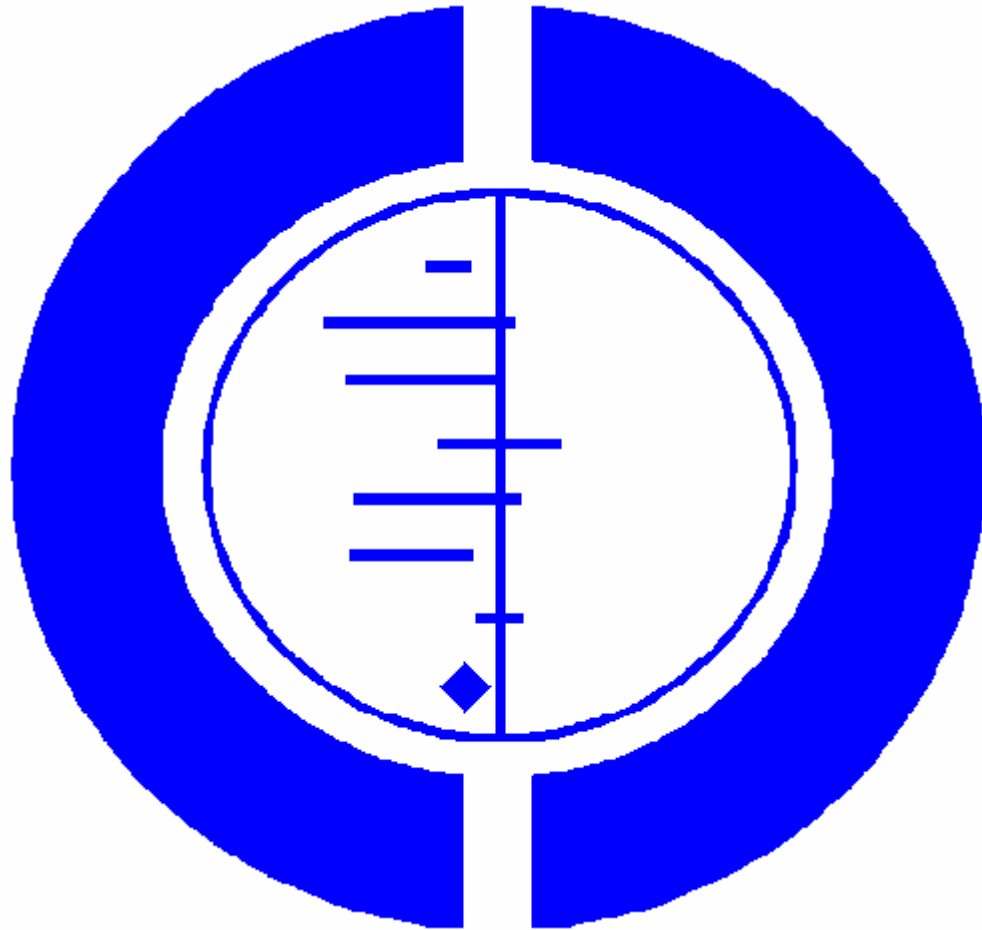


Cochrane Collaboration: Current state and future directions

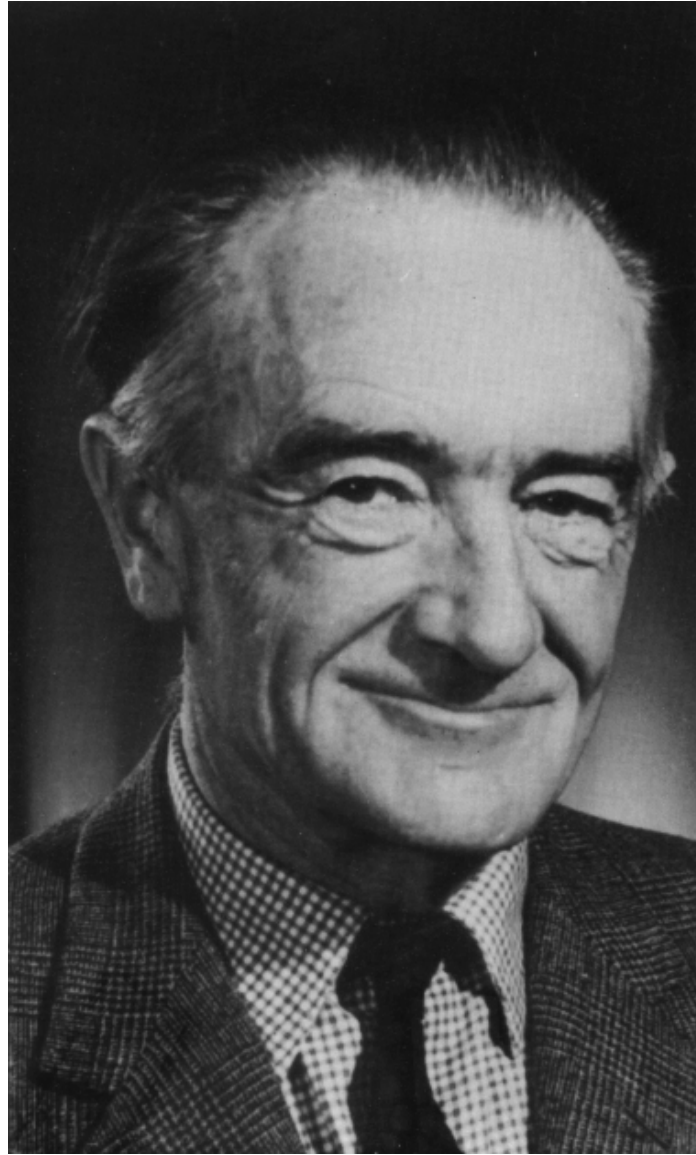
6 March 2003

Mike Clarke

UK Cochrane Centre
and Cochrane Collaboration



The Cochrane Collaboration is an international organisation that aims to help people make well-informed decisions about healthcare by preparing, maintaining and promoting the accessibility of systematic reviews of the effects of healthcare interventions



All effective care must be free!

In 1979, Archie Cochrane criticised the medical profession for not having a system to bring together the results of relevant randomised trials.

A decade later, the potential offered by electronic publishing brought this objective within reach.

Another decade later, the Cochrane Collaboration has gone some way to meeting this objective.

A decade from now: what might the future hold?

“I look forward to such an organisation of the literary records of medicine that a puzzled worker in any part of the world shall in an hour be able to gain the knowledge pertaining to a subject of the experience of every other person in the world.”

Why do we need systematic reviews?

- Overwhelming amount of medical literature
- New health care research is not reported in context
- Reliable evidence is essential for better health care

“Over two million articles are published annually in the biomedical literature in over 20,000 journals - literally a small mountain of information, [a stack] would rise 500 metres.”

Cynthia Mulrow. Systematic Reviews. (1995)

It is not a new idea that
science is cumulative

“If, as is sometimes supposed, science consisted in nothing but the laborious accumulation of facts, it would soon come to a standstill, crushed, as it were, under its own weight....

..... The suggestion of a new idea, or the detection of a law, supersedes much that has previously been a burden on the memory, and by introducing order and coherence facilitates the retention of the remainder in an available form

..... Two processes are thus at work side by side, the reception of new material and the digestion and assimilation of the old

.... One remark, however, should be made. The work which deserves, but I am afraid does not always receive, the most credit is that in which discovery and explanation go hand in hand, in which not only are new facts presented, but their relation to old ones is pointed out.”

Lord Rayleigh (1885)

Do today's researchers point out the relation of new facts to old ones?

1996 CONSORT recommendations state that data from a new randomized trial should be interpreted in the light of “***the totality*** of the available evidence.”

Discussions in RCT reports in *Annals of Internal Medicine*, *BMJ*, *JAMA*, *Lancet*, and *New England Journal of Medicine*

	May '97 n=26	May '01 n=33
First trial addressing the question	1	
Contained an updated systematic review integrating the new results	2	
Discussed a previous review but did not attempt to integrate new results	4	
No apparent systematic attempt to set new results in context of other trials	19	

**Discussions in RCT reports in *Annals of Internal Medicine*, *BMJ*,
JAMA, *Lancet*, and *New England Journal of Medicine*
(Cl Clarke, Alderson & Chalmers. JAMA 2002; 287: 2799-2801)**

	May '97 n=26	May '01 n=33
First trial addressing the question	1	3
Contained an updated systematic review integrating the new results	2	0
Discussed a previous review but did not attempt to integrate new results	4	3
No apparent systematic attempt to set new results in context of other trials	19	27

**As with other types of research,
systematic reviews need to**

- **minimise biases**
- **reduce the effects of chance**

Systematic reviews

- state objectives and eligibility criteria
- identify (all) potentially eligible studies
- apply eligibility criteria
- assemble most complete dataset feasible
- analyse the dataset, using statistical synthesis and sensitivity analyses, *if appropriate and possible*
- prepare a structured report
- *update in the light of new evidence*

Criteria for a good systematic review - conduct

- Is the question clearly focused?
- Is the search for relevant studies thorough?
- Are the inclusion criteria appropriate?
- Is the validity of the included studies adequately assessed?
- Is missing information obtained from trialists?
- How sensitive are the results to changes in the way the review is done?

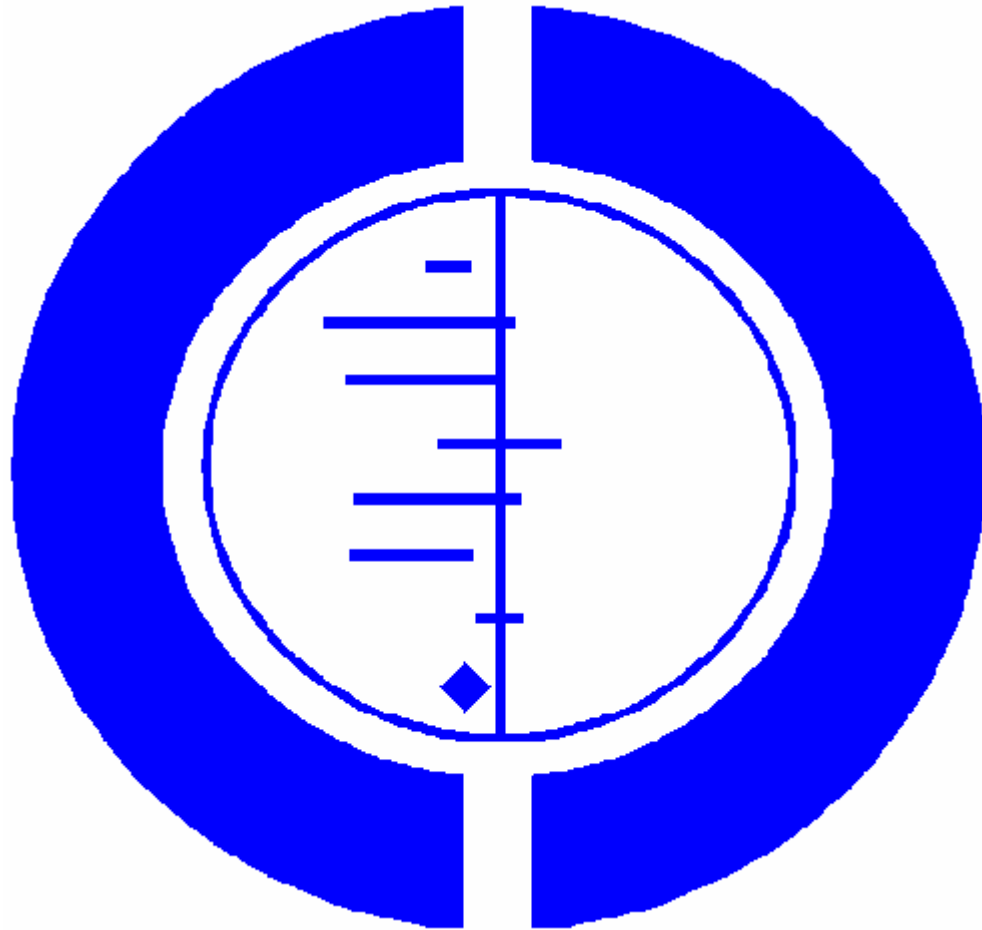
Criteria for a good systematic review - reporting

- Do the conclusions flow from the evidence that is reviewed?
- Are recommendations linked to the strength of the evidence?
- Are judgements about preferences (values) valid?
- Is “evidence of no effect” confused with “no evidence of an effect”?
- Are subgroup analyses interpreted cautiously?

Summary for systematic reviews

Science is cumulative, and the results of scientific research must be cumulated scientifically.

Systematic reviews are one way to do this. The Cochrane Collaboration provides an infrastructure for preparing ***and maintaining*** systematic reviews of healthcare interventions.



The Cochrane Collaboration is an international organisation that aims to help people make well-informed decisions about healthcare by preparing, maintaining and promoting the accessibility of systematic reviews of the effects of healthcare interventions

Principles guiding the evolution of the Cochrane Collaboration

Collaboration

Building on the enthusiasm of individuals

Avoiding duplication

Minimising bias

Keeping up to date

Striving for relevance

Promoting access

Ensuring quality

Ensuring continuity

Enabling wide participation

The principal entities within the Cochrane Collaboration are its **Collaborative Review Groups**, whose members prepare and maintain systematic reviews.

The contributions of other entities - Centres, Methods Groups, and Fields and Networks - are all directed at improving the coverage, quality and accessibility of systematic reviews prepared and maintained by members of Collaborative Review Groups.

Collaborative Review Groups (1)

Acute Respiratory Infection

Airways

Anaesthesia

Back

Breast Cancer

Colorectal Cancer

Consumers and Communication

Cystic Fibrosis and Genetic Disorders

Dementia and Cognitive Impairment

Depression, Anxiety and Neurosis

Developmental, Psychosocial & Learning Problems

Drugs and Alcohol

Collaborative Review Groups (2)

Ear, Nose and Throat Disorders

Effective Practice and Organization of Care

Epilepsy

Eyes and Vision

Fertility Regulation

Gynaecological Cancer

Haematological Malignancy

Heart

Hepato-Biliary

HIV/AIDS

Hypertension

Incontinence

Collaborative Review Groups (3)

Infectious Diseases

Inflammatory Bowel Disease

Injuries

Lung Cancer

Menstrual Disorders and Infertility

Metabolic and Endocrine Disorders

Movement Disorders

Multiple Sclerosis

Musculoskeletal

Musculoskeletal Injuries

Neonatal

Neuromuscular Disease

Collaborative Review Groups (4)

Oral Health

Pain, Palliative and Supportive Care

Peripheral Vascular Diseases

Pregnancy and Childbirth Group

Prostatic Diseases and Urological Cancers

Renal

Schizophrenia

Sexually Transmitted Diseases

Skin

Stroke

Tobacco Addiction

Upper Gastrointestinal and Pancreatic Diseases

Wounds

The Cochrane Library

(Internet and CD-ROM)

Cochrane Database of Systematic Reviews

Cochrane Database of Methodology Reviews

Database of Abstracts of Reviews of Effects

Cochrane Central Register of Controlled Trials

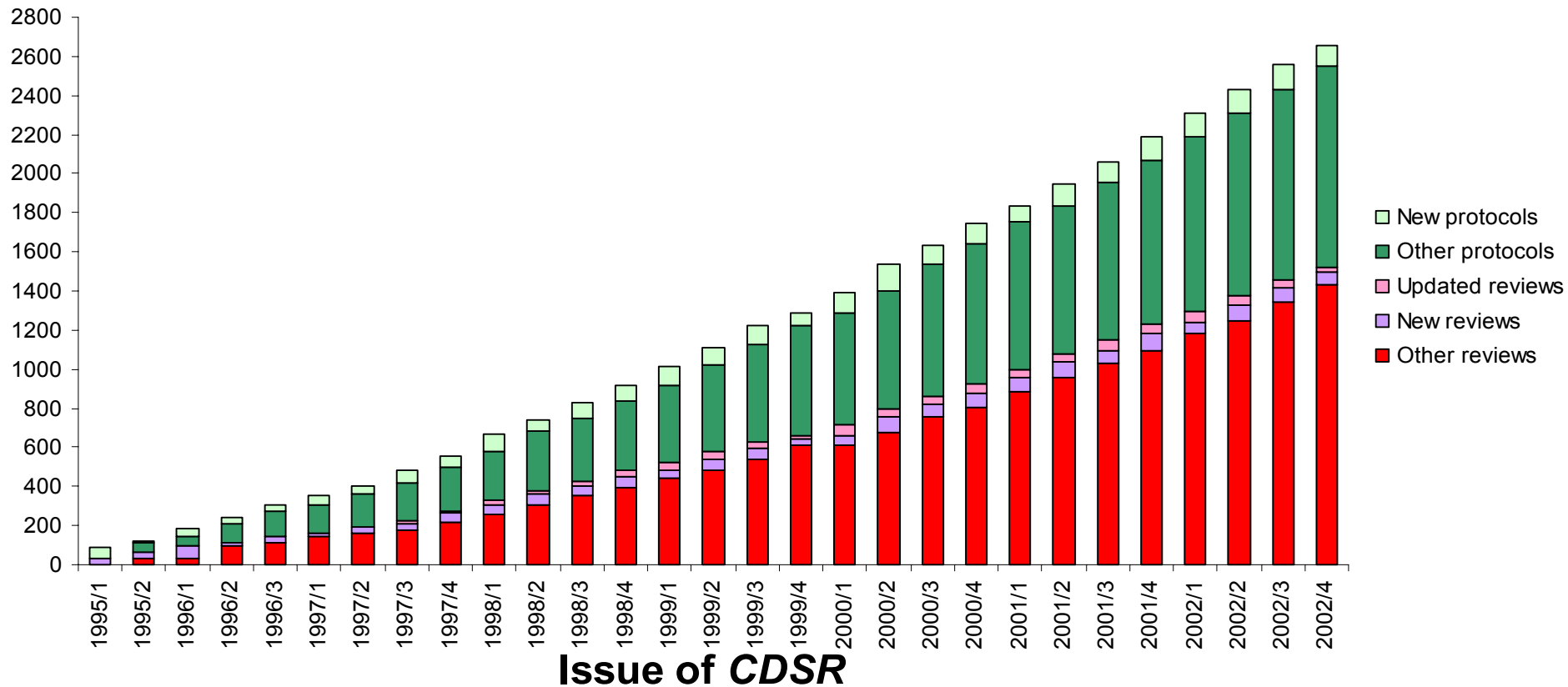
Cochrane Methodology Register

Cochrane Database of Systematic Reviews **Issue 1, 2003**

Contains the full text for

- 1600 Cochrane reviews
- 1200 protocols for Cochrane reviews

Reviews and protocols for reviews in *The Cochrane Database of Systematic Reviews*



Some new reviews in Issue 1, 2003

- Day hospital versus an admission policy for people with acute psychiatric disorders
- Nursing of preterm infants in cots or incubators
- High dose chemotherapy for breast cancer
- Placebo versus open control in drug trials
- Electric versus manual toothbrushes
- Traffic calming initiatives to prevent injuries

How many systematic reviews are needed?

Issue 1, 2001 of *The Cochrane Library* contained 989 full reviews

- with a total of 9778 included studies
- each with an average of 1.1 references

Issue 1, 2001 of *CENTRAL*
contained ~300,000 records

- representing, perhaps, 200,000 studies
- requiring at least 10,000 more reviews of studies relevant to effectiveness of health care **to deal with all the trials done up to then**

Will this be “too many” reviews?

- Will people need to read more than one review?
- Will people need to check many more than one review “hit”?
- Will reviewers be able to keep all these reviews up-to-date?

A decade from now

Systematic reviews

- all important health care questions identified
- reviews identified for each question
- automatic linking of new studies to reviews

Health care pathways

- all decisions identified
- reviews identified for each decision
- automatic linking to updated reviews

Might the future be *smart*?

- Smartcards containing our personal health care information and needs
- Plug-in to update, and to be updated

Good afternoon, Mike

Two things for you today, Thursday 6 March

You are interested in subarachnoid haemorrhage

new

New letters on ISAT trial

You have a dental appointment at 15.20 next Monday

reminder

Cochrane review of toothbrushes

© Tom & Lorcan Clarke

more

Welcome back, Mike

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ISAT trial results

ISRCTN-49866681 *Get it*

Protocol for relevant Cochrane review *Get it*

Endovascular coils better than neurosurgery for treating brain haemorrhage

A randomized trial showed that patients who suffer a brain haemorrhage from a ruptured aneurysm have a significantly better chance of surviving without disability if they are treated through the blood vessels rather than by surgery.

Report in *The Lancet* (26 October 2002). *Get it*

New correspondence (1 March 2003). *Get it*



Cochrane review of different types of toothbrush

Read the synopsis

Read the abstract

Read the review

Read the comments



Systematic review

Heanue M, Deacon SA, Deery C, Robinson PG, Walmsley AD, Worthington HV, Shaw WC. Manual versus powered toothbrushing for oral health (Cochrane Review). In: *The Cochrane Library*, Issue 1, 2003. Oxford: Update Software.

Get it



Abstract

Background

Specific oral bacteria, generically known as "dental plaque" are the primary cause of gingivitis (gum disease) and caries. The removal of dental plaque is thought to play a key role in the maintenance of oral health. There is conflicting evidence for the relative merits of manual and powered toothbrushing in achieving this.

Objectives

To compare manual and powered toothbrushes in relation to the removal of plaque, the health of the gingivae, staining and calculus, dependability, adverse effects and cost.

Search Strategy



Synopsis

Powered toothbrushes with a rotation oscillation action provide slightly better plaque removal and may provide better protection against gum inflammation than manual toothbrushes

Removing dental plaque by toothbrushing with a fluoride toothpaste helps prevent gum inflammation (gingivitis) and tooth decay. The latter may be largely due to the fluoride. Powered toothbrushes simulate manual toothbrushing in different ways (such as moving side to side or circular motions). The review of trials found that only rotation oscillation (where brush heads rotate in one direction and then the other) is better than manual toothbrushes at removing plaque and reducing gum inflammation, and is no more likely to cause injuries to gums. Long term benefits of this for dental health are unclear.



Comments

There are currently no submitted comments in this review.

Check for website comments



“I look forward to such an organisation of the literary records of medicine that a puzzled worker in any part of the world shall in an hour be able to gain the knowledge pertaining to a subject of the experience of every other person in the world”

George Gould, First President of the Medical Libraries Association, USA (May 1898)

“I look forward to a system where everyone making a decision about their own, or someone else’s, health care in any part of the world will, in 15 minutes, be able to obtain up-to-date, reliable evidence of the effects of interventions they might choose, based on all relevant research from anywhere in the world.”

Mike Clarke (March 2003)

More information

www.cochrane.org

www.nelh.nhs.uk/cochrane_gems/archive.asp

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