International Journal of Risk & Safety in Medicine, 4 (1994) 241–244
Elsevier Science B.V.

RISMED 00188

Profile

The Cochrane Collaboration

Making the results of controlled trials properly accessible

Andrew Herxheimer
UK Cochrane Centre, Oxford, UK

(Accepted 14 September 1993)

The Cochrane Centre in Oxford was officially opened in November 1992, and is perhaps the most visible part so far of the recently launched NHS Research and Development Programme. Its task is to facilitate and extend the creation of systematic reviews of randomised controlled trials (RCTs) evaluating health care. It is named after Archie Cochrane (1909–1988), the epidemiologist who first emphasised that reliable information from RCTs, together with other essential information, is vital for making sound decisions in health care and research. Most clinicians and clinical scientists who have tried to review the evidence for a particular procedure or treatment have felt frustrated by the difficulties of finding out what RCTs have been done, and of interpreting their results critically.

The UK Cochrane Centre is just one element of the rapidly evolving Cochrane Collaboration. Together with Cochrane Centres in Denmark, Canada and the United States, and probably also in Australia and Italy, the Cochrane Collaboration will help to assemble and disseminate evidence derived from systematic reviews of RCTs. These differ from traditional reviews in that they are prepared as methodically and as meticulously as a piece of primary research, and they include a detailed description of the way in which the trials were identified, selected and evaluated. Specifically, the Cochrane Collaboration is working to build and maintain a database of systematic, up-to-date reviews of RCTs of health care, and to make them readily accessible through electronic media [1].

How the Cochrane Centres are supporting the Collaboration

The time needed to prepare valid reviews of RCTs tends to be grossly underestimated. Lack of experience and time often force good scientists to produce

Correspondence to: Dr. A. Herxheimer, UK Cochrane Centre, Summertown Pavilion, Middle Way, Oxford, OX2 7LG, UK. Tel.: (+44) 865-516300; Fax: (+44) 865-516311.

SSDI 0924-6479(93)E0009-G

scientifically inadequate reviews. The Cochrane Centres will give practical support to those preparing and updating reviews within the Cochrane Collaboration in several ways.

Systematic reviews of RCTs must be based on as high a proportion of eligible studies as possible. In addition to a register and library of published *reviews* of RCTs, therefore, the newly established Baltimore Cochrane Centre is helping to coordinate the creation of as comprehensive as possible a register of RCTs [2], in collaboration with the US National Institutes of Health. Because bibliographic databases like MEDLINE identify only around 50% of RCTs, selected journals are being searched by hand. Efforts are meanwhile being made to improve the rate of RCT retrieval from bibliographic databases in future. The Register of RCTs will also aim to include references to unpublished, ongoing and planned controlled trials, so that people preparing systematic reviews can consider them.

In addition to containing completed reviews of RCTs, the Cochrane Database of Systematic Reviews will include details of reviews which are being prepared or planned. This information will help participants in the Cochrane Collaboration to avoid unnecessary duplication of effort, and others to know about forthcoming systematic reviews.

The Centres are developing protocols and software to help people preparing systematic reviews, and they collaborate to develop policies and set standards for this work, based when possible on relevant methodological research. For example, every review must include a brief section summarising its implications for practice, so that readers can quickly see whether it has messages relevant to them. It must also include a section on its implications for future research, perhaps suggesting what work is most urgently needed, and what requires no further work. In October 1993 a pilot version of the Cochrane Collaboration Tool Kit became available to participants in the Collaboration, offering detailed help on all aspects of the preparation, presentation and publication of systematic reviews.

Adverse effects and risks

It is helpful if a review attempts to assess the disadvantages and risks of an intervention as well as its benefits. If trials have been designed to look for specific adverse effects, then the findings must clearly be included in the review. If, however, adverse events have been observed incidentally, their weight as evidence is more anecdotal, and much less than that of observations which the study was designed to obtain. To include such incidental observations in a systematic review might falsely imply that they were as reliable as those concerned with the end points specified in the protocol. The asymmetry of the weight of the evidence on the positive and the negative side of the balance sheet is inevitable: knowledge of adverse effects almost always accrues later than evidence of benefit, and tends to be less precise. For now, it may be best to leave individual authors or editors of reviews to decide how to handle the issue, pointing out that it will often fit well under the headings on implications for practice and for research.

Economic evaluations

The economic assessment of interventions in health care may also have to be considered in systematic reviews when clinical trials have included data on economic costs and benefits — whether expressed in monetary or other terms. The Cochrane Collaboration aims to assist the development of methods for systematic evaluation of these aspects.

An editorial system based on collaborative review groups

Those contributing reviews to the Cochrane Database do so as members of collaborative review groups, each coordinated by an editorial team which oversees a group of related reviews. These groups may be problem-based (e.g. breast cancer), intervention-based (e.g. nutrition) or specialty-based (e.g. primary care). Reviewers considering whether to form such a review group can attend workshops to discuss some of the likely implications with already established groups. That responsible for reviewing RCTs in pregnancy and childbirth now maintains about 600 systematic reviews of RCTs, prepared by over 30 reviewers in seven countries; it has to deal with 200–300 new reports of trials every year. The editorial team of this review group consists of four editors, an administrator and a data clerk.

The module of reviews of RCTs in pregnancy and childbirth is being used as the pilot to explore how best to develop a module-based system for building, updating and disseminating the Cochrane Database of Systematic Reviews. It is essential, for example, to make it easy for the reviews to be criticised and amended when necessary. The use of electronic publications, such as the *Online Journal of Current Clinical Trials*, should greatly facilitate interaction between critics, authors and editors of the reviews [3]. As the Cochrane Database will be updated and amended constantly, electronic media offer obvious advantages for disseminating its contents. The complete database will be distributed online and on CD-ROM; specialty databases for particular groups of users will be compiled and then published on disk. The first of these, the Cochrane Pregnancy and Childbirth Database, was published on a single $3\frac{1}{2}''$ disk in June 1993 [4]. It will be updated twice a year. A notable feature of all the reviews on the disk is that the results of trials are displayed graphically as well as in tables.

The up-to-date systematic reviews of RCTs being prepared and maintained by the Cochrane Collaboration can help clinicians to keep their practice up to date and should facilitate the development of soundly based clinical guidelines. Of course, reliable information from sources other than RCTs must also be given due weight in this process, and that will include information on risks and safety. Systematic reviews are also essential for ensuring that the lessons from previous studies are applied in the design of new clinical trials. Because reviews are contributed to the Cochrane Database on the understanding that copyright will not be assigned exclusively to any publisher, all journals, as well as various electronic

media, can play their part in disseminating the results of these reviews, and thus help to ensure that the findings can be widely applied in practice.

References

1 Chalmers I. Electronic publication of continuously updated overviews (meta-analyses) of controlled trials. ISDB Rev 1991;1:15–18.
2 Chalmers I, Dickersin K, Chalmers TC. Getting to grips with Archie Cochrane's agenda. Br Med J 1992;305:786–788.
3 Information for authors and subscribers on the *Online Journal of Current Clinical Trials* is available from the Managing Editor in Washington, DC, fax (202) 842-2868.
4 The Cochrane Collaboration. Pregnancy and Childbirth Database. Details from Cochrane Updates on Disk, Update Software Ltd, Manor Cottage, Little Milton, Oxford OX44 7QB, UK, Tel/Fax: 0844 278887.