeth – *Swift B, Jepson NJA, McColl E, Steele JG, Steen IN*

Continued on next page

Table 1. Cochrane Oral Health Group progress, cont.

Protocols in the Refereeing Process

Sedation for behaviour management in children undergoing dental treatment – *Matharu L et al.*
Interventions for treating asymptomatic lower wisdom teeth in adults – *van der Sanden W et al.*
Tetracycline for treating periodontitis – *Hayes C et al.*
Complete or ultraconservative removal of decay in teeth with primary lesions – *Ricketts D et al.*
Pharmacological interventions for pain in patients with temporomandibular disorders – *Lele S*
Fluorides for the prevention of enamel demineralisation during orthodontic treatment – *Benson P et al.*
Interventions for replacing missing teeth: partial tooth loss – *Jokstad A et al.*
Interventions for replacing missing teeth: complete tooth loss – *Jokstad A et al.*
Anterior repositioning splint for disc displacement with reduction – *Al-Ani MZ et al.*
Home-based interventions for whitening teeth in adults – *Hasson H, Ismail A*
Penicillins for preventing bacterial endocarditis in dentistry – *Oliver R et al.*
Xylitol containing oral products for preventing dental caries – *Hildebrandt G et al.*

Registered Title

Therapeutic trials for recurrent (aphthous) oral ulcers – *Chan ES-Y et al.*
Frequency of scale and polish for oral health – *Clarkson J, Elley K*
Management of orbital blow-out fractures – *Courtney D et al.*
Replacement of amalgam fillings for reactions in the mouth – *Issa Y et al.*
Arthroscopy for temporomandibular joint pain – *Harrison S et al.*
Chlorhexidine for the prevention and management of dental caries – *Ricketts D, Uribe S*
Preparation of teeth for root canal therapy – *Sequeira P et al.*
Interventions for replacing missing teeth: denture chewing surfaces – *Sutton F et al.*
Interventions for replacing missing teeth: different types of dental implant – *Esposito M et al.*
Interventions for treating stomatitis caused by dentures – *Jokstad A et al.*
Wisdom teeth surgery and associated lingual nerve injury – *Coulthard P et al.*
School dental screening for oral health – *Holden L*
Local delivery drugs for chronic periodontitis – *Minchuan L*
Restorations for the management of early childhood caries – *Yengopal J et al.*
Onplant (Implant) reinforced anchorage for patients undergoing orthodontic treatment – *Manara S*
Antibiotic prophylaxis for complications following tooth extraction – *Lodi G*
Adhesives for dental braces b) bands – *Millett D*
Pulp management for caries in permanent teeth – *Miyashita H, Qualtrough A*
Arthrocentesis and lavage for temporomandibular disorders – *Chunlan G*
Interventions for treating ameloblastoma of the jaws – *Zheng JW*
Occlusal adjustment for treating TMJ disorders – *Koh H et al.*
Panoramic radiography for dental screening in the primary dental care setting – *Rushton V et al.*
Interventions for caries management in head & neck cancer patients – *Morrow L*
Interventions for periodontal management in head & neck cancer patients – *Morrow L*
Bone grafting for periodontal intrabony defects – *Aichelmann-Reidy ME et al.*

bibliographical sources including MEDLINE, EMBASE, CINAHL, CANCERLIT, PSYCLIT, and the Cochrane Controlled Trials Register in addition to conference proceedings. The register is continually expanding as a result of ongoing electronic searching and the group's organized program of hand-searching the oral health literature, which also contributes to the Cochrane Collaboration's worldwide hand-searching program coordinated by the New England Cochrane Center, USA. The accumulation of references from all these resources makes the Specialized Register a unique and valuable resource and the best starting point for anyone considering a systematic review within the oral health field.

Process of Conducting a Cochrane Systematic Review

The process of conducting a systematic review involves "locating, appraising, and synthesising evidence from scientific studies in order to provide informative empirical answers to scientific research questions."⁴

The first step in a systematic review is to specify a clearly focused question. For systematic reviews of effectiveness, this question can usually be defined in terms of a

- population
- intervention
- comparison
- outcomes

Those wishing to undertake a Cochrane review will initially register the title of their review, based upon their research question, with the Review Group. At this stage the title will be checked to establish that there is no overlap with any previously registered systematic reviews. The OHG will also ensure that there is more than one reviewer working on any systematic review registered in order to reduce bias. Ideally, a multidisciplinary team will be established to ensure the review encompasses a wide range of perspectives.

Once a title has been registered, the next step for a reviewer is the development of the review protocol. This can often be the most difficult part of the review process. The protocol for a systematic review should be explicit and well documented, providing details on the whole review process, including the background to the work, the objectives of the review, and the methodology to be used. The purpose of the protocol is to limit bias by ensuring that decisions are not made ad hoc. This helps to prevent, for example, the reviewer from preferentially including studies with “favorable” results (either consciously or subconsciously), or numerous analyses being undertaken, but only those with significant results reported.

Reviewers undertaking a Cochrane review are encouraged to attend a protocol workshop. They will also receive assistance from other members of the OHG if required.

Within the protocol, the inclusion and exclusion criteria for selecting studies should be specified. These criteria should relate closely to the question asked, defining further the population, interventions and comparisons, and outcomes of relevance to the review. In addition, the types of study designs that will be included in the review should be specified. For Cochrane reviews the study design will ordinarily be randomized controlled trials, as they offer the least biased evidence when examining the effectiveness of health care interventions.

If a systematic review is to represent a good summary of current evidence on the chosen question, then it must use a comprehensive search strategy, which, again, is clearly defined in the protocol.

Several types of searching might be adopted. For example, electronic databases (such as the Cochrane Controlled Trials Register, Medline, Embase), handsearching of key journals, screening the bibliographies of relevant studies/review articles, contacting experts in the field, or manufacturers/pharmaceuticals. Ideally, the search strategy for a systematic review should aim to identify all published and unpublished data, irrespective of language. There is good evidence that research findings showing statistically significant results are more likely to be submitted and accepted for publication^{5,6} and more likely to be published in English language journals.⁷ By excluding non-English language articles or unpublished studies, the review may overestimate the effects of the treatment. The OHG will try to assist reviewers in obtaining translations of studies and tracking down unpublished data.

The methodology section of a protocol for a Cochrane review should include details of how inclusion/exclusion criteria will be applied, how and what data will be extracted, and how the validity of the included studies will be assessed. Each of these stages is ideally done independently by at least two reviewers, to limit bias. In addition, details of how the data will be synthesized should be presented. Decisions regarding the comparisons to be made, the type of data required and the most appropriate summary of effect for each comparison, and how heterogeneity between studies is to be handled should be stated in the methodology section of the protocol. In addition, consideration needs to be given to the subgroup and sensitivity analyses that are to be undertaken, before any data collection has commenced.

Once a protocol has been completed, it is reviewed by members of the editorial team and external referees. After the referees’ comments have been addressed, the protocol is published on *The Cochrane Library*, where it is open to further comments from all. The reviewers now commence the review, following their protocol. This process usually takes between twelve and eighteen months, with the completed review including a consumer synopsis and implications for both research and practice. The review will be distributed for comments by the editorial team and external referees, as for the protocol, before publication on *The Cochrane Library*. All Cochrane reviews aim to be updated within two years.⁸

The Cochrane Library

The main product of the Cochrane Collaboration is the Cochrane Database of Systematic Reviews that forms part of *The Cochrane Library*, a quarterly electronic publication. *The Cochrane Library* may be purchased on CD-ROM or subscribed to on the Internet directly from the publisher (Update Software).⁹ There are several databases included in *The Cochrane Library*:

- **The Cochrane Database of Systematic Reviews** is a collection of regularly updated systematic reviews of the effects of health care, maintained by the Cochrane Collaboration.
- **The Cochrane Controlled Trials Register (CCTR)** is a bibliographic database of controlled trials which includes references downloaded from MEDLINE, EMBASE, and trials identified as part of the collaboration's international effort to hand-search the world's journals and create an unbiased source of data for systematic reviews.³
- **Database of Abstracts of Reviews of Effectiveness (DARE)** includes structured abstracts of non-Cochrane systematic reviews. The NHS Centre for Reviews and Dissemination in York critically appraises the reviews, prepares the structured abstracts, and maintains the DARE database.
- **Cochrane Review Methodology Database** is a bibliography of articles on the science of research synthesis.
- **Health Technology Assessment Database (HTA)** is compiled by the NHS Centre for Reviews and Dissemination and was formerly part of the Database of Abstracts of Reviews of Effectiveness. This database contains information on health care technology assessments.
- **NHS Economic Evaluation Database (NHS EED)** is a companion to the CRD Database of Abstracts of Reviews of Effectiveness (DARE). It is a register of published economic evaluations of health care interventions.

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The group welcomes all those interested in supporting the work of the group. There are several options for participation—as a principal reviewer, assisting as a co-reviewer, handsearching journals to identify or obtain information on RCTs, or by becoming a member of the panel of peer reviewers or consumers. For further details or an information pack, please refer to the group's website at www.cochrane-oral.man.ac.uk or contact Emma Tavender, Coordinator, Cochrane Oral Health Group, MANDEC, University Dental Hospital of Manchester, Higher Cambridge Street, Manchester M15 6FH; +44-161-275-7818 phone; +44-161-275-7815 fax; emma.tavender@man.ac.uk.

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