Evidence-based reproductive health in developing countries

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Health care priorities are different in developing and developed countries. Yet in many developing countries the allocation of resources for health care as well as health care practices remain modelled after those of developed countries. The result is that in developing countries health care in general, and reproductive health in particular, have suffered from inadequate staffing and inappropriate allocation of resources.

A prerequisite for need- and evidence-based allocation of resources and appropriate health care practices is access to scientifically solid and up-to-date information. The lack of access to sound and current information has even more damaging consequences for health care in that practices of unknown effectiveness, or, in some cases, of practices that are known to be harmful, become entrenched in clinical practice. This places a further burden on the limited resources for health care in developing countries.

Most health workers and policy-makers in developing countries do not have easy access to the latest reliable information on effective care. This is not only because of the high cost and erratic delivery of most subscription journals, but also because few medical journals publish comprehensive systematic reviews on the effectiveness of health care interventions in developing countries. Such information remains scattered in different papers in numerous journals, making it very difficult for health practitioners to get a good overview of all the data available on a given subject.

A variety of problems are caused when clinical practices that are not based on sound scientific evidence find their way into established medical/health care practice. It is generally acknowledged that removing an entrenched practice is much more difficult than introducing a new one. Thus, not only valuable resources continue to be used for practices of unknown effectiveness, but also, research is needed later to evaluate the usefulness of these practices. For example, large trials had to be conducted to show that routine episiotomy is not beneficial. Furthermore, routine electronic fetal monitoring during labour, and routine ultrasound assessment during pregnancy, have not been shown to decrease morbidity and mortality. Yet these two practices are used widely in some developing countries. A more effective resource allocation, complemented by efforts to implement only those practices that are effective should be a priority in order to improve reproductive health services in developing countries.

The WHO Reproductive Health Library (RHL) seeks not only to prevent the introduction of unsubstantiated health care practices into programmes but also to replace the practices that have been demonstrated to be ineffective or harmful with those based on best available evidence. The sections below explain the terms and concepts employed in generating evidence-based knowledge in health care practice.

By presenting these terms and concepts in simplified terms we hope to promote a better understanding and utilization of the data presented in RHL.

SYSTEMATIC REVIEWS

"Where is the knowledge we have lost in information"

T.S. Elliot, The Rock

Each systematic review attempts to answer one clearly formulated health question. It uses rigorous and explicit methods to identify, select, and critically appraise relevant research. The data extracted through this methodology are then analysed using standard statistical methods and presented in the review.

In contrast to the traditional narrative reviews, systematic reviews adhere to a strict scientific design. In the case of Cochrane Reviews the design requires a comprehensive search for all available data in all languages on the topic. This helps to avoid bias in the selection of data to be included in the review. The review methodology is designed to minimize selection bias in order to ensure reliability of the data to be included. Explicit methodology is used to ensure reproducibility of results. As new data become available each Cochrane Review is updated. An important distinction between a systematic review and a traditional narrative review is that the former contains a comprehensive summary of all available information rather than reflecting the views of the author(s). The methodological rigour of a systematic review is achieved by preparation of a review protocol that gives details of how the studies are going to be searched, retrieved and critically appraised before inclusion in the review. It must be remembered that the results of a review will only be robust and conclusive if the trials included are of sufficient quality.

RANDOMIZED CONTROLLED TRIALS

Currently, systematic reviews are based mostly on data from randomized controlled trials (RCT) because these are the most reliable method of assessing the effectiveness of preventive or therapeutic health care interventions. RCTs are experiments in which investigators randomly allocate eligible people or health care units into groups to receive, or not to receive, the intervention(s) being compared. When sample size is adequate, randomization ensures baseline comparability of known and unknown prognostic variables. Outcomes are selected a priori in order to achieve unbiased assessment of the results.

However, the most appropriate research design depends on the health problem or question that one faces. For example, if the objective is to evaluate the accuracy of a diagnostic test, cross-sectional studies of patients suspected of harbouring the disorder are required. Similarly, questions about prognosis can be answered by follow-up studies of patients having the disorder and corresponding controls.

META-ANALYSIS

Meta-analysis is the statistical method used to integrate results from more than one study to produce a summary estimate of the treatment effect across studies (e.g. typical relative risk). It is an application of a statistical technique used in observational studies (case-control studies and cohort studies) during stratified analysis. The difference is that in a meta-analysis in a systematic review of RCTs each stratum is an individual randomized controlled trial. In a stratified analysis of observational studies, on the other hand, a stratum is a category of the variable under consideration (for example age 20 years versus < 20 years). This technique is commonly known by the names of those who developed it for case-control studies (Mantel-Haenszel) although several variations of it also exist. Meta-analysis is only an analytical tool in a systematic review and not all systematic reviews necessarily include a meta-analysis. In the presence of disparities among trials meta-analysis can help by stratifying different characteristics, to identify the sources of such disparities. Meta-analysis is conducted in a systematic review when the review includes more than one trial, although it does not necessarily follow that a summary estimate of the treatment effect is obtained. When there are clinical or biological disparities (heterogeneity) between trials, then using meta-analysis to produce a single summary estimate may be misleading and should be avoided.

Meta-analyses in the Cochrane Reviews can be viewed in the "Summary of analyses" section in the review by double-clicking on the MetaView: Tables and Figures. To view individual tables double-click on the outcome that you are interested in. The results can be viewed as per different parameters, including relative risk, odds ratio, etc. RHL editors recommend that you view the results using relative risk (at 95 % confidence interval) as the summary estimate using a fixed-effects model.

THE RHL CONTRIBUTION TO EVIDENCE-BASED SERVICES

Evidence-based health care means that the policies and practices employed in the prevention and treatment of health care problems are based on principles which have been proven through appropriate scientific methods. However, proving clinical effectiveness of a procedure is not sufficient. It needs to be complimented by evidence of provider and user satisfaction, and feasibility and cost-effectiveness of the procedure in different settings.

The Cochrane Collaboration publishes systematic reviews (Cochrane Reviews) of effectiveness of health care interventions in electronic form in The Cochrane Library. These systematic, up-to-date summaries constitute reliable evidence of the benefits and risks of health care and are intended to help policy-makers and clinicians make sound practical decisions.

RHL aims to provide health care planners and providers in developing countries with the most current and the best available information on reproductive health care.

The expert commentaries on the reviews included in RHL reflect the opinions of the authors of the commentaries on the findings of the reviews and their relevance to developing countries. Each commentary also includes practical advice from the authors on the management of the specific reproductive health problem in resource-poor settings. RHL editors accept that the opinions expressed in the commentaries and the advice presented under "Practical aspects" in the commentaries may not apply to all developing-country settings. Readers who have different views and

experience of handling specific reproductive health problems in developing countries are encouraged to submit their opinions to RHL. RHL editors will give due consideration to publishing such opinions in future issues of RHL.

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