

Features Section

Current Products and Practice

Evidence-based Orthodontics: Where do I find the Evidence?

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Original article

Introduction

Evidence-based medicine (EBM) has been defined as the process of 'systematically finding, appraising and using contemporary research as the basis for clinical practice' (Rosenberg and Donald, 1995). This definition can equally be applied to dentistry and, in turn, to orthodontics.

When the term was first coined clinicians were worried that EBM would become 'cookbook' medicine. However, the advocates of EBM acknowledge the fact that good clinicians use both individual clinical expertise together with the best available evidence and that neither alone is enough. Without clinical expertise practice risks becoming dominated by 'evidence', which although excellent as a generalization, may be inapplicable or inappropriate for an individual patient. However, without the current best evidence, clinical practice may be based more on anecdote or tradition, and risks becoming rapidly out of date which surely is not in the best interests of our patients. The best evidence can inform, but can never replace, individual clinical expertise because it is this expertise which decides whether the evidence applies to the individual patient and, if so, how it should be integrated into a clinical decision. The practice of EBM has therefore evolved to mean the integration of individual clinical expertise with the best available evidence from systematic research (Sackett *et al.*, 1996).

There are several defined stages involved in applying the evidence-based approach to clinical practice (Richards and Lawrence, 1995; Rosenberg and Donald, 1995; Sackett and Hayes, 1995). The first is to identify the need for evidence about an individual patient's problem and convert these needs to a clear clinical question derived from it. This question can be related to the diagnosis, prognosis or treatment of a disease, or the side-effects, quality or economics of the care to be provided for a patient. We then need to search the literature for relevant clinical papers which will provide the evidence to answer our question. These papers then need to be evaluated to assess their quality, validity, and clinical usefulness. This process of critical appraisal is crucial because, unfortunately, a large proportion of published research lacks either relevance or sufficient methodological rigour to be reliable enough to answer clinical questions. Following evaluation of the information, clinicians then need to decide how they are going to respond to the evidence. If the evidence is not valid it must be ignored. Alternatively, if the evidence is valid and clinically useful it will either support or contradict our current clinical practice. If it supports us, then we can continue as before, confident that our practice is supported by scientific evidence, rather

than just experience and that our patients are receiving the most appropriate care. However, if it contradicts our current practice we can still choose to ignore it, but preferably, we will look at changing our practice to adapt to the new findings subject of course, to acceptability, availability, and affordability. This process is not static and we must be aware that new evidence is always becoming available so we need to evaluate our performance and update our practices to ensure that we continue to provide the most appropriate care for our patients (Figure 1).

This update will describe ways of finding the evidence and a second one will outline the key questions to be asked when critically appraising the evidence you find.

Asking the Question

Providing we are prepared to admit uncertainty and question our current practice, questions about the most appropriate investigations, treatment, and prognosis for our patients will arise daily. Do I take an OPG for this patient? Will an OPG show me anything more than I can see clinically and will my treatment plan be influenced by what might be shown on it? Do I treat this 10-year-old girl with an 8-mm overjet now or when she is older? Will this teenager with a unilateral crossbite develop TMD later in life? Do the costs (harm, financial, or time) of treating this patient's mild crowding outweigh the benefits? The list goes on.

Finding the Evidence

Having asked questions related to our patients' problems, how and where do we find the evidence to answer them? We can ask a friend or colleague, but do they know any better than us what the answer is, and from what angle are they approaching the problem from? We can refer to papers in our filing cabinet, but how many papers do each of us keep? How old are the papers and why have we kept or copied those ones in the first place? We can then extend our search into the wider world of published information, whether in the form of a textbook or review article found in the library, electronically, via the Internet or by hand-searching key journals.

The Literature

In our rapidly changing world, we are suffering from information overload as we enter the year 2000. Every year over 2 million articles are published in 20,000 biomedical

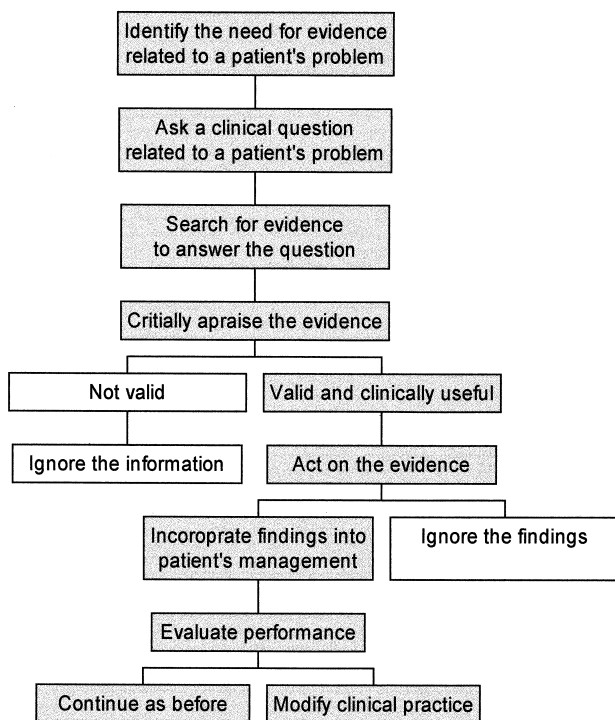


FIG. 1 Process of evidence-based care.

journals of which about 500 are related to dentistry (Richards and Lawrence, 1995). It is impossible for any one clinician to keep on top of all this information. In orthodontics alone there were approximately 320 articles published in 1997 in four of the key English language orthodontic journals (*American Journal of Orthodontics and Dentofacial Orthopedics*, *Angle Orthodontist*, *British Journal of Orthodontics*, *European Journal of Orthodontics*). This equates to orthodontic clinicians needing to have access to, reading, assessing and assimilating the information from more than six papers every week of the year in order to keep abreast of a small part of the current year's literature. These figures only relate to papers contained in four of several English language orthodontic journals and fails to take account of papers published in journals of the areas allied to orthodontics, journals in other languages or studies which remain unpublished. Bias exists as to which studies get published and where they get published (Eastbrook, 1991; Dickersin, 1992) so we have to ask 'Why haven't they got published?' and 'Why have they been published in that journal?' Are unpublished studies less valid or less relevant? Have they been rejected from journals? Do investigators or journal editors think the results are uninteresting? Have the investigators lost interest, run out of the energy required or no longer need to get their work published? Higher impact journals, in dentistry (and medicine) tend to be published in English (Richards, 1998), so does writing a scientific paper in a language which is not the investigators' first language act as a real barrier to publication in these journals? Evidence in the medical literature suggests that there is no difference in the quality of trials reported in non-English language journals (Moher *et al.*, 1996), so should we disregard the results of a study because it is published in French, Spanish or Chinese? Have these

studies been rejected by English language journals? Are the results only applicable to a specific population? Just as bias exist in what gets published and where it gets published, it is likely that bias exists in which studies get read, if only in relation to which journal(s) drop through our letter-boxes corresponding to the orthodontic societies to which we belong.

The need to identify and bring together valid and clinically useful articles from a large number of journals has led to the publication of several evidence-based 'secondary' journals. Surprisingly, these journals are relatively thin journals and are published infrequently. The first of these (*ACP Journal Club*) appeared in 1991. It was followed by Evidence Based Medicine in 1995 and in 1998 Evidence Based Dentistry (E-BD) was published as a supplement to the *British Dental Journal*. These journals aim to screen relevant journals for good, useful evidence on topics applicable to their area of interest. The papers are then critically assessed with respect to methods used, results obtained and whether the conclusions drawn can be supported. E-BD also includes a commentary which places papers in their clinical perspective, highlighting how and where they are relevant to clinical practice and whether practice should continue or change as a result of the findings (Lawrence, 1998).

Text Books and Literature Reviews

Text books and literature reviews often cover a broad range of issues related to a particular subject. They can only be as up to date as their most recent reference and, therefore, go out of date quickly, sometimes even before they are published. Such publications are often written by experts who usually have established their own position on a subject by the time they become experts. Text books and reviews do not usually specify a literature search strategy; rather, papers are selected, assessed, and summarized haphazardly, rather than by using a comprehensive, systematic search strategy, critically appraising all the available evidence and synthesising the data in a quantitative way. Consequently, recommendations contained in text books and traditional reviews may lag behind by more than a decade in endorsing an effective treatment or continuing to advocate a therapy long after it has been shown to be ineffective or even harmful (Antman *et al.*, 1992).

Systematic Reviews

Systematic reviews bring together large amounts of information from as many published and un-published clinical trials as possible and analyse the data in a process called meta-analysis (Mulrow, 1994). Meta-analysis is a method of combining the results from several different studies in order to obtain an over all estimate of the effectiveness of a particular intervention which can then be used by clinicians, researchers, policy makers and patients to make decisions about health care. This relatively new scientific activity has evolved to produce systematic reviews which separate the insignificant, unsound or redundant deadwood in the literature from the salient and critical studies which are worthy of further consideration (Morgan, 1986).

Traditional reviews are often written by experts who express their individual opinion based on data obtained

from haphazardly selected papers, rather than a comprehensive, systematic assessment of all available evidence. For this reason they are potentially biased, prone to error, and possibly unreliable. Systematic reviews are also a retrospective analysis of the literature, but are prepared as methodically and as carefully as a piece of primary research. Initially, a protocol is written that describes which trials will be included and how they will be identified, selected, and evaluated. These reviews may include a meta-analysis of the results of several trials if this is appropriate and the editorial process ensures that they are checked and verified for validity and clinical relevance. Antman *et al.* (1992) explored these differences between traditional and systematic reviews. They compared the recommendations of clinical experts writing review articles and textbook chapters with the results of meta-analyses of randomised controlled trials of treatment for myocardial infarction. They found that there were discrepancies between the results of meta-analyses and the recommendations of expert reviewers. Review articles often failed to mention important advances in effective interventions. In some cases, treatment which had been shown to have no effect on mortality or was potentially harmful continued to be recommended by several clinical experts in reviews and text books.

Electronic Databases

The availability of electronic databases as accessible sources of evidence is increasing rapidly. Searching databases can be quick, but searches need to be planned carefully and take account of how the indexing systems of each database operates so that the sensitivity and specificity of any search can be maximized. Assistance in designing and running an effective search strategy should be available from your local medical librarian. Greenhalgh (1997) provides useful tips, guidelines and worked examples on searching the literature. Dickersin *et al.* (1994) include an optimally sensitive *MEDLINE* search strategy for identifying randomized clinical trials that can be used to identify relevant studies for a systematic review.

There are two types of electronic database. The first sort is bibliographic and lists primary research e.g. *MEDLINE*, *EMBASE*. The second type are databases which take the user directly to primary or secondary publications of relevant clinical evidence, e.g. *Cochrane Database of Systematic Reviews* (see below), *Best Evidence* (Table 1).

The largest and most readily available electronic database is *MEDLINE*. It is produced by the United States National Library of Medicine and contains more than 7 million citations which date back to 1966. It became available to clinical users in the 1980s and since 1997 has been available free of charge on the Internet (see below and Table 1). However, the journals included on the *MEDLINE* database are biased towards English language journals and especially American ones. The European equivalent of *MEDLINE* is *EMBASE*. This database is produced in the Netherlands by Elsevier. It has a strong European content and little overlap with *MEDLINE* in terms of the journals covered. New publications are included on the database more quickly than in *MEDLINE*. Unfortunately, user costs are higher than *MEDLINE* and it is not as widely available (Hunt and McKibbin, 1997).

Searching electronic databases appears to be a very attractive way of tracking down relevant trials, but unfortunately even the most experienced searchers will only identify about half of the available relevant trials on a topic (Dickersin *et al.*, 1994). This is very disappointing especially as most of the missed citations are in fact in the databases. The main reasons why these citations are not picked up lies in the indexing of the literature which is based on descriptors used in the paper—primarily from the title and abstract. Lack of detail in these sections will affect the quality of indexing and ultimately the quality and results of a search. If your specific search term is not contained within the title or abstract of the paper it will not be picked up through an electronic search as synonyms are not recognised as such. One way of increasing the yield from an electronic search is for journals to ask for structured abstracts, where author systematically discloses the objective, design, setting, subject, interventions, outcomes, results and conclusions of a study (Harrison *et al.*, 1996). Structured abstracts are now being used by an increasing number of journals and are one of the recommendations for the CONSORT guidelines (Begg *et al.*, 1996). These guidelines have been adopted by the *British Dental Journal* (Needleman, 1999; *BDJ*, 1999). The *British Journal of Orthodontics* already asks for structured abstracts (Jones, 1998) and will soon be including the full CONSORT guidelines as part of its instructions for authors. With increasing numbers of journals accepting these guidelines, it is hoped that the quality of the yield from searches of electronic databases will improve in the future.

The Internet

There are now several Web Sites which provide access to databases and evidence based publications or organisations. However, 'browsing' the Internet can be frustrating, time-consuming and may fail to locate the specific information you require. Training and practice are required to allow you to make the most of the Internet, navigate it efficiently and increase your yield of relevant information (Glanville *et al.*, 1998). Medline is now available free of charge on the Internet through several suppliers. Some of the suppliers of Medline on the Internet provide more comprehensive and expensive services which include refined search strategies to maximise the number of clinically useful studies identified or access to full text articles (Jadad, 1998). Table 1 provides a list of useful addresses for some of the many Web Sites related to evidence-based health care.

Handsearching

Handsearching journals is probably still the best way of tracing as many relevant articles as possible, but it is tedious and time consuming, so duplication of effort must be avoided.

As part of the work of the *Cochrane Collaboration*, co-ordinated hand searching of journals for clinical trials, systematic reviews and meta-analyses via specialist review groups is being undertaken. A database containing such publications which may be of interest to reviewers of the oral health literature has recently been established by the *Cochrane Collaboration Oral Health Group* (see below).

TABLE 1 *Useful sources of information*

Source	Contents	Availability	Postal Address	Internet Address	E-mail Address
<i>Bandolier</i>	Monthly newsletter summarizing systematic reviews selected to be pertinent and interesting to the whole health care team and covering a wide range of health care interventions. Written in a very user friendly style. Includes notes, worked examples, and worksheets on relevant statistical measures.	Distributed free to NHS employees in England and Wales. Request for copies can be made via regional R&D Directorates. By subscription in Scotland and Northern Ireland and to non-NHS employees.	Hayward Medical Communications, Rosemary House, Lanwades Park, Kentford, Near Newmarket, Suffolk CB8 7PW.	http://www.jr2.ox.ac.uk/Bandolier	bandolier@hayward.co.uk
<i>Best Evidence Database</i>	Abstracts of primary and review articles that have been published in the ACP Journal Club and Evidence-Based Medicine (E-BM). Includes editorials on critical appraisal and clinical application of evidence and a glossary of statistical terms with examples.	By subscription from BMJ Publishing Group. On CD-ROM in some hospital libraries.	BMJ Publishing Group, BMA House, Tavistock Square, London WC1H 9JR.	www.evidence-basedmedicine.com	subscriptions@bmjgroup.com
<i>The Cochrane Library</i>	Collection of databases including the Cochrane Controlled Trials Register (CCTR), Cochrane Database of Systematic Reviews (CDSR), Database of Abstracts of Reviews of Effectiveness (DARE) and Cochrane Review Methods Database (CRMD). All are updated quarterly. The authors of the systematic reviews are responsible for updating their reviews periodically (annually for OHG reviews).	In many hospital libraries or by subscription on CD-ROM or on-line from Update Software.	Update Software, Summertown Pavilion, Middle Way, Summertown, Oxford OX2 7LG.	http://www.cochrane.co.uk	update@cochrane.co.uk info@update.co.uk
<i>Cochrane Collaboration Oral health Group (OHG)</i>	Evidence on oral health related to the prevention, treatment, and rehabilitation of oral, dental, and craniofacial diseases and disorders.	OHG module contained within The Cochrane Library.	Ms Emma Tavender, Review Group Co-ordinator, Cochrane Oral Health Group, The Cochrane Suite, MANDEC, University Dental Hospital of Manchester, Higher Cambridge Street, Manchester M15 6FH.		emma.tavender@man.ac.uk
<i>Effective Health Care</i>	Bulletins which provide reports of systematic reviews. Presented in a readable and accessible style.	Many hospital libraries.	Subscriptions Department, Pearson Professional, PO Box 77, Fourth Avenue, Harlow CM19 5BQ	http://www.york.ac.uk.inst/crd	

<i>Effectiveness Matters</i>	Produced by the NHS CRD (see below). Updates on effectiveness of health care interventions based on high quality reviews. Extensively peer reviewed by subject area experts and practitioners. Presented in a readable, user friendly style.	Many hospital libraries. Relevant reviews distributed to members of interested groups.	NHS Centre for Reviews and Dissemination, University of York, Heslington, York, YO10 5DD.		revdis@york.ac.uk
<i>EMBASE</i>	Electronic bibliographic database of Excerpta Medica. Focuses on pharmacology, but includes other biomedical literature. Better European coverage and more up to date than Medline.	Some university and hospital libraries.	Elsevier Science Customer Services Department, PO Box 211, 1001 AE, Amsterdam, The Netherlands. Elsevier Science Ltd, Marketing Department, The Boulevard, Langford Lane, Kidlington, Oxford, OX5 1GB		nlinfo-f@elsevier.nl cdsubs@elsevier.co.uk
<i>Evidence-Based Dentistry (E-BD)</i>	Bi-annual journal, published as supplement to <i>BDJ</i> , containing abstracts, commentaries, and clinical perspectives on a selection of valid and useful evidence on issues relevant to primary dental care. Includes glossary and worked examples of statistical and related terms.	Most hospital and university libraries. Distributed with <i>BDJ</i> to BDA members. By annual subscription (with <i>BDJ</i>) or purchase as single copy from <i>BDJ</i> Marketing Department.	E-BD BDA, 64 Wimpole Street, London W1M 8AL	http://www.bdj.co.uk	CEBD@bdadentph.demon.uk
			Felicity Davies, <i>BDJ</i> Marketing Department, Stockton Press, Houndmills, Basingstoke, Hampshire, RG21 6XS	www.stockton-press.co.uk	f.davies@stockton-press.co.uk
<i>Evidence-Based Medicine (E-BM)</i>	Bi-monthly journal containing summaries and commentaries on a selection of valid and clinically useful research papers from over 70 biomedical journals. Includes editorials on aspects of E-BM, a glossary and worked examples of statistical terms. Medically orientated.	Most hospital and university libraries. By subscription from BMJ Publishing Group.	BMJ Publishing Group, BMA House, Tavistock Square, London WC1H 9JR.	www.evidence-basedmedicine.com	bmjsubs@dial.pipex.com
<i>MEDLINE</i>	Electronic bibliographic database of entries in <i>Index Medicus</i> . Currently, the most comprehensive health care research database.	Most hospital and university libraries. Free access on-line. Some suppliers charge for more extensive services.		http://igm.nlm.nih.gov/ http://www4.ncbi.nlm.nih.gov/ PubMed/clinical http://www.ovid.com http://php.silverplatter.com/ physicians/php/answer.htm	
<i>NHS Centre for Reviews and Dissemination (CRD)</i>	Produce and commission systematic reviews relevant to the needs of the NHS, (which take into account levels of evidence other than RCTs) the Database of Abstracts of Reviews of Effectiveness (DARE), NHS Economic Evaluations Database and Effectiveness Matters (see above).	Free of charge on-line. DARE included in The Cochrane Library	NHS Centre for Reviews and Dissemination, University of York, Heslington, York, YO10 5DD.	http://www.york.ac.uk/inst/ crd/info.htm (login: crduser password: crduser) http://www.york.ac.uk/inst/crd	revdis@york.ac.uk

Although this database is far from complete, the ultimate aim is that it will contain all randomized and controlled clinical trials, systematic reviews, and meta-analyses relevant to oral health. These will have been identified from searching electronic databases and supplemented by hand-searching the literature (including journals and conference proceedings) relevant to oral health. In time it is hoped that the Cochrane Collaboration databases will become the first port of call for clinicians and researchers when they are looking for the most comprehensive and up to date evidence (Greenhalgh, 1997). Hand-searching journals relevant to oral health (including the *American Journal of Orthodontics and Dentofacial Orthopedics*, *British Journal of Orthodontics* and *European Journal of Orthodontics*) to identify all possible clinical trials, systematic reviews, and meta-analyses is underway. The handsearching for the OHG is performed by (mostly) volunteers who classify each article in their chosen journal from the year of its first publication to the latest volume with a commitment to update the database annually. The articles are classified according to publication type using strict methodological criteria.

To date, there is a paucity of published clinical trials assessing the outcome of orthodontic interventions and materials (Tulloch *et al.*, 1989; Newcombe, 1994; Harrison *et al.*, 1996). This will probably mean that, in the short-term, orthodontists will need to make use of other levels of evidence in their systematic reviews. Where papers reporting other levels of evidence are being searched for it would be worth while co-ordinating searches for articles in different subject areas. This would help to avoid repeating searches of the same journals for each different subject.

The Cochrane Collaboration

Over 25 years ago, Professor Archie Cochrane, a leading advocate of randomised controlled trials, criticised the medical profession for not having organised a critical summary, by speciality or subspecialty, adapted periodically, of all relevant randomised clinical trials (Cochrane, 1972). In response to this criticism the *Cochrane Collaboration* was established in 1992 under a National Health Service Research and Development initiative with the UK centre based in Oxford. The *Cochrane Collaboration* has now grown to be an international organisation with 13 centres established throughout the world. Its aims are to help clinicians, researchers, purchasers and patients make well-informed decisions about healthcare by preparing, maintaining and disseminating systematic reviews of the effects of all aspects of healthcare.

Oral Health Group (OHG)

The Oral Health Group was registered in 1994 and was originally based in the U.S.A., but suffered a set back in 1996 when, due to a tragic accident, the co-ordinating editor was prevented from continuing to lead the group. Reorganization of the group was necessary and this was effected by transferring the editorial base to Manchester with Professor Bill Shaw as co-ordinating editor, assisted by Dr Helen Worthington. Table 2 shows the current output from the Oral Health Group.

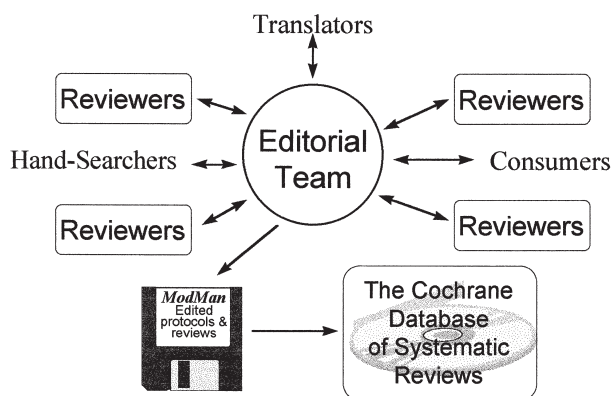


FIG. 2 Cochrane Collaboration Review Group.

Figure 2 shows how the Oral Health Review Group is linked. The editorial team of the Oral Health Group is currently comprised of 6 dentists (including three orthodontists) and a dental statistician supported by a co-ordinator, a trials search co-ordinator, criticisms editor, a team of reviewers, referees, hand searchers, translators, and a consumer representative.

The editorial team is involved at all stages of the instigation, preparation, and submission of the reviews with the protocols, and completed reviews being subject to internal and external open referring. The titles, protocols, and reviews are processed through the editorial office before being forwarded to the New England Cochrane Centre in Boston. These are then held centrally in the Cochrane Database of Systematic Reviews (CDSR) and Controlled Clinical Trials Register (CCTR) which are published quarterly on CD-ROM and 'floppy' discs as The Cochrane Library (Update Software). The advantage of The Cochrane Library being an electronic, rather than paper publication is that the systematic reviews contained in CDSR can be added to as new trials are published and updated in light of the new evidence as it becomes available. Further details about the Oral Health Group of the Cochrane Collaboration can be obtained from Emma Tavender (Review Group Co-ordinator) at the editorial base (see Table 1).

Acknowledgement

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References

- Antman, E. M., Lau, J., Kupelnick, B., Mosteller, F. and Chalmers, T. C. (1992)
A comparison of results of meta-analysis of randomised controlled trials and the recommendations of experts,
Journal of the American Medical Association, **268**, 240–248.
- Begg, C., Cho, M., Eastwood, S., Horton, R., Moher, D., Olkin, I. *et al.* (1996)
Improving the quality of reporting of randomized controlled trials. The CONSORT statement,
Journal of the American Medical Association, **276**, 637–639.

TABLE 2 Current status of Oral Health Group reviews, protocols, and titles

Review Title	Reviewers	Current Status
Interventions for treating oral lichen planus OLP	Chan E, Thornhill M, Zakrzewska J	Review on The Cochrane Library
Orthodontic treatments for posterior crossbites	Harrison JE, Ashby, D	Review on The Cochrane Library
Oral care for patients with cancer treated with chemotherapy excluding head and neck cancer	Clarkson J, Worthington HV, Eden O, Sloan P	Protocol on The Cochrane Library
Effectiveness of potassium nitrate-containing toothpaste in treatment of dentine hypersensitivity	Hovgaard O, Poulsen S, Errboe M	Protocol on The Cochrane Library
Topical fluoride for preventing dental caries in children and adolescents	Marinho V, Sheiham A, Logan S, Higgins JPT	Protocol on The Cochrane Library
Comparison of F-varnishes and sealants in caries prevention	Ahuruo-Saloranta A, Hiiri A, Nordblad A, Mäkelä H, Murtomaa H	Protocol out to referees
Guided tissue regeneration for periodontal infrabony defects	Matthews D, Needleman I, Giedrys-Leeper E, Tucker R	Protocol out to referees
Interventions for treating oral leukoplakia	Carrassi A, Sardella A, Lodi G	Protocol out to referees
Osseointegrated oral implants for tooth replacements	Esposito M, Coulhard P, Thomson P	Protocol out to referees
Sealants for caries prevention	Ahuruo-Saloranta A, Hiiri A, Norfblad A, Mäkelä H, Murtomaa H	Protocol out to referees
Adjunctive chlorhexidine use in the prevention of caries	Niederman R	Title registered
Adjunctive chlorhexidine use in the treatment of oral ulceration	Niederman R	Title registered
Adjunctive chlorhexidine use in the treatment of periodontitis	Niederman R	Title registered
Effectiveness of electric toothbrushes	Walmsley D, Niederman R, Shaw W C	Title registered
Efficacy of anti-calculus dentifrices	Gopalakrishnan N.S, Sheiham A	Title registered
Pain control following third molar surgery in the day-care and out-patient setting	Joshi A, Rood P	Title registered
Scale and polish for chronic periodontitis	Elley K, Buries A, Gould L	Title registered
Therapeutic trials for recurrent aphthous oral ulcers	Chan E, Thornhill M, Zakrzewska J	Title registered
Facial growth outcome following surgical repair of cleft lip and palate	Shaw W C	Title being considered by reviewers
Lingual nerve damage during removal of lower third molars: comparison of surgical methods	Joshi A, Coulhard P	Title being considered by reviewers
Retinoid therapy for oral cancer lesions	Thornhill M	Title being considered by reviewers
The effectiveness of early orthodontic treatment	Harrison JE, O'Brien K, Worthington HV, Lennon M A, Williamson P	Title being considered by reviewers

The Oral Health Group's editorial team welcomes the submission of new review titles for approval.

Forms for the registration of new titles can be obtained from: The Co-ordinator of the Oral Health Review Group. See Table 1.

British Dental Journal (1999)

CONSORT guidelines. Checklist for authors submitting reports of randomised controlled trials to the BDJ, *British Dental Journal*, **186**, 258.

Cochrane, A. L. (1972)

Effectiveness and Efficiency. Random Reflections on Health Services, Nuffield Provincial Hospital Trust, London.

Dickersin, K. (1990)

The existence of publication bias and risk factors for its occurrence, *Journal of the American Medical Association*, **263**, 1385–1389.

Dickersin, K., Min, Y-I. and Meinert, C. L. (1992)

Factors influencing publication of research results, *Journal of the American Medical Association*, **267**, 374–378.

Dickersin, K., Scherer, R. and Lefebvre, C. (1994)

Identifying relevant studies for systematic review, *British Medical Journal*, **309**, 1286–1291.

Easterbrook, P. J. (1991)

Publication bias in clinical research, *Lancet*, **337**, 867–872.

Glanville, J., Haines, M. and Auston, I. (1998)

Getting research findings into practice: finding information on clinical practice, *British Medical Journal*, **317**, 200–203.

Greenhalgh, T. (1997)

How to Read a Paper: the Basis of Evidence Based Medicine, BMJ Publishing Group, BMA House, Tavistock Square, London WC1H 9JR.

Harrison, J. E., Ashby, D. and Lennon, M. A. (1996)

An analysis of papers published in the British and European journals of orthodontics, *British Journal of Orthodontics*, **23**, 203–209.

Hunt, D. L. and McKibbin, K. A. (1997)

Locating and appraising systematic reviews, *Annals of Internal Medicine*, **126**, 532–538.

Jadad, A. (1998)

Randomised Controlled Trials, BMJ Books, BMA House, Tavistock Square, London WC1H 9JR.

Jones, M. L. (1998)

Editorial—A new look for 1998, *British Journal of Orthodontics*, **25**, 55–56.

Lawrence, A. (1998)

Welcome to evidence-based dentistry,
Evidence-Based Dentistry, **1**, 2–3.

Moher, D., Fortin, P., Jadad, A. R., et al. (1996)

Completeness of reporting trials published in languages other than English: implications for the conduct and reporting of systematic reviews,

Lancet, **347**, 363–366.

Morgan, P. P. (1986)

Review articles. 2. The literature jungle,
Canadian Medical Association Journal, **134**, 98–99.

Mulrow, C. D. (1994)

Rationale for systematic reviews,
British Medical Journal, **309**, 597–599.

Needleman, I. (1999)

CONSORT,
British Dental Journal, **186**, 207.

Newcombe, R. G. (1994)

Research in orthodontics—a statistical perspective,
British Journal of Orthodontics, **21**, 299–302.

Richards, D. (1998)

Which journal should you read to keep up to date?
Evidence-Based Dentistry, **1**, 22–25.

Richards, D. and Lawrence, A. (1995)

Evidence based dentistry,
British Dental Journal, **179**, 270–273.

Rosenberg, W. C. and Donald, A. (1995)

Evidence based medicine: an approach to clinical problem-solving,
British Medical Journal **310**, 1122–1126.

Sackett, D. L., Rosenberg, W. C., Gray, J. A. M., Haynes, R. B. and Richardson, W. S. (1996)

Evidence based medicine: What it is and what it isn't,
British Medical Journal, **312**, 71–72.

Sackett, D. L. and Haynes, R. B. (1995)

On the need for evidence-based medicine,
Evidence-Based Medicine, **1**, 5–6.

Tulloch, J. F. C., Antczak-Bouckoms, A. A. and Tuncay, O. C. (1989)

A review of clinical research in orthodontics,
American Journal of Orthodontics and Dentofacial Orthopedics, **95**, 499–504.