The International Cochrane Collaboration

David Pencheon  Institute of Public Health, University of Cambridge, Forvie Site, Cambridge, CB2 2SR, UK

Keywords: Cochrane Collaboration, International Cochrane Collaboration, randomized controlled trials

"Through seeking we may learn and know things better. But as for certain truth, no man hath known it, for all is but a woven web of guesses." [Xenophanes, 6th century BC.]

Introduction

If we are asked how effective mefloquine is in preventing malaria, our response might tell our questioner a lot about how we learn about the world around us, how we assimilate that knowledge and experience, and how it influences our subsequent decision making and action. Thirty years ago, Archie Cochrane drew attention to the haphazard way in which the research evidence about the effects of health care were generated and used. He particularly noted how the evidence from randomized controlled trials was poorly assimilated and used, paying special attention to how better organization of research findings could help us to use resources more rationally. Furthermore, he realized that people who actually want to take more informed decisions about health care rarely have good access to reliable reviews of what is known. He wrote: "It is surely a great criticism of our profession that we have not organised a critical summary, by specialty or subspecialty, adapted periodically, of all relevant randomised controlled trials" (COCHRANE, 1972).

A related response to this challenge was the establishment of the International Cochrane Collaboration, an international group of people that aims to help others make well-informed decisions about the effects of interventions on health, by preparing, maintaining, and ensuring the accessibility of rigorous, explicit, systematic, and up-to-date reviews of the benefits and risks of health care interventions (CHALMERS et al., 1992; CHALMERS, 1993; GODLEE, 1994). As far as possible these reviews contain statistical pooling of the known effects of interventions (from different trials) in the form of meta-analyses (MULROW, 1994).

It is the policy of the International Cochrane Collaboration that the preparation and maintenance of this information follows rigorous and explicit methods. Annual meetings around the world (Cochrane colloquia) are held to debate, iterate and make explicit the methods, criteria and standards that are used in the work of those who contribute to the efforts of the Collaboration.

Not only are the methods of preparing and maintaining the information unique; so are the methods used for disseminating it. Archie Cochrane recognized that the best available evidence was neither accessible nor updated appropriately. Consequently, much of the work of the International Cochrane Collaboration is done electronically. This is essential to the international and timely nature of the endeavour. Although teams work across disciplines, continents and time zones, they are bound by an explicit set of quality criteria as well as by a common ideal of making the best possible evidence available to the greatest number in the most accessible form. Most important, perhaps, is the electronic nature of the dissemination. This is done on floppy and compact disks (and soon on the Internet). The importance of publishing using electronic media is that while, like most other libraries, the Cochrane library is constantly receiving new material (much of which makes current material out of date), unlike most other libraries, out-of-date material in the Cochrane library can be corrected.

The Collaboration is, as the name suggests, a collaboration and therefore is not hierarchical. There are Cochrane centres in Australia, Canada, Germany, Norway, Japan, South Africa, the UK and (numerously) in the USA. Many are accessible via the Internet.

The Cochrane library

The product of the International Cochrane Collaboration is the Cochrane library. This is a collection of databases, published on disk and CD-ROM and updated quarterly, containing the Cochrane database of systematic reviews (CDSR), the Cochrane controlled trials register (CCCTR), the database of abstracts of reviews of effectiveness (DARE), the Cochrane review methodology database (CRMD), and information about the Cochrane Collaboration in the form of a hypertext handbook.

For clinicians and policy makers, the pressure of time increases the appeal of review articles. However, there appears to be a global failure to apply the rigorous criteria of critical appraisal (methods, results, relevance, etc) common to primary research (where the unit of analysis is usually a person) to secondary research (where the unit of analysis is other research). Only when secondary research is systematically sought and explicitly assimilated and pooled can its intended value be realized. This is the prime role of the International Cochrane Collaboration. Concentrating on systematic reviews in which these criteria are rigorously applied to secondary research can help overcome these shortcomings and aid in getting high quality research into practice.

The Cochrane library focuses particularly on systematic reviews of randomized controlled trials (RCTs) because they are likely to provide more reliable information than other sources of evidence about the differential effects of alternative forms of health care. Although the library concentrates mainly on systematic reviews of RCTs, it addresses other types of evidence when this is relevant.

Cochrane reviews

A Cochrane review is a systematic, up-to-date summary of reliable evidence of the benefits and risks of health care. Cochrane reviews are intended to help people make practical decisions. They aim to provide nothing less than the best possible synthesis of existing research on the effects of health care.

An example of a review group to the Cochrane infectious diseases group, which was registered with the Collaboration in 1994 and co-ordinated by Reive Robb and Paul Garner from the Liverpool School of Tropical Medicine (UK). The programme of work from this review group in relation to the Cochrane library includes the following activities. (i) Developing and supporting individuals producing and updating systematic reviews of trials through the Cochrane infectious diseases group. (ii) Supporting production of reviews through Cochrane review groups in reproductive health and other topics relevant to the poor in developing countries.

A Cochrane review has a standard format, dictated by the methodological way in which problems can be addressed. Finding answers to problems can be made systematic, comprehensive and repeatable only when the
problem is clearly understood and stated. These are the
stages of conducting and completing a Cochrane review:
(i) formulating the problem; (ii) locating and selecting
studies; (iii) clinically appraising the studies; (iv)
collecting data; (v) analysing and presenting results; (vi)
interpreting results; and (vii) improving and updating
reviews.

The format of a Cochrane review has several object-
ives. It helps readers to find the results of research
quickly. It also helps anyone assess the validity, applica-
ability and implications of those results. The format is
also suited to electronic publication and updating. Last-
ly, it generates reports that are informative and readable
when viewed on a computer monitor or printed.

Cochrane database of systematic reviews
This database includes the full texts of the regularly
updated systematic reviews of the effects of health care
prepared by the Cochrane Collaboration. The reviews are
presented either as completed reviews which are reg-
ularly updated, or protocols in which the introduction,
objectives, materials and methods for reviews currently
being prepared are laid out.

Database of abstracts of reviews of effectiveness
This is a database of structured abstracts of, and bibli-
ographic references to, systematic reviews of the ef-
fects of health care other than those found on the
CDSR. Its preparation is co-ordinated by the UK Na-
tional Health Service Research and Development Centre
for Reviews and Dissemination at York.

Cochrane controlled trials register
The CCTR is a database of controlled trials in health
care. Cochrane groups and other organizations have
been invited to contribute their specialized registers,
and these registers, together with references to clinical
trials identified on MedlineTM, form the CCTR.

Cochrane review methodology
This is a bibliography of articles and books about
methodological issues relevant to summarizing evidence
of the effects of health care.

Contributors to reviews
Anyone who has the skills and incentive can contrib-
ute to the extensive work needed to assemble a system-
atic review. There are not many such people and not all
wish to commit themselves to the work of the Interna-
tional Cochrane Collaboration.

Access to the Cochrane library
Any good medical library in the world can give advice
on the local availability of the Cochrane library distrib-
uted on floppy and/or compact disks. The library is up-
dated quarterly and is distributed on a subscription
basis. A subscription lasts for one year from receipt of
the order, and consists of 4 quarterly updates. The Co-
chrane Collaboration is a registered charity, and profits
from subscriptions to the Cochrane library are used to
support the work of the Collaboration.

Keeping the Cochrane library up to date
When registering a systemic review with the Co-
chrane Collaboration, reviewers must agree to keep it
up to date, a potentially life-long commitment. Keeping
a review current entails repeating, at periodic intervals,
the steps involved in the original review.

The most logistically demanding aspect of keeping a
review up to date is the identification of new studies.
The most reliable way of doing this is hand searching by
more than one person. The Cochrane Collaboration
has organized extensive hand searching efforts; i.e.,
manually examining each issue of a journal and reading
each title/abstract/body of an article sufficiently to de-
termine whether the article is a randomized controlled
trial, a controlled clinical trial, or a meta-analysis. The
Baltimore Cochrane centre is co-ordinating the devel-
optment of an international register of clinical trials for
the Collaboration.

Users of the Cochrane Library are invited to improve
the material it contains, in particular by using the com-
ments and criticisms system to help those who prepare
and maintain Cochrane reviews. It is a policy of the Col-
laboration that users of Cochrane reviews (including
patients) must be involved in developing reviews to help
ensure that they (i) are targeted at problems that are im-
portant to those affected, (ii) are accessible to people
making decisions, and (iv) adequately reflect variability
in the values and conditions of people.

The future
The future depends on international and interper-
sonal co-operation, the degree to which technology will al-
low more people access to high quality information, and
the willingness of those people to use it. Ideally, differ-
ent decision support systems will offer information
about the economics, ethics, affordability and availabil-
ity of health care which will complement the work of the
International Cochrane Collaboration. This will need to
be carefully managed to respect the confidentiality,
rights, dignity and autonomy of the patients.

So how do we find out about mefloquine? Well, a
MedlineTM search using the MESH headings mefloquine/
and randomized controlled trial gives one hit from
CROFT & GARNER (1997). The search strategy of this
paper tells us that it included 'literature from the Co-
chrane Infectious Disease Group's register of controlled
trials...'.

References

managing, and disseminating systematic reviews of the ef-
fects of health care. Annals of the New York Academy of Scienc-
es, 703, 156–163 (discussion pp. 163–165).

ting to grips with Archie Cochrane's agenda. British Medical
Journal, 305, 786–788.

Reflections on Health Services. London: Nutfield Provincial
Hosaitals Trust.

systematic review of trials. British Medical Journal, 315,
1412–1416.

Godlee, F. (1994). The Cochrane collaboration. British Medi-
cal Journal, 309, 969–970.