



UNDP/UNFPA/WHO/WORLD BANK  
Special Programme of Research, Development and  
Research Training in Human Reproduction (HRP)

# Knowledge synthesis and transfer: a case-study





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Views expressed in this document are those of the 2003–2007 HRP External Evaluation Team.

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# Executive summary

This case-study on knowledge synthesis and transfer at HRP focuses primarily on *The WHO Reproductive Health Library* (RHL) and HRP's associated work on systematic reviews. The Programme does not have a working definition of the term 'knowledge synthesis and transfer'. For this case-study, 'knowledge synthesis' was defined as the sifting and combining of evidence derived from research to guide clinical decision-making and to assist in the formulation of health policies; 'knowledge transfer' was defined as the dissemination and implementation of that evidence. The terms of reference were to evaluate the systematic reviews, RHL, dossiers for addition of medications to the *WHO List of Essential Medicines*, summaries of evidence for consensus statements and evidence-based guidance.

## Methods

Interviews were held with relevant HRP staff and contributors and users of the products of the Programme. The feedback was used to write the sections on inputs and outcomes and the recommendations. Additional information on HRP's activities was collected by document review and from the Programme's web site.

## Findings

### Inputs

The human resources for all the knowledge synthesis activities, including RHL and the systematic reviews, are one full-time staff member and a full-time administrator. As knowledge synthesis and transfer is a transversal activity of the Department of Reproductive Health and Research (RHR)<sup>1</sup>, most of the other Programme

staff are also involved in these activities.

Quantifying the human resource input is therefore difficult.

Between 2002 and 2007, a total of US\$ 756 931 was spent by HRP on knowledge synthesis. Parallel funding has been provided from partnerships and networks with collaborative groups and nongovernmental agencies.

The main outputs are:

- systematic reviews on practice and interventions in sexual and reproductive health service delivery, which are the building blocks of RHL and other evidence-based guidance from HRP/RHR;
- annual production of RHL, an electronic compilation of best practices in sexual and reproductive health and other information relevant to the management of related services. RHL is published in five languages;
- summaries of evidence and guidelines based on systematic reviews, e.g. applications for inclusion in the *WHO Model List of Essential Medicines*;
- consensus statements on matters of concern to Member States;
- capacity-building through workshops and local support; and
- other outputs, to which HRP contributed, including *Medical eligibility criteria for contraceptive use*, the Implementing Best Practices Knowledge Gateway, policy briefs, provider briefs, fact sheets, the HRP newsletter *Progress* and presentations at scientific meetings.



1. The Department of Reproductive Health and Research (RHR) includes HRP and a component concerned with programmatic work in sexual and reproductive health.



### *Collaborative arrangements*

Partnerships have been established with regional collaborating centres (RHL focal points), predominantly in low- and middle-income countries, to assist with the production of systematic reviews and implementation of RHL. The preparation of systematic reviews is supported by a special collaborative arrangement with the Cochrane Collaboration, an international organization committed to producing high-quality systematic reviews. This arrangement allows publication of full Cochrane reviews in RHL.

### *Cost-effectiveness*

The cost of preparing systematic reviews at HRP is very low, less than US\$ 20 000 per review, which is comparable to that of producing Cochrane reviews. Much of the work of the experts is voluntary.

### *Outcomes and global public goods*

HRP's work on knowledge synthesis and transfer is used as the basis for guidelines and policy changes, within RHR, by professional medical societies and at global, regional and country levels. Other goods produced by HRP are new or improved technologies, new research questions, global dissemination of the evidence summarized and generated and contributions to evidence-based advocacy. Other outcomes include greater uptake of evidence-based practices and commitment by donors and countries to use the evidence.

### *Impact*

The impact of this work on health status, outcomes and services and the MDGs is indirect. The work directly affects access to evidence-based information, knowledge for policy-making and improved service delivery.

## **Conclusions**

### *Successes and strengths*

- The outputs are growing progressively, with a varied range of products and demonstrated effects on evidence-based clinical and policy decisions.
- HRP has the ability to convene large numbers of individuals and organizations, which is an important factor in the cost-effectiveness of the work on knowledge synthesis and transfer.
- The work addresses globally important issues in sexual and reproductive health and is of relevance to low- and middle-income countries.
- The staff at WHO includes experienced, competent researchers who can manage systematic reviews.
- In response to the recommendations of the previous external evaluation, HRP works increasingly by electronic means to improve dissemination. Implementation of the planned dissemination strategies results in efficient use of knowledge products, as demonstrated for *The Lancet Series on Sexual and Reproductive Health and RHL*.

### *Weaknesses*

Limited funding has inevitably meant that the number and timeliness of reviews are not always optimal. The small group working on knowledge synthesis and transfer is involved in an increasing range of activities, such as guideline development and implementation research, in addition to RHL, systematic reviews and capacity-strengthening. It was difficult to assess the impact of these activities in the absence of indicators against which the work could be evaluated. The true costs of the work are unknown.



## Lessons learnt

The provision of evidence-based tools by knowledge synthesis and transfer is a necessary but not sufficient step to bring about change.

The barriers to uptake and implementation are many and should be addressed through strong collaborative links with stakeholder groups at country level. The absence of a commonly agreed working definition of 'knowledge synthesis and transfer' in the Programme made it difficult to establish a comprehensive list of all the products published by HRP during the period of the evaluation.

- Adopt tools such as performance indicators to assist the monitoring and evaluation of the impact of HRP's work on knowledge synthesis and transfer.



## Selected recommendations

- Formulate and adopt a working definition of 'knowledge synthesis and transfer' to guide further activities in this field. Inclusion of knowledge exchange (as a more collaborative and interactive approach between stakeholders and HRP) in the definition should be considered.
- In view of the widening scope and demands of the work, establish an independent advisory committee for setting priorities and oversight of the work of knowledge synthesis and transfer.
- Establish a unit for translational research or knowledge synthesis and transfer within the Department in order to broaden the activities and strengthen transfer.
- Continue to invest in training at national and regional levels by establishing Reproductive Health Library Fellowships, developing a toolkit for training in use of RHL and undertaking an evaluation of all educational activities.
- Strengthen the involvement of HRP in the formulation of evidence-based guidelines for use in low- and middle-income countries.

# Introduction



The focus of this case-study is the work and the achievements related to knowledge synthesis and transfer at HRP. As HRP does not have an established working definition of the term ‘knowledge synthesis and transfer’, for the purposes of this report ‘knowledge synthesis’ was defined as sifting and combining evidence from research to guide clinical decision-making and to assist in the formulation of specific health policies; ‘knowledge transfer’ was defined as the dissemination and implementation of that evidence. These definitions lead from research to practice and correspond well to the scope of the terms of reference of HRP (Annex 1).

HRP is the main instrument in the United Nations system for research in human reproduction. In this role, HRP brings together health-care providers, policy-makers, scientists, clinicians and consumer and community representatives to identify and address priorities for research into improving sexual and reproductive health. Much of the work of HRP can be considered ‘knowledge synthesis and transfer’ and feeds into the work of the rest of the Department of Reproductive Health and Research (RHR). Therefore, the distinction between the outputs that can be credited to HRP on the one hand and to the rest of RHR on the other was often difficult to establish. Furthermore, the scope of the work that HRP is doing in knowledge synthesis and transfer is so wide that it was necessary to set priorities and to be selective in the focus of the evaluation. On the basis of the terms of reference of HRP, this report focuses on the systematic reviews and *The Reproductive Health Library* (RHL) and activities related to those outputs. As other case-studies in this evaluation also document knowledge synthesis and transfer activities, duplication of reporting was avoided, where possible.

Both knowledge synthesis and knowledge transfer are essential components of the normative and research functions of RHR of which HRP is a part. HRP has devoted significant effort to evaluating the results of its own research and that of others in order to provide Member States with the most up-to-date evidence-based guidance. Much of this work is collaborative, between Programme staff and other staff of RHR, as well as other WHO departments and external experts.

The terms of reference of this case-study, to evaluate the knowledge synthesis and transfer work of HRP, included the following:

- systematic reviews on practice and interventions in sexual and reproductive health service delivery;
- annual production of RHL, an electronic compilation of systematic reviews in sexual and reproductive health and other information relevant to the care of women and couples attending sexual and reproductive health services;
- summaries of evidence based on systematic reviews, such as applications for inclusion of reproductive care medicines in the *WHO Model List of Essential Medicines*;
- consensus statements on matters of concern to Member States; and
- evidence-based guidance in all major fields of sexual and reproductive health.

During the evaluation, the reviewer decided to broaden the focus to include the following major activities:

- HRP’s contribution to the *Medical eligibility criteria for contraceptive use*, including the *Selected practice recommendations for contraceptive use*; and

- capacity-building through workshops and local support.

HRP/RHR has a wide range of other knowledge transfer products, for example, the Implementing Best Practices Initiative, policy briefs, provider briefs, fact sheets and the HRP newsletter *Progress in Sexual and Reproductive Health Research*, which are not evaluated in detail in this report. A selected list of HRP publications on knowledge synthesis and transfer is presented in Annex 2.

## Rationale

The HRP mandate includes the following objectives that directly relate to knowledge synthesis and transfer:

- promoting the use of research results in policy-making and planning for sexual and reproductive health care at national and international levels;
- promoting research that will lead to the setting of standards and guidelines, including ethical guidelines, in the field of sexual and reproductive health research; and
- collaborating with countries in enhancing national capacity to conduct sexual and reproductive health research.

Thus, knowledge synthesis and transfer falls within the mandate of HRP of setting norms and standards in research and giving advice to countries, as it provides high-quality, scientifically rigorous evidence for guideline-setters and policy-makers.

### *HRP's comparative advantages*

As highlighted in the previous external evaluation and further demonstrated in this review, the main comparative advantages of HRP in this field are:

- its well-documented power to convene world-renowned experts and organizations;
- its extensive collaborative network within and outside WHO;
- its unique position in collaborating with researchers, policy-makers and implementers; and
- the strong reputation and credibility of its research and guidance.

HRP is highly regarded and, therefore, in the context of knowledge synthesis and transfer, can bring together international organizations as well as methodological and clinical experts who can consider globally important issues in sexual and reproductive health. The staff of WHO include experienced, competent researchers who can lead the production of systematic reviews. In addition, HRP has strong links with the scientists and institutions involved in conducting systematic reviews in particular and evidence-based decision-making in general, which have led to the development of RHL.

### *Relevance to low- and middle-income countries*

Knowledge synthesis and transfer have particular relevance for low- and middle-income countries as they ensure efficient access to research findings from many health-care settings, thus improving health if the evidence is put into practice. RHL focuses mainly on practices relevant to low- and middle-income countries. For example, the editorial board regularly assesses the contents of *The Cochrane Library* for relevance to such countries. RHL focal points include WHO reproductive health advisers at the six WHO regional offices and scientists in more than 20 countries who function as champions for RHL. A list of partners and networks of RHL is given in Annex 3. In addition,





HRP teams and the Scientific and Technical Advisory Group regularly discuss the need for new and updated systematic reviews. As a result of knowledge synthesis, primary research has been initiated in low-income countries. In addition, capacity-strengthening in evidence-based decision-making is a core component of the work.

### *Why is the topic included in the evaluation?*

One of the main chapters in the previous external evaluation (1990–2002) was dedicated to the dissemination, use and impact of the results of HRP research, including a greater focus on translation. The main recommendations included:

- Some of HRP staff's time should be liberated to increase their availability for analysing and publishing research results in a more timely fashion.
- HRP should strengthen efforts to follow up dissemination and use of HRP materials in countries, e.g. by conducting periodic surveys and increasing the involvement of WHO regional and country offices in disseminating the materials.
- Additional emphasis should be given to electronic dissemination.

While the scope of this case-study does not include dissemination, the chapters on findings and conclusions include information that refers to two of the above recommendations.

Knowledge synthesis and transfer are global public goods, as defined for the purpose of this evaluation, since these activities improve the access and uptake of evidence, can change practice and improve health care. While these effects are seen globally, resource-poor countries are expected to gain the most from HRP's

knowledge synthesis and transfer. The use of evidence to improve the provision of health care is also a global public good. A well-developed set of systematic reviews can be accessed easily through RHL and used in various quality-improvement projects such as guidelines development or changing-practice projects. The provision of evidence on sexual and reproductive health is not only crucial because of the high impact burden but particularly because it is a highly sensitive area, and prominent ideological and moral debates complicate a scientifically founded public health approach. In this context, the relevance of generating and making available good-quality evidence of global relevance is of particular importance.

# Methods

The general template for the evaluation was adapted to the requirements of this case-study. To establish evidence on the inputs, outputs, outcomes and impact of the work of HRP, the reviewer visited the HRP offices at WHO, Geneva, and interviewed HRP staff involved in knowledge synthesis and transfer. The staff suggested a list of stakeholders, who were selected because of their input into or their use of RHL in low- and middle-income settings. Experts in knowledge synthesis and transfer were also interviewed to establish how the work of HRP had been translated into changes in practice or policy in their organizations. Suggestions for improvements to the knowledge synthesis and transfer work of HRP were also sought. Eighteen stakeholders were interviewed either in person or by telephone, and this feedback has been incorporated into the document. The reviewer also interviewed relevant staff at HRP (Annex 4 for list of stakeholders interviewed). The feedback from the stakeholders was used to write the sections on inputs, outcomes and particularly the recommendations. A list of relevant documents was provided by HRP staff. The inclusion and exclusion criteria used to quantify the number of publications produced are described below. HRP's web site was used as a further source of information.

Draft versions of this case-study were circulated for comment to the evaluation team, the members of HRP's Scientific and Technical Advisory Group and relevant staff of HRP.

The limitations of this method include:

- the absence of a working definition of 'knowledge synthesis and transfer', resulting in difficulties in classifying products;
- the possibility that the narrow definition of 'knowledge synthesis and transfer' used in this

case-study may mean that some activities have not been fully evaluated;

- difficulty in measuring the outcomes and impacts of the various products due to the absence of predefined indicators;
- inadequate time to evaluate all the products fully, e.g. the quality of the systematic reviews or of guidelines; and
- difficulty in establishing a clear distinction between HRP and RHR activities in this field of work.

## Main outputs

The work of HRP in knowledge synthesis and transfer over the past 10 years has progressively expanded into a wide and varied group of products. The inclusion criteria used to quantify the Programme's publications (see Figure 1 and Table 1) were: documents in which evidence from more than one study was presented, such as systematic reviews of individual studies or overviews, guidelines, practice guides, policy briefs, statements, technical reports,

**Table 1. Knowledge synthesis and transfer documents 1997–October 2007, by publication type**

Publication type	No.
Systematic reviews	106
Cochrane reviews	80
Updated Cochrane reviews	42
Commentaries and editorials	41
Methodological studies	36
Implementation research	4
Guidelines and recommendations	42
Meeting reports, including consensus statements	24
Monitoring and evaluation documents	17
Others	38
<b>Total</b>	<b>430</b>





methodological studies of synthesis and transfer, commentaries and calls to action on translating evidence into practice. Narrative reviews and primary studies were not included. Annex 2 lists selected typical and important knowledge synthesis and transfer activities of HRP, which represent a small portion of the comprehensive list of 383 publications; it aims to give the reader a flavour of and to illustrate the wide range of activities of HRP in this area.

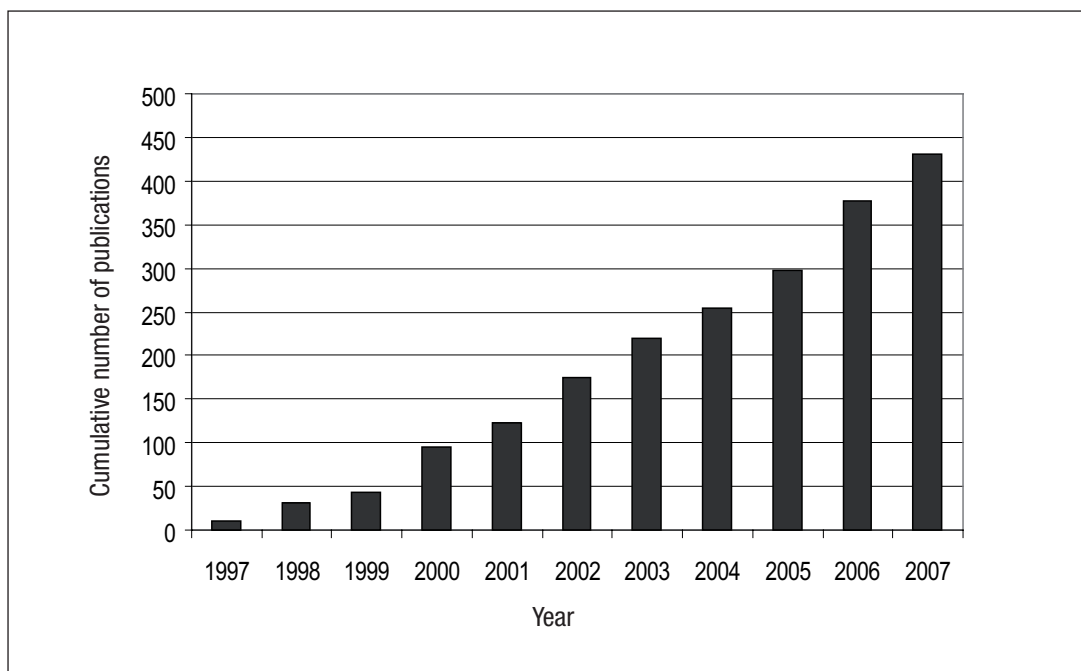
### Systematic reviews

Systematic reviews are syntheses of findings from more than one study. They are considered to constitute the most rigorous study design for answering questions of effectiveness, as they are based on a systematic scientific method. A single piece of research cannot be considered in isolation. It is generally considered that 'science is cumulative' and any 'new' decision on research or implementation should take into account the

'knowledge' acquired up to that point (Savulescu et al., 1996). HRP has embraced this approach and has endeavoured to promote the conduct and use of systematic reviews before supporting new research or drawing up clinical practice guidelines.

HRP has been involved in preparing and publishing systematic reviews for the past decade, usually in partnership with the Cochrane Collaboration. One exception was in formulating the *Medical eligibility criteria for contraceptive use*, which involved over 60 systematic reviews, some of which are also published in *The Cochrane Library*. The Cochrane Collaboration is an independent, international, non-profit organization committed to making up-to-date, accurate information about the effects of health care readily available worldwide. The Collaboration produces and disseminates systematic reviews of health-care interventions and promotes the search for evidence in the form of clinical trials and other studies of interventions. The reviews produced by the collaboration are

**Figure 1. HRP publications in the area of knowledge synthesis and transfer, 1997–2007**



known as Cochrane reviews and are available in an electronic format known as *The Cochrane Library*.

The main approach has been to prepare reviews of randomized controlled trials for publication in *The Cochrane Library*. These reviews are then updated regularly. Between 1997 and 2006, 130 Cochrane reviews or updated Cochrane reviews were produced. The reviews that HRP prepares or supports are generally kept up to date, and, in the past seven years, 34 reviews have been updated. The reviews are focused primarily on pregnancy, childbirth and fertility regulation. WHO staff members are authors on 30 Cochrane reviews, all of which are completed. Some of the reviews have also been published in print journals. A smaller number of systematic reviews of non-randomized studies have also been conducted, covering studies of etiology, screening, diagnosis and prevalence. These reviews do not address effectiveness, but the same concept of knowledge synthesis was applied. Systematic reviews of causes of maternal mortality and the prevalence of stillbirth, chronic pelvic pain and incontinence have been either commissioned or completed. The systematic review on the causes of maternal mortality has become an important resource for causes of death in different regions (Khan et al., 2006).

Part of the process is guidance and feedback by the Cochrane editorial team to reviewers. Much of the work in preparing a review is collaborative and involves working with reviewers in low- and middle-income countries. HRP works with the Cochrane Collaboration to prepare Cochrane reviews, which in turn enhance national capacity to conduct, disseminate and make use of sexual and reproductive health research. HRP's knowledge synthesis and transfer work thus contributes to another of the Programme's objectives, capacity-building.

One of the benefits of working collaboratively with the Cochrane Collaboration is the training and mentoring opportunities available to reviewers. Each review is completed by several reviewers from a variety of backgrounds, each of whom independently identifies the studies to be included. Most of the work is unfunded and is undertaken by volunteers. New reviewers are partnered with more experienced reviewers. Data are also extracted independently. Each Cochrane protocol and review undergoes peer review. Review groups have different approaches to checking data, and there is a feedback mechanism to improve reviews if errors are made. Training workshops are available in most regions, and there is an annual colloquium at which methodological issues are considered as well as means to improve access and dissemination.

Most first authors of the systematic reviews supported by HRP are from low- and middle-income countries.

### ***The WHO Reproductive Health Library***

The major project of HRP in knowledge synthesis and transfer has been *The WHO Reproductive Health Library* (RHL) (<http://www.who.int/rhl>). RHL is an annually updated electronic review journal focusing on sexual and reproductive health problems of high priority for developing countries. The project has become an important tool for dissemination of evidence on sexual and reproductive health interventions. It was initiated specifically to address the dissemination (or knowledge transfer) gap in the scientific literature on maternity care and sexual and reproductive health.

RHL is a collaborative initiative between WHO, the Cochrane Collaboration and other partner institutions, which commenced in 1997. RHL's





network of six regional editors and 34 focal points around the world (Annex 3) allows for the building of regional institutional capacity. RHL is a collection of the best evidence-based research in sexual and reproductive health, including the full texts of all relevant Cochrane reviews as well as other assessed articles. In this way, the Cochrane reviews are building blocks of RHL. Each Cochrane review is accompanied by a plain language commentary as well as editorials by experts, which cover an area of ongoing debate in greater depth. The Cochrane reviews in RHL have been chosen because of their relevance to low- and middle-income countries and the likelihood that the evidence they contain can make a difference in everyday practice. The topics covered include adolescent sexual and reproductive health, reproductive tract infections and sexually transmitted infections, HIV and AIDS, pregnancy and childbirth, newborn health, fertility regulation, gynaecology, infertility, cancers and clinical practice. RHL also contains aids in use of the evidence in everyday practice. There are also training aids, including educational quizzes and videos of evidence-based techniques being practised (for example, external cephalic version).

In order to produce RHL, HRP works in partnership with networks and collaborating centres that are closely aligned with the following Cochrane groups: Pregnancy and Childbirth (Liverpool, United Kingdom), Fertility Regulation (Leiden, Netherlands), Infectious Diseases (Liverpool, United Kingdom) and Effective Practice and Organization of Care (Ottawa, Canada) (Annex 3).

RHL seeks to achieve implementation of best practices not only by providing information to help readers apply the best evidence in sexual and reproductive health, combining lessons with advice on how to effect changes in practice, but also by

recommending strategies and tools that clinicians and policy-makers can use to introduce and sustain an evidence-based approach to sexual and reproductive health. For every topic in RHL, a table shows the interventions that have been shown to be effective and those shown to be harmful, with a gradient of effectiveness, which is also an aid to putting the research into everyday practice. In addition, the RHL team has conducted primary research to facilitate the implementation of best practices.

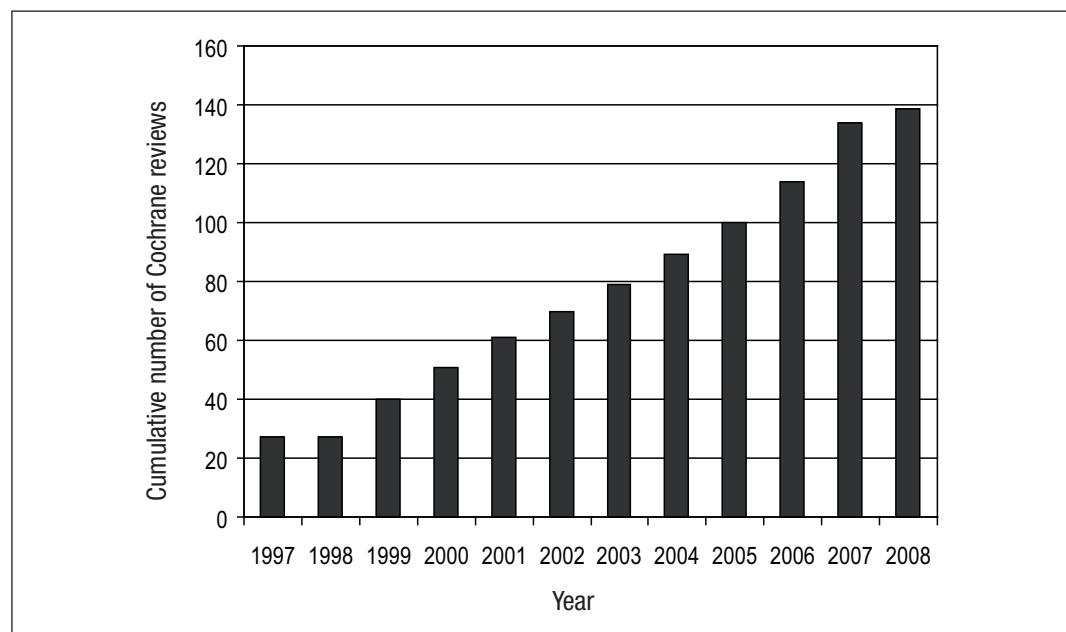
Much of the content of RHL was already available in *The Cochrane Library*, but access to this resource has been limited by cost and was almost non-existent in many low- and middle-income countries before the introduction of RHL. Even when Cochrane reviews were accessible, many were conducted by scientists in industrialized countries and covered research questions in those countries. RHL sought to address this ‘applicability’ gap from the beginning by including commentaries on the relevance of the review findings to typical low- and middle-income country settings.

Another important means of addressing the problem of access is the provision of versions in different languages, as highlighted in the previous evaluation. RHL is available in English, Spanish (La Biblioteca de Salud Reproductiva de la OMS; 1999), French (La Bibliothèque de Santé Génésique de l’OMS; 2007), Chinese (2006) and Vietnamese (2007), and a Russian version is planned for 2008. RHL is updated annually and therefore helps in updating both HRP/WHO guidelines and locally produced evidence-based guidelines.

Currently, 145 reviews are planned for the release of RHL 11 in April 2008, and there is generally an increase of 15–20 reviews every year (Figure 2). About one third of the reviews and the commentaries are updated annually.



**Figure 2. Cumulative number of Cochrane reviews in *The WHO Reproductive Health Library*, 1997–2008**



The RHL project has had a clearly defined dissemination strategy from its beginning, with the aim of maximizing access (see below).

Two user surveys of RHL have been undertaken, one in 2005 and one in 2007; the results are shown in Annex 5. The objective of the 2005 survey was to determine current use and access. The 2007 survey elicited useful information about the future content of RHL. Approximately half the respondents expressed a preference for the CD-ROM version.

### **HRP's contributions to evidence-based guidance for contraceptive use**

Four key documents address issues in contraceptive use. Although most of the work is conducted within RHR, the systematic reviews and HRP research also contributed directly to these documents. The documents are known as the four cornerstones of contraceptive use and comprise:

*Family planning: a global handbook for providers* (WHO, 2007a)

*Decision-making tool for family planning clients and providers* ([http://www.who.int/reproductive-health/family\\_planning/counselling.htm](http://www.who.int/reproductive-health/family_planning/counselling.htm))

*Medical eligibility criteria for contraceptive use* (WHO, 2004a)

*Selected practice recommendations for contraceptive use* (WHO, 2004b)

These documents are kept up to date by an evidence-capture system known as 'Continuous Identification of Research Evidence' on the Popline database. These widely used guidelines are supported by systematic reviews, primarily with resources supplied by RHR. The process includes a regular search for new studies and annual or more frequent updates of the systematic reviews. Some of the systematic reviews are published in both RHL and scientific print journals. This work has benefited from HRP research; for example,



HRP funded a study of the use of hormonal contraception by women with systemic lupus erythematosus, and the medical eligibility criteria recommendations are being revised to take into account the findings of this work. In addition, the published systematic reviews underpinning the medical eligibility criteria are included in RHL.

### Other activities

Other work supported by knowledge synthesis and transfer includes assistance in the preparation of applications for inclusion of medicines and devices in the *WHO Model List of Essential Medicines*. The applications contain detailed summaries of evidence on the medicines and devices. Inclusion in the List facilitates procurement of those medicines by international and national agencies, and Member States use the List to add drugs to their own national lists of essential medicines. Applications for addition of new medications to the list are accompanied by a dossier prepared by the knowledge synthesis and transfer group of HRP. Recent applications have been for misoprostol and mifepristone for abortion, low-dose misoprostol for labour induction, contraceptive implants and combined (progestogen-estrogen) injectable contraceptives.

HRP is involved in the publication of consensus statements, which can also be considered knowledge synthesis and transfer. In the past, some of these statements contained formal knowledge synthesis, although the approach was not consistent. One example of a consensus statement was on the optimal duration of exclusive breastfeeding, which was based on a Cochrane review with the participation of HRP and the WHO Department of Nutrition for Health. *The Lancet* published its Series on Sexual and Reproductive Health, another example of the broad range of

knowledge synthesis and transfer products to which the Programme has contributed (Glasier et al., 2006).

Evidence-based guidelines are a logical extension of systematic reviews. Their aim is to provide support to clinicians for evidence-based clinical decision-making. Guidelines should also assist evidence-based policy-making. HRP does not play an extensive role in guideline development, although in some cases guidance has been provided which can be considered to be evidenced-based. HRP staff are mainly involved in research, whereas guideline development involves both research and non-research staff in RHR. HRP staff contribute by providing syntheses of primary research and evidence for teams preparing guidelines in each area. Six guidelines are included in the outputs, as further highlighted below.

Other activities that could be considered knowledge synthesis and transfer include regional workshops on ‘turning research into practice’, the ‘Implementing Best Practices Knowledge Gateway’, policy briefs, provider briefs, fact sheets, the HRP newsletter *Progress* and presentations at scientific meetings.

### HRP publications

Publications are the main dissemination product of HRP. These are either paper or electronic publications, and are all peer-reviewed. The HRP publication list contains work conducted by HRP staff or in collaboration with members of the network and work sponsored by HRP. The publication list was provided by a staff member of HRP, and the HRP publication web site was also consulted. On the basis of the definition of knowledge synthesis and transfer and the inclusion criteria used for this review, the HRP list of peer-reviewed publications between 1997 and October 2007 contains 430 knowledge synthesis

and transfer products (see selected list in Annex 3 and Table 1). As classification on the basis of the inclusion criteria leaves some room for interpretation of which publications are to be classified as knowledge synthesis and transfer, the true number of publications might differ slightly, depending also on the definition used. Over half of the outputs (62.5%) were systematic reviews.

## Contributions of stakeholders, including WHO

### *Technical contributions*

Most of the input from HRP has been direction and technical and financial support. The work on knowledge synthesis and transfer is conducted under the broader RHR umbrella, collaboratively, with different staff and groups involved in both research and non-research activities. In many instances, it is difficult to separate the contributions because HRP activities are well integrated within RHR. Inputs from HRP include one full-time staff member and a full-time administrator for all the knowledge synthesis activities, including RHL and systematic reviews. Over the past five years, HRP has increasingly commissioned systematic reviews from reviewers at WHO collaborating centres (in both developed and low- and middle-income countries). This is usually because the reviews presented methodological or size challenges and needed external expertise.

The main partner of HRP in its knowledge synthesis and transfer work is the Cochrane Collaboration, and the relation is multifaceted and intensive. The RHL project was formally endorsed by the Cochrane Collaboration's publication policy group in 1996. Since then, the relation has evolved in many directions. The Cochrane Collaboration and its publisher, John Wiley and Sons, do not ask for

royalties from WHO for dissemination of Cochrane reviews in low- and middle-income countries.

HRP interacts with many Cochrane entities in a mutually supportive and beneficial way. It provides a small amount of financial support to the Cochrane Fertility Regulation Group and has occasionally supported the Pregnancy and Childbirth Group. It contributed financially to establishment of the Thai Cochrane Network in its inception phase. HRP staff also assist in appraising evidence and completing reviews.

The Cochrane review groups regard the topics of importance to HRP as high priorities and facilitate their publication and updating when possible. They assist individual reviewers by providing office space, literature searches and editorial assistance at their editorial bases. The South African Cochrane Centre has collaborated in training programmes as well as individual training on the African continent.

Over the years, the number of partners (individual and institutional) to HRP's knowledge synthesis and transfer work has increased to include many groups working on sexual and reproductive health. Most provide their expertise without financial return. See Annex 3 for a list of RHL partners and networks and their contributions.

### *Financial contributions*

HRP spent a total of \$US 756 931 between 2002 and 2007 on knowledge synthesis. The setting up of RHL was initially made possible by a grant from the Department for International Development of the United Kingdom to WHO and by a partnership with the Cochrane Collaboration. Currently, no specific funding for RHL comes from the Department for International Development, and the work is financed from HRP's core funding.





Parallel funding has been provided by partnerships and networks with collaborative groups and nongovernmental organizations. Examples of in-kind support include sponsorship by nongovernmental organizations of new reviewers for training and for updating Cochrane reviews. Without this collaboration, many reviews would not proceed or be updated. Some funding for systematic reviews is provided by bilateral donors. For example, funding for a review on the global prevalence of postpartum haemorrhage and maternal mortality was made available in 2007 from the United States Agency for International Development.

### *Examples of working with stakeholders*

HRP's reputation as a leading institute in sexual and reproductive health research has led to cooperative partnerships with many individuals and institutions working in the field of knowledge synthesis. For example,

- HRP has worked closely with the Liverpool School of Tropical Medicine, which has a particular interest in the synthesis of complex interventions and infection-related problems.
- HRP contributed to establishment of the Thai Cochrane Network, the Effective Care Research Unit in East London, South Africa, and the Centro Rosarino de Estudios Perinatales in Rosario, Argentina, which have now become centres of excellence in knowledge synthesis.
- Cochrane review groups on pregnancy, childbirth and fertility regulation have collaborated with HRP from the start. HRP has had a staff member on the editorial board of the Cochrane Fertility Regulation Group and of the Cochrane Pregnancy and Childbirth Group for the past five years.
- HRP conducted research to improve obstetric practices by a complex intervention in 40 hospitals in two countries. The study protocol was designed by leading experts in knowledge translation and was implemented in partnership with a local nongovernmental organization in Mexico and with the support of the Ministry of Health in Thailand (Gulmezoglu et al., 2007)
- New randomized controlled clinical trials are being set up following inconclusive systematic reviews. Collaborating centres have considered the evidence from inconclusive systematic reviews and then worked with HRP on the study design and with recruiting centres to complete the research. For example, a randomized controlled clinical trial of calcium supplementation in pregnancy, led by HRP, has provided compelling evidence for this intervention as a prevention strategy for pre-eclampsia.
- The aim of the collaborative project 'South East Asia–Optimising Reproductive and Child Health in Developing Countries' (SEA-ORCHID) is to improve clinical practice in treating pregnancy- and childbirth-related disorders and thus enhance the health outcomes of mothers and infants in South-East Asia. One of the questions being addressed is whether the health of mothers and infants in Indonesia, Malaysia, Philippines and Thailand can be improved by increasing capacity for research synthesis, implementation of effective interventions and identification of gaps in knowledge. The basis of the evidence is RHL. Several of the investigators are collaborators of HRP.

## Approaches to dissemination

### The WHO Reproductive Health Library

Dissemination is one of the pillars of the RHL project. RHL is provided free of charge to all low- and middle-income countries and is currently distributed to 185 countries. There are over 15 000 subscribers, and 34 000 CD-ROMs are distributed each year. The dissemination strategy has changed over the years: initially, HRP distributed the CD-ROMs widely to individuals and institutions in low- and middle-income countries, often at conferences, at the same time as scientific presentations. Subsequently, a subscribers' list was drawn up, which is being reviewed to ensure its currency. Figure 3 shows the evolution in the numbers of subscriptions for the CD-ROM version of RHL, of which there are now nearly 14 000.

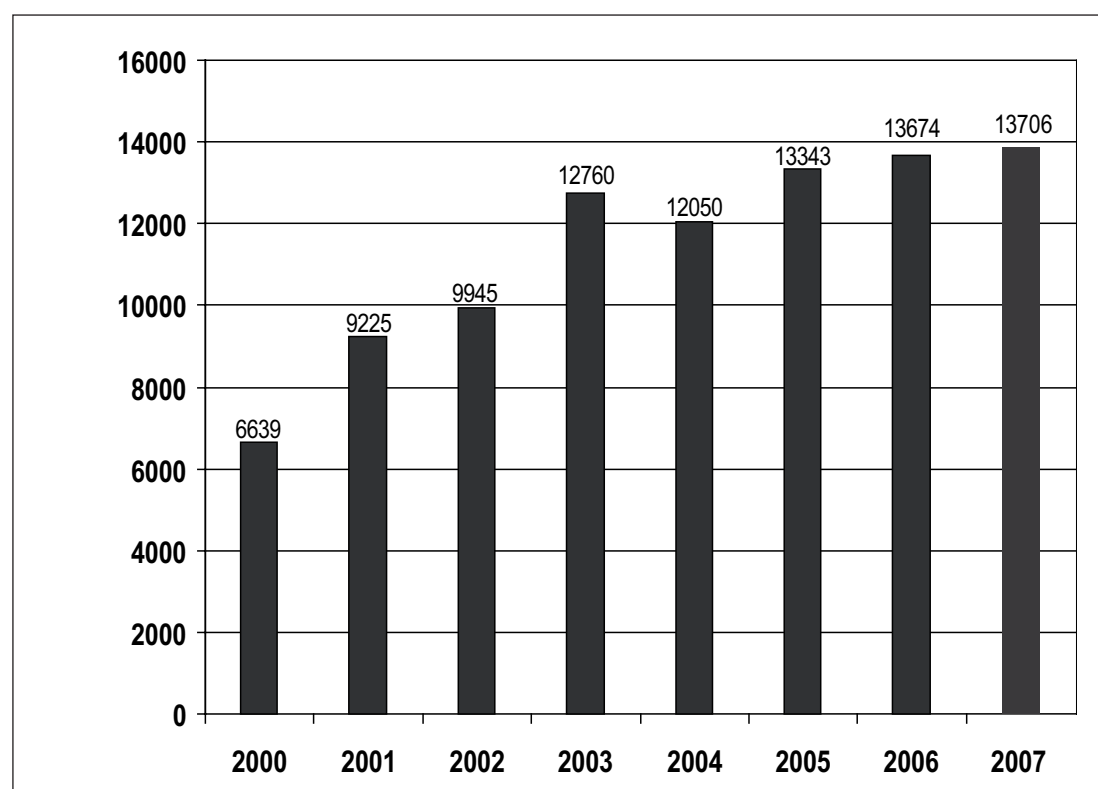
### Other dissemination activities

Conferences are an important dissemination strategy, especially meetings in low- and middle-income countries, larger obstetrics and gynaecology meetings and meetings at which policy-makers are present, such as the annual meetings of the Global Health Council and the Global Forum for Health Research. At some meetings, over 6000 CD-ROMs of RHL have been distributed. Regional editors and focal points often make presentations at national and international conferences (see Annex 3).

Capacity-building is a separate component of the HRP Programme. Its aim is to assist individuals and organizations in low- and middle-income countries to obtain expertise in knowledge synthesis. This has been achieved through local workshops for evidence-based decision-making



**Figure 3. Subscriptions to The WHO Reproductive Health Library, 2000–2007**





in sexual and reproductive health, to familiarize health workers in these countries with the principles of evidence-based medicine, critical appraisal of research studies and using RHL. Other workshops are conducted to strengthen the capacity of collaborating institutions and scientists to disseminate the findings of their research, which is important for knowledge transfer at country level. In addition, there are regional workshops on translating research into practice. HRP started with individual mentorship programmes, then moved to face-to-face workshops, and is now designing clinical, integrated e-learning programmes. The workshops are often organized with a local partner on a cost-sharing basis. This aspect of RHL was reported by the survey participants (Annex 5) and in feedback received during the meeting to celebrate the first 10 years of RHL ('RHL@10'), held in Thailand in 2007. HRP staff also teach sexual and reproductive health research, including methodology. For example, HRP staff teach at a course on reproductive health at the Swiss Tropical Institute, where many of the students are from developing countries, as well as a course on research methodology in reproductive health. HRP has also supported collaborators in many courses and has funded students to attend in both developed and developing countries.

The Implementing Best Practices Initiative (<http://www.ibpinitiative.org/>) is another example of dissemination of knowledge. In this forum, policy-makers, programme managers, implementing organizations and providers meet to identify and apply evidence-based practices that can improve sexual and reproductive health outcomes in their countries. The software that sustains the project was developed under the auspices of HRP, while the applications are funded by RHR. It is a powerful tool for knowledge dissemination and sharing among international partners, and it promotes RHL.

It also organizes discussion forums, reaching up to 1000 participants in 180 or more countries, with experts who base their contributions on systematic reviews.

# Outcomes

Part of the aim of the evaluation was to consider how the products of knowledge synthesis and transfer have been used and whether they are translated into policy and practice.

## Guidelines

Guidelines can be considered a logical extension of systematic reviews. They should be viewed as reflecting evidence and facilitating its transfer into practice. Evidence is global, but for many clinicians decisions are local. WHO guidelines are generally well received in low- and middle-income countries and have been adapted to local situations, usually with support from the Programme.

WHO's work on guidelines was critically reviewed in an article in *The Lancet*, which commented that many of the recommendations were not based on evidence but relied heavily on the opinions of experts (Oxman et al., 2007). None of the five guidelines reviewed were from HRP, and therefore it is not clear if the criticisms also apply to its work. A brief examination of the guidelines produced by HRP with the input of knowledge synthesis and transfer suggests that the recommendations are linked to evidence from well-designed studies.

Three guideline projects are highlighted here, all of which were based on evidence and in many cases derived directly from primary and secondary research commissioned by HRP.

- *WHO recommendations for the prevention of postpartum haemorrhage* (WHO, 2006) is based on several Cochrane reviews and randomized controlled clinical trials from HRP. The guidelines have become the benchmark position, supported by other major stakeholders, including bilateral donors and professional organizations.
- *Medical eligibility criteria for contraceptive use* (WHO, 2004a) is based on 60 systematic reviews and is widely used and highly regarded. One person interviewed considered that this guideline was the single most important document in family planning. The HRP Family Planning Group, in partnership with the Johns Hopkins University Bloomberg School of Public Health's Center for Communication Programs and the WHO Collaborating Centre for Reproductive Health at the United States Centers for Disease Control and Prevention, established online tracking and updating of evidence for contraceptive use. The guidelines are backed by Cochrane and non-Cochrane systematic reviews, depending on the question and data availability. This work is funded by RHR. WHO's family planning guidelines are widely regarded as a gold standard and are used extensively throughout the world. *Medical eligibility criteria for contraceptive use* has been published in Arabic, Chinese, English, French, Laotian, Mongolian, Portuguese, Romanian, Russian, Spanish and Vietnamese. Following publication of the most recent edition, a survey of users was undertaken.
- *WHO antenatal care randomized trial: manual for the implementation of the new model* (Antenatal Care Trial Research Group, 2001), which is based on Cochrane reviews and a randomized controlled clinical trial of antenatal care that were sponsored and conducted by HRP. These guidelines are published in RHL and separately with an online teaching programme developed in 2005 by Boston University, Boston, MA, USA.

Future guideline projects include one on treatment of postpartum haemorrhage and one on the treatment and prevention of hypertension in pregnancy.





## Extent of changes in policy and adoption of evidence-based practices

The evaluation addressed how the evidence generated by HRP has resulted in changes in policy and adoption of evidence-based practices. Table 2 shows the process of conversion of evidence into practice for four clinical topics. An example of a major change was use of oxytocin in the third stage of labour for prevention of postpartum haemorrhage. HRP sponsored and conducted a trial of misoprostol in 2001, followed by systematic reviews. This in turn established that oxytocin was the most reliable uterotonic, and both the International Federation of Gynaecology and Obstetrics and the International Confederation of Midwifery now recommend oxytocin. The two other examples in the table show how the work of HRP has led to major improvements in health outcomes: use of magnesium sulfate for women with pre-eclampsia and calcium supplementation in pregnancy.

An example in which HRP promoted adoption of evidence-based practice was a cluster randomized controlled trial of an active, multifaceted educational strategy (including workshops) to promote the use of RHL. The trial was undertaken in Mexico and Thailand, with the aim of improving the uptake of evidence-based obstetric practices (Gulmezoglu et al., 2007). The strategy led to increased access to and use of RHL, but no consistent or substantive changes in clinical practice were detected within 4–6 months after the third workshop. In Thailand, use of routine episiotomy decreased, while in Mexico there was a trend towards increased use of antibiotics in caesarean section. The reasons for the failure to effect consistent changes in practice are unclear. The conclusion was that knowledge transfer is

essential but probably not sufficient to lead to changes in health care. The reasons for the failure to affect clinical outcomes have been explored, and feedback will be incorporated into future workshop activities.

A case-study of translating research into policy and practice in developing countries was based on a survey of use of magnesium sulfate for pre-eclampsia (Aaserud et al., 2005). Barriers to uptake of the evidence included difficulty in obtaining information on availability and drug licensing, inadequate and poorly implemented clinical guidelines and lack of political support from policy-makers. Significant regional and national differences in the importance of certain barriers were recognized. Respondents were asked which organizations and individuals would have an influence on changing practice with regard to use of magnesium sulfate: 92% responded that medical or obstetrical associations were important, and 79% replied that WHO was important, suggesting that working with such associations might be a useful strategy.

The *WHO Model List of Essential Medicines* is another example of translating evidence into practice. Systematic reviews of new medicines have been undertaken in order to include them in the list (<http://mednet3.who.int/eml/expcom/expcom14/expertcomm14.htm>). Some examples are misoprostol and mifepristone for first-trimester termination of pregnancy, Norplant for long-term contraception and calcium channel blockers for tocolysis. These are documented in the Expert Committee reports for 2005 and 2007 (WHO, 2005, 2007b). In the case of misoprostol and mifepristone, a new packaged formulation has been prepared as a result of the HRP work.



**Table 2. Evidence of uptake of evidence into guidelines, policy and practice**

Clinical topic	Systematic review	Randomized controlled clinical trial	Dissemination	Policy and guidelines	Practice
Uterotonic in third stage of labour	Cochrane Library (1997)	1998–2001	<ul style="list-style-type: none"> <li>• Updated systematic review (2002)</li> <li>• Randomized controlled clinical trial published in <i>The Lancet</i></li> <li>• Systematic review published in <i>British Journal of Obstetrics and Gynaecology</i></li> <li>• Reproductive Health Library commentary</li> <li>• Press releases</li> </ul>	<ul style="list-style-type: none"> <li>• WHO (2001)</li> <li>• FIGO/ICM<sup>a</sup> (2003)</li> <li>• WHO (2006)</li> <li>• NICE<sup>b</sup> (United Kingdom) (2007)</li> <li>• Manual on prevention of pre-eclampsia, South Africa, 2006</li> </ul>	Surveys of clinical practice in Ethiopia and United Republic of Tanzania suggest uptake
Magnesium sulfate for women with pre-eclampsia	Cochrane Library (1996)	1998–2002	<ul style="list-style-type: none"> <li>• Updated systematic review (2003)</li> <li>• Randomized controlled clinical trial published in <i>The Lancet</i> (2002)</li> </ul>	<ul style="list-style-type: none"> <li>• WHO List of Essential Medicines</li> <li>• Manual on prevention of pre-eclampsia, South Africa, 2006</li> </ul>	Survey suggests sporadic changes in practice
Calcium supplementation to prevent pre-eclampsia	Cochrane Library (1998)	2002–2006	<ul style="list-style-type: none"> <li>• Updated systematic review (2007)</li> <li>• Randomized controlled clinical trial published in <i>American Journal of Obstetrics and Gynecology</i> (2006)</li> </ul>	Guidelines on prevention of pre-eclampsia planned for 2009	
Medical abortion	Cochrane Library (2004)	Five randomized controlled clinical trials 2000–2007	<ul style="list-style-type: none"> <li>• Updated systematic review</li> <li>• Reproductive Health Library commentary</li> <li>• Peer-reviewed journals</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Safe abortion: technical and policy guidance for health systems</i> (2003)</li> <li>• <i>Frequently asked clinical questions about medical abortion</i> (2006)</li> <li>• Application for inclusion in the <i>WHO Model List of Essential Medicines</i> and new packaging (Medabon<sup>®</sup>) developed</li> </ul>	Increasing uptake of medical abortion

<sup>a</sup> FIGO – International Federation of Gynecologists and Obstetricians; ICM – International Confederation of Midwives;

<sup>b</sup> NICE – National Institute for Health and Clinical Excellence.



## Technologies developed or improved

An example of technical advances or new products resulting from the work of HRP is copper IUDs.

The work subsequently formed the basis for an ISO (International Organization of Standardization) standard and prequalification. The initial studies were undertaken by HRP, and a Cochrane review guided ISO on the standards for copper IUDs.

The development of Medabon® (a packaged formulation for medical abortion) also comes into this category.

## Donor and national investments committed to evidence uptake

Major donors have given support for reviews, and the continued growth of RHL indicates that they are committed to this process and that parallel funding and in-kind support from multiple donors for country work is increasing. For example, a workshop is planned in Liberia with MERLIN, a charity for international health and relief work. Another example is training workshops conducted with national partners on a cost-sharing basis (e.g. training in Kenya conducted with the German Development Agency; Annex 6).

## Generation of new research questions

All randomized controlled clinical trials on maternal and perinatal health funded by HRP are expected to be preceded by systematic reviews. Examples of systematic reviews in RHL that have led to new primary research include:

- a collaborative trial on eclampsia (Eclampsia Trial Collaborative Group, 1995);
- the Magpie trial (Magpie Trial Collaborative Group, 2002);

- the WHO antenatal care randomized trial (Villar et al., 2001);
- the second opinion trial for caesarean section (Althabe et al., 2004);
- the trial on calcium supplementation during pregnancy (Villar et al., 2006); and
- the RHL trial of implementation (Gulmezoglu et al., 2007).

The International Standard Randomised Controlled Trials Register ([www.isrctn.org](http://www.isrctn.org)) has registered 23 randomized controlled clinical trials sponsored by HRP, 17 of which were preceded by a Cochrane review.

The new research is not limited to randomized controlled trials of interventions but also includes pathophysiology and mechanisms of disease. An example is the published systematic reviews on mapping the theories of pre-eclampsia, which are leading to a new multicentre study on the role of angiogenic factors in pregnancy (<http://www.crep.com.ar/spanish/index.html>).

## Evidence-based advocacy

The knowledge synthesis and transfer team also undertakes evidence-based advocacy. Two examples are described below.

*The Lancet Sexual and Reproductive Health Series:* Specific funding was received for this series of six articles and four editorials in 2005–2006 from the Department for International Development (United Kingdom), the MacArthur Foundation, the Hewlett Foundation and the Packard Foundation to support implementation of HRP's dissemination strategy. The aim of the Series was to highlight sexual and reproductive health challenges and gaps in evidence. Dissemination of the Series included high-profile press conferences, a public service

announcement on CNN International, dissemination of 15 000 copies of the papers in a booklet and an executive summary in three languages with targeted mailing and presentations at scientific meetings (Annex 7).

In the past year, increasing attention has been paid to sexual and reproductive health, and there has been increasing collaboration between these programmes and HIV/AIDS programmes internationally, possibly as a result of the Series. A working group with UNAIDS and the WHO HIV/AIDS Department is expected to be one outcome of this Series. The Series was initiated following discussions between HRP and *The Lancet*, and HRP coordinated the Series with other partners (<http://www.who.int/reproductive-health/donateresearch.htm>). The Series editors were HRP staff and the Chair of the Scientific and Technical Advisory Group.

## Extent to which public good can be attributed to HRP's work

Knowledge synthesis and transfer are a public good. As the distributor of more than 30 000 CD-ROMs of RHL without charge, HRP is probably the largest sponsor of systematic reviews and particularly Cochrane systematic reviews. Although there is no direct comparison with RHL, *The British Journal of Obstetrics and Gynaecology* has fewer than 5000 subscribers. Coordination by HRP of *The Lancet* Series has meant successful dissemination and increased advocacy for sexual and reproductive health to WHO partners.

The generation of new research ideas is another public good, clearly linked in the case of pregnancy and childbirth to the Cochrane reviews and RHL. *The Medical eligibility criteria for contraceptive use* also provide excellent guidance for clinicians in prescribing safely for women seeking fertility regulation.



# Impact



## Improvements in health status and outcomes

Changes in global health outcomes and improvements in sexual and reproductive health status would be ideal measures of the impact of the knowledge synthesis and transfer work of HRP. In reality, the measures are indirect and it is difficult to attribute their impact on change directly. The evidence from the three clinical examples in Table 2 could eventually reduce maternal mortality. Reduction in maternal mortality can be achieved, although it cannot necessarily be measured reliably because of the difficulty of assigning direct and indirect reasons; furthermore, any reduction in maternal mortality is likely to be multifactorial. Proxy indicators, such as the rate of eclampsia, are probably easier to measure; however, measurement even of specific events such as eclampsia is likely to be challenging without specific research.

## Access to goods and services

RHL is just one of the Programme's knowledge synthesis and transfer projects that has enabled access to high-quality, up-to-date knowledge for global improvement of policy and service delivery. Furthermore, these activities are relevant to low- and middle-income countries and provide opportunities for training and for changes in practice.

## Contribution to the Millennium Development Goals

Many of the MDGs directly relate to the work of HRP. Specifically, MDG5 is to improve maternal health, and the target is to reduce maternal mortality through, among others, increasing the number of skilled attendants for women during childbirth. In 2002, a systematic review was

conducted of maternal health, which contributes directly to MDG5 by identifying the main causes of maternal death in different regions. The report covers the years 1997–2002, and an update to cover 2003–2007 is under way. Other MDGs that relate to the work of HRP include MDG4 (reducing child mortality) and MDG6 (combating HIV/AIDS, malaria and other diseases). MDG8 relates to partnerships and improved communication, which HRP's work undoubtedly strengthens, as knowledge synthesis and transfer can be considered an essential link to achieve these aims. HRP can undoubtedly produce high-quality research, but if this work is not synthesized and made accessible to clinicians and policy-makers, it may be ignored and the resources will have been wasted.

## Coverage

RHL is a widely known and accessed reference work in sexual and reproductive health for low- and middle-income countries, with more than 50 000 individuals receiving it either by CD-ROM or the Internet.

Systematic reviews of new drugs have been undertaken in order to include them in the *WHO Model List of Essential Medicines* (<http://mednet3.who.int/EML/expcom/expcom14/expertcomm14.htm>), so that life-saving drugs such as misoprostol can be made available. Over 150 countries have a national list of essential drugs, of which 81% have been updated in the past five years. The United Nations list of recommended essential drugs for emergency relief comprises 85 drugs, and the interagency New Emergency Health Kit includes 55 drugs.

# Cost-effectiveness

## Cost of preparing systematic reviews

Both WHO/HRP and the Cochrane Collaboration organize, commission or write systematic reviews. The cost of conducting the reviews is borne partially by the organizations, partially by the unpaid or voluntary labour of the reviewers and partially by people paid by external funders. The value of voluntary labour and payments made by external organizations to reviewers is outside the scope of this case-study. We estimated HRP's costs per review for systematic reviews and for substantive updates to systematic reviews, calculated in US\$ value in the year 2000.

The calculation was conducted as follows:

- We calculated a summed index of effort put into a review by weighting the reviews according to the effort used and summing them. The weights were as follows: 10 units for a new review, 5 units for a substantive update and 1 unit for a partial update:

$$\text{Summed index} = \text{Full reviews} \times 10 + \text{Substantive updates} \times 5 + \text{Partial updates} \times 1$$

- We calculated a valuation per unit of effort by dividing the total organization expenditure by the sum of the weighted index of effort:

$$\text{Value unit effort} = \text{Total expenditure} / \text{Summed index}$$

- We calculated the organization cost per study by multiplying the valuation per unit of effort by the unit of effort for that type of study (as described in the first step):

$$\text{Cost of full review} = \text{Value unit effort} \times 10$$

$$\text{Cost of substantive update} = \text{Value unit effort} \times 5$$

$$\text{Cost of partial update} = \text{Value unit effort} \times 1$$

Table 3 presents a summary of the analysis. The WHO/HRP effort is much smaller than that of the Cochrane Collaboration. In a shorter period of time, the Cochrane Collaboration spent almost 25 times as much as WHO/HRP on reviews. Similarly, WHO/HRP sponsors many fewer reviews, and the Cochrane Collaboration conducts more updates than new reviews. At the bottom of the table, it can be seen that WHO/HRP spends a little more than the Cochrane Collaboration on a review.

These costs per review compare favourably with those produced by industry. A poster presented at a Cochrane Collaboration event (Mugford M, Cochrane Collaboration 11th Annual Colloquium, Barcelona, October 2003) showed that the cost of technology assessment reviews ranged from UK£ 20 000 to UK£ 80 000 (approximately US\$ 34 000 to US\$ 138 000 at the exchange rate at the time of writing this report, 2007). In a spreadsheet supplied by the Cochrane Collaboration, a bottom-up estimate of the full cost of conducting a review was attempted. As it is a full-cost estimate, it incorporates both paid and volunteer labour. The authors of the spreadsheet estimated the number of hours needed to conduct a review by various classes of reviewer (e.g. health researcher, medical expert, nursing expert) and then multiplied the level of effort by the hourly wage for that class. They estimated that the cost is about UK£ 45 000 per full review (about US\$ 76 000). The costs of US\$ 21 422 for WHO/HRP and US\$ 19 426 for the Cochrane Collaboration compare favourably.

As mentioned above, WHO/HRP leverages resources from elsewhere as well as using volunteer labour by reviewers. For example, in a report made to the Policy and Coordination Committee, HRP described collaboration with the Liverpool School of Tropical Medicine on a systematic review mentorship programme.





**Table 3. Summary of analysis of costs of systematic reviews and comparison with cost to the Cochrane Collaboration**

	WHO/HRP	Cochrane Collaboration <sup>a</sup>
Period of analysis	1997–2007	2001–2002 to 2005–2006
Expenses in US\$ (year 2000 value)	3 149 064 <sup>b</sup>	48 536 369
<b>Number of reviews:</b>		
Full reviews	130	1615
Substantive updates	34	945
Minor updates	0	2741
<b>Intermediate calculations:</b>		
Sum of weighted units of effort	1470	20 875
Financial cost per unit of effort (year 2000 US\$)	2 142	2 325
<b>Cost per review (year 2000 US\$)</b>		
Full reviews	21 422	19 426
Substantive updates	10 711	9 713
Minor updates <sup>c</sup>	-	2 914

a. All data used for calculations in this column are from a spreadsheet provided by a representative of the Cochrane Collaboration. United Kingdom pounds were converted to constant US\$ value in year 2000.

b. Biennial expenditure data provided by WHO/HRP cover the period 2000–2007. We converted each biennial expenditure into year 2000 US\$. Then, we scaled up the sum of the biennial expenditures by a factor of 11/8ths to estimate the expenditures for the entire period 1997–2007. Finally, we scaled up the expenditures of HRP on the reviews to reflect HRP staffing costs that are not attributed to activity budgets. In the HRP Programme Budget for 2006–2007, 36% was for staffing. We therefore scaled up the cost of the reviews by this amount (i.e., Total costs = Review specific expenditures/(1–0.36)). HRP Programme Budget 2006–2007. WHO/RHR/HRP/5.13, p.55.

c. In the data supplied by WHO/HRP, none of the updates was classified as minor.

HRP supplied further information on financial arrangements to the case-study authors, indicating that about half of the reviewers were at least partially funded by other organizations.

### Potential savings to beneficiaries

Use of evidence can lead to savings in identifying evidence-based health care and also in avoiding harmful or wasteful interventions. Access to better knowledge leads to better knowledge and more efficient use of resources. During the interviews, the stakeholders were asked what would have

happened without the knowledge synthesis and transfer work. The general response was that there would have been considerable duplication and waste of resources in work on sexual and reproductive health. In particular, there would have been a genuine gap in knowledge, requiring searches and synthesis of evidence. Access to primary and secondary research is limited in many regions, and considerable time and effort, as well as funding, would have been required to obtain the information.

## Could resources be used more effectively?

Knowledge synthesis and transfer at HRP is already extremely efficient. The time spent in preparing contracts and related administrative work is not substantial. Most of the work on systematic reviews is seen as part of their core work by HRP contractors. The annual production cost of each RHL CD-ROM (not including the synthesis), with full translation into Spanish and distribution, was US\$ 3.50 in 2005. Some delays might be avoided with more resources. For example, updating is often done by reviewers with limited resources who have difficulty in finding time for the review. Direct funding of updates would make the reviews more current and would increase the value of RHL overall.



# Key findings, strengths and weaknesses



## Strengths

- The knowledge synthesis and transfer work of HRP over the past 10 years has expanded progressively into a wide and varied range of products.
- HRP has comparative advantages, which include its well-documented power to convene world-renowned experts, its extensive collaborative network within and outside WHO, its unique position in collaborating with researchers, policy-makers and implementers and the strong reputation and credibility of its research and guidance.
- The work addresses globally important issues in sexual and reproductive health.
- The work is relevant to low- and middle-income countries, and it strengthens local capability and ensures that the topics are valuable to these countries.
- The staff of WHO includes experienced, competent researchers who are able to lead systematic reviews.
- Many of the outputs are electronic, including RHL and the Cochrane reviews, and their dissemination has increased with free access via the Internet to all low- and middle-income countries.

## Weaknesses

- The absence of a commonly agreed working definition of 'knowledge synthesis and transfer' in the Programme made it difficult to establish a comprehensive list of all the products published by HRP during the period of the evaluation.
- Limited funding has inevitably meant that the number of reviews and their timeliness are not always optimal.
- There is lack of independent supervision of topic selection and priorities; as a result, topics are

sometimes selected haphazardly, with unclear timelines.

- The impact of the work on clinical outcomes is difficult to establish because data collection is limited and requires planning. Wider adoption of performance indicators, such as rates of postpartum haemorrhage or perinatal death, would allow more direct measurement of impact.
- There are many barriers, at individual, community and system levels, to getting evidence into practice, and, although strategies have been framed to overcome these barriers, there is little evidence of their success. The barriers include poor access to information, lack of research synthesis on some topics, lack of access to guidelines, poor quality Internet access, lack of resources and social and cultural barriers.
- The provision of evidence and evidence-based tools is a necessary but not a sufficient step to bring about change. The provision of evidence-based information is the first step in knowledge synthesis, but the final step in knowledge transfer is implementation, and this will be achieved only with cooperation at country level.
- HRP lacks appropriate tools for monitoring the impact of its knowledge synthesis and transfer work. Evaluating the impact of these activities requires a plan for targeted activity and reporting. Furthermore, the HRP publications list is difficult to access and navigate, and some reports are unpublished.
- The true cost of the work on knowledge synthesis and transfer is unknown because much of the work in preparing Cochrane reviews is voluntary. Overall, the cost is low because of the partnership with the Cochrane Collaboration and other centres of evidence-based medicine.



# Recommendations for the future

## Governance and WHO issues

- An independent advisory group is needed for RHL, to prepare strategies for inclusion of topics, priorities for new systematic reviews and strategies for their dissemination. This group should include clinical and RHL representatives from low- and middle-income countries, experts in dissemination, policy-makers and guideline setters.
- The knowledge synthesis and transfer group that prepares and supports RHL and systematic reviews is not very visible at HRP. Establishment of a named knowledge synthesis and transfer unit (or other named group) within HRP might improve their recognition and ensure that evidence is embedded at WHO. Their role could include implementation of strategies to help translate evidence into practice and policy, enable researchers to identify research relevant to practice and policy, organize frameworks for applying knowledge synthesis and transfer and exchange, consider barriers and facilitators to knowledge synthesis and transfer, investigate and adopt methods for measuring the impact of research and recognizing the perspectives of different stakeholder groups about what works in knowledge synthesis and transfer. It is acknowledged that this is a large project that will require additional resources.
- A working definition of 'knowledge synthesis and transfer' should be elaborated and adopted to guide future activities in this field. Inclusion of knowledge exchange (as a more collaborative and interactive approach between stakeholders and HRP) into the definition should be considered.

## Capacity-building and educational activities

- An RHL toolkit for training in evidence-based medicine and use of RHL is needed, which is generic but can be adapted locally. Initially, this should be prepared in English, French and Spanish, but other languages could be considered. The toolkit would contain PowerPoint presentations and case-studies and could be given to local sponsors of RHL to run 'train the trainer' workshops. The toolkit should be suitable for running a one-day workshop, but a shorter, one-h, presentation should also be available. The toolkit could then be used in a number of different settings to promote change.
- Reproductive Health Library Fellows (or Champions or Ambassadors) would promote interest in the content of RHL and in evidence-based medicine in their region. Their main task would be training and dissemination, and this would be assisted by provision of the RHL toolkit. Fellows would receive an award from WHO on completion of training and after enlisting participants and running their own workshops successfully. Funding would be provided for these activities. The Fellows would be asked to ensure successful distribution of the RHL CD-ROMs to a range of health-care institutions and providers in their region. The aim should be to recruit Fellows predominantly from low- and middle-income countries to facilitate the dissemination and local adaptation of HRP products, including translation.
- The participants in training workshops should complete a pre- and a post-evaluation assessment (such as a multiple-choice questionnaire or case-studies), and those who complete the full evaluation should be given some sort of recognition, such as a certificate





of proficiency or a diploma. WHO might have to collaborate with tertiary institutions to provide this level of training and assessment.

- Further local investment in training is needed so that early encouraging signs of uptake of evidence into clinical practice become routine and established. Collaborating with academic and training institutions that provide undergraduate and postgraduate education should encourage greater transfer of knowledge at regional and national levels.

## Resources and access

- Resources were a recurring theme throughout the evaluation. Efficient use of in-house experts might result in greater productivity. An example that might be replicated is that of the family planning group, which has dedicated systems in place, with systematic reviews updated cyclically. This is not the case for other areas, such as maternal and child health, where topics are selected in a haphazard manner. Several suggestions were received for improving funding. Forming partnerships with other potential funding organizations, such as the Buffett Foundation, is one promising approach. Parallel funding with local organizations should continue.
- In the future, it is envisioned that the Internet version will be the only means of accessing RHL, as it will save money. The persons interviewed expressed universal disapproval of this approach, as the Internet access in many low- and middle-income countries of the world is unreliable and slow. It is therefore recommended that, until there is universal access to the Internet, CD-ROMs are essential. Distribution of the CD-ROMs by RHL Fellows might improve access.
- Neither *The Cochrane Library* nor RHL is available in developed countries unless a subscription has been taken out. Some developed countries have national licences to access *The Cochrane Library* but do not have access to RHL without a subscription. The added value of RHL is therefore not available in many developed countries. Access to RHL should be improved by free provision throughout the world. As a first step, WHO could consider making it available on the web site to all countries and institutions with a Cochrane Library subscription. This would improve uptake of the evidence and knowledge it contains by extending it to many of the ‘world experts’ who provide global leadership and are ‘opinion leaders’ but who are unable to access RHL. The next step would be to stop subscriptions altogether and provide RHL free to all as a global good. The additional cost of this proposal is unknown but would include the cost of the CD-ROM and its dissemination.
- Continued, increased funding for the systematic and Cochrane reviews is essential as these are the building blocks of RHL, and it is critical that they be kept up to date and that new topics are sought.

## Investment in guidelines

- HRP should become more involved in setting evidence-based guidelines for use in low- and middle-income countries, with adaption for local use. The example of the Strategic Partnership Programme with UNFPA could be repeated in other areas.
- Evidence-based guidelines should be included in RHL. Many such guidelines in maternal care can be considered of value and worthy of inclusion in RHL. The knowledge synthesis and transfer

group of HRP could identify suitable guidelines (from the web site of the Guidelines International Network or the Agency for HealthCare Research and Quality National Guideline Clearinghouse) and then use the Appraisal of Guidelines Research and Evaluation (AGREE) Collaboration and the ADAPTE Collaboration framework to consider their suitability for inclusion in RHL. An important addition to the ADAPTE framework would be a question about suitability for low- and middle-income countries and for settings with limited resources.

- HRP should make a greater investment in setting guidelines and designing protocols to assist clinical decision-making. This has not been a major focus of HRP, and it has issued few guidelines in this area, although users of RHL have asked for more evidence-based guidelines. Electronic decision support could be considered.

## Networks

- Links should be forged with other evidence-related networks, such as the Evidence Informed Policy Networks (EVIPnet) for policy-makers, that are under consideration. Networking with such groups could ensure that HRP-generated evidence is integrated into regional and local policies.

## Performance indicators for measuring use, outcomes and impacts of the work on knowledge synthesis and transfer

- To facilitate future evaluations, more effort should be made to link the work of the knowledge synthesis and transfer group to policy changes and clinical outcomes. One

approach would be to integrate the work into quality improvement frameworks.

- Measurement of how the knowledge synthesis and transfer is used should be encouraged.

## Future research that HRP should consider supporting

- Educational research: perhaps in a randomized controlled trial of clinically integrated e-learning versus traditional workshops.
- Implementation research: improving practice by overcoming barriers, perhaps in further randomized controlled trials targeting the barriers.
- Continued support for evidence synthesis and transfer at HRP: by ensuring support for the relevant staff, perhaps by investing in more staff.



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# Annex 1. Terms of reference of HRP

Cognizant of the need to ensure that research results are used by decision-makers in policy formulation and in delivering programmes and services, the Programme devotes significant time to evaluating the results of its own research and that of others, with the aim of providing Member States with the most up-to-date evidence-based guidance. Much of the work is conducted jointly with other staff of RHR and, generally, also staff in other WHO departments and outside experts.

Programme-supported work includes:

- systematic reviews on practice and interventions in sexual and reproductive health service delivery;
- annual production of *The WHO Reproductive Health Library*, an electronic compilation of best practices in sexual and reproductive health and other information relevant to the management of clients attending sexual and reproductive health services;
- summaries of evidence in systematic reviews, such as applications for the inclusion of reproductive care medicines in the *WHO Model List of Essential Medicines*;
- consensus statements on matters of concern to Member States; and
- evidence-based guidance in all major fields of sexual and reproductive health.



## Annex 2. Selected HRP publications on knowledge synthesis and transfer, 1997–2007



### 2007

WHO (2007). *Family planning: a global handbook for providers*. Geneva, World Health Organization.

WHO (2007). *Global strategy for the prevention and control of sexually transmitted infections: 2006–2015. Breaking the chain of transmission*. Geneva, World Health Organization.

Sedgh G et al. (2007). Induced abortion: estimated rates and trends worldwide. *The Lancet*, 370:1338–1345.

International Collaboration of Epidemiological Studies of Cervical Cancer (2007). Cervical cancer and hormonal contraceptives: collaborative reanalysis of individual data for 16 573 women with cervical cancer and 35 509 women without cervical cancer from 24 epidemiological studies. *The Lancet*, 370:1609–1621.

WHO (2007). *The global elimination of congenital syphilis: rationale and strategy for action*. Geneva, World Health Organization.

WHO (2007). *Unsafe abortion: global and regional estimates of the incidence of unsafe abortion and associated mortality in 2003*. Fifth edition. Geneva, World Health Organization.

### 2006

Calcium Supplementation for the Prevention of Preeclampsia Trial Group (2006). World Health Organization randomized trial of calcium supplementation among low calcium intake pregnant women. *American Journal of Obstetrics and Gynecology*, 19:639–649.

WHO (2006). *Frequently asked clinical questions about medical abortion*. Geneva, World Health Organization.

International Collaboration of Epidemiological Studies of Cervical Cancer. (2006). Carcinoma of the cervix and tobacco smoking: collaborative reanalysis of individual data on 13 541 women with carcinoma of the cervix and 23 017 women without carcinoma of the cervix from 23 epidemiological studies. *International Journal of Cancer*, 118:1481–1495.

Khan KS et al. (2006). WHO analysis of causes of maternal death: a systematic review. *The Lancet*, 367:1066–1074.

Villar J et al. (2006). Caesarean delivery rates and pregnancy outcomes: the 2005 WHO global survey on maternal and perinatal health in Latin America. *The Lancet*, 367:1819–1829.

WHO (2006). WHO's global guidance in family planning. *Contraception*, 73 (special issue).

WHO Study Group on Female Genital Mutilation and Obstetric Outcome. (2006). Female genital mutilation and obstetric outcome: WHO collaborative prospective study in six African countries. *The Lancet*, 367:1835–1841.

### 2004

WHO (2004). *Medical eligibility criteria for contraceptive use*. Third edition. Geneva, World Health Organization.

WHO (2004). *Selected practice recommendations for contraceptive use*. Second edition. Geneva, World Health Organization.

### 2003

Donner A et al. (2003). Meta-analyses of cluster randomization trials: power considerations. *Evaluation and the Health Professions*, 26:340–351.

WHO (2003). *Safe abortion: technical and policy guidance for health systems*. Geneva, World Health Organization.

### 2002

WHO (2002). Implantable contraceptives. *Contraception*, 65 (special issue).

Altman D et al. (2002). Do women with pre-eclampsia, and their babies, benefit from magnesium sulphate? The Magpie Trial: a randomised placebo-controlled trial. *The Lancet*, 359:1877–1890.

Piaggio G et al. (2002). Methods for randomisation, concealment and blinding in the WHO misoprostol third stage of labour trial. *Controlled Clinical Trials*, 23(2S):39S–40S (abstract).

### 2001

Antenatal Care Trial Research Group (2001). WHO antenatal care randomised trial for the evaluation of a new model of routine antenatal care. *The Lancet*, 357:1551–1564.

Gülmezoglu AM et al. (2001). WHO multicentre randomised trial of misoprostol in the management of the third stage of labour. *The Lancet*, 358:689–695.

Donner A et al. (2001). Statistical methods for the meta-analyses of cluster randomization trials. *Statistical Methods in Medical Research*, 10:325–338.

Carroli G et al. (2001). WHO systematic review of randomised controlled trials of routine antenatal care. *The Lancet*, 357:1565–1570.

### 1999

WHO laboratory manual for the examination of human semen and sperm-cervical mucus interaction. Fourth edition. Cambridge, Cambridge University Press, 1999.

# Annex 3. Partners and networks of *The WHO Reproductive Health Library*

*The WHO Reproductive Health Library* (RHL) is the product of collaboration between HRP, RHR, the Cochrane Collaboration and partner institutions in low- and middle-income countries.

## 1. Regional editors

The regional editors serve as champions of RHL in the regions and contribute to RHL by providing strategic advice on dissemination policies, topic selection, long-term policies and supporting authors to write commentaries for RHL. The current regional editors are:

- Guillermo Carroli, Centro Rosarino de Estudios Perinatales (CREP), Rosario, Argentina
- Linan Cheng, International Peace Maternity and Child Health Hospital, Shanghai, China
- Justus Hofmeyr, Effective Care Research Unit, University of Witwatersrand, East London, South Africa
- Pisake Lumbiganon, Department of Obstetrics and Gynaecology, Khon Kaen University, Khon Kaen, Thailand
- Suneeta Mittal, Department of Obstetrics and Gynaecology, All India Institute of Medical Sciences, New Delhi, India
- Jean-José Wolomby, Kinshasa, Democratic Republic of Congo.

## 2. WHO regional advisers on sexual and reproductive health

Six WHO regional advisers assist in dissemination and identify important meetings and other forums for dissemination of *The WHO Reproductive Health Library* and teaching opportunities.

## 3. RHL focal points

The RHL focal points are mainly non-WHO experts in universities and HRP collaborating centres. They assist individuals and institutions to find out more about RHL and its activities. The countries in WHO regions in which there are focal points are:

- African Region: Kenya, Mozambique, Nigeria, South Africa, the United Republic of Tanzania and Zambia
- Region of the Americas: Argentina, Brazil, Colombia, Cuba, Guatemala and Peru
- Eastern Mediterranean Region: Egypt and Pakistan
- European Region: Netherlands and United Kingdom
- South-East Asia Region: India and Thailand
- Western Pacific Region: Australia, China, the Philippines and Viet Nam.

## 4. RHL partner organizations and other entities

Input and support from collaborating institutions worldwide ensures that *The WHO Reproductive Health Library* remains relevant and useful to health workers in various settings. The collaborating entities include those listed below.

### *Cochrane Collaboration review groups*

The Cochrane Collaboration was founded in 1993 and named for the British epidemiologist, Archie Cochrane. It is an independent, international non-profit organization dedicated to making up-to-date, accurate information about the effects of health care readily available worldwide. It produces and disseminates systematic reviews of health-care interventions and promotes the search for evidence in the form of clinical trials and other studies. The Cochrane groups with which HRP collaborates for





the content of *The WHO Reproductive Health Library* are:

- Effective Practice and Organisation of Care Group
- Fertility Regulation Group
- Gynaecological Cancer Group
- HIV/AIDS Group
- Infectious Diseases Group
- Menstrual Disorders and Subfertility Group
- Neonatal Review Group
- Pregnancy and Childbirth Group

More information on these groups can be found at <http://cochrane.org/contact/entities.htm#secretariat>.

*Centro Rosarino de Estudios Perinatales (CREP), Argentina*

CREP conducts research in perinatal care, performs systematic reviews, runs training and workshops in epidemiology and is responsible for the Spanish edition of *The WHO Reproductive Health Library*. It is one of HRP's main partners in sexual and reproductive health research ([www.crep.com.ar](http://www.crep.com.ar)).

*Population Council Regional Office for Latin America and the Caribbean, Mexico*

The Population Council is an international, non-profit institution that conducts biomedical, social science and public health research. The Latin American regional office collaborated with HRP in a randomized controlled trial to evaluate an educational strategy to improve obstetric practices, which was based on RHL. Their staff contributed to RHL by writing commentaries, and the past director, Dr Ana Langer, served as the regional editor for RHL between 1997 and 2007.

*Chinese Cochrane Centre*

Opened in 1999, the primary aim of the Chinese Cochrane Centre is to promote and foster evidence-based health care in China through the preparation, maintenance, dissemination and application of high-quality systematic reviews for health-care decision-makers, to help them make well-informed decisions to improve clinical practice and use health resources more efficiently. The Centre contributed to the Chinese translation of *The WHO Reproductive Health Library* ([www.ebm.org.cn](http://www.ebm.org.cn)).

*International Peace Maternity and Child Health Hospital, China*

The International Peace Maternity and Child Health Hospital of the China Welfare Institute, situated in Xuhui District in southwest Shanghai, is a hospital specialized in obstetrics and gynaecology, which collaborates with HRP on several projects, including emergency contraception and the misoprostol trials. The regional editor for RHL, Dr Linan Cheng, is based at the Hospital, and other staff contribute commentaries.

*Effective Care Research Unit, University of Witwatersrand, South Africa*

The Effective Care Research Unit conducts research and systematic reviews on reproductive health issues of importance to low- and middle-income countries. The Unit is led by the regional editor for RHL, Dr Justus Hofmeyr, and has been contributing to RHL since its inception in 1997.

*Department of Obstetrics and Gynaecology, Khon Kaen University, and the Thai Cochrane Network, Thailand*

The aim of the Thai Cochrane Network is to help Thai investigators in preparing and maintaining Cochrane reviews, to create more world experts



from Thailand on the topics the reviews address and to help build capacity for this kind of research in Thailand. Dr Pisake Lumbiganon is a RHL regional editor, and his colleagues at the Thai Cochrane Network have contributed to RHL for many years (<http://www.tcn.cochrane.org/en/index.html>).

*Effective Health Care Alliance Programme, Liverpool School of Tropical Medicine, United Kingdom*

The aim of the Effective Health Care Alliance Programme is to ensure better-informed decisions for health care in low- and middle-income countries. Their work includes support to the Cochrane Infectious Diseases Group and various projects for research dissemination and implementation related to Cochrane systematic reviews in all areas of health care relevant to low- and middle-income countries. The Effective Health Care Alliance Programme has hosted individuals from low- and middle-income countries who are preparing Cochrane reviews for inclusion in RHL and has contributed by writing commentaries (<http://www.liv.ac.uk/evidence/cidg/home.htm>).

*Family Health International, North Carolina, USA*

Family Health International works to improve reproductive and family health throughout the world by conducting biomedical and social science research, testing innovative health service delivery interventions, training and implementing information programmes. It works in partnership with universities, ministries of health and nongovernmental organizations, conducting projects in the USA and in more than 40 developing countries. Senior staff of Family Health International have contributed to *The WHO Reproductive Health Library* by writing

commentaries and editorials, and Dr Ken Schulz, Vice-President of the organization, served as RHL regional editor between 1997 and 2007 ([www.fhi.org](http://www.fhi.org)).



## Annex 4. Stakeholders interviewed for this review



Hany Abdelaleem, Reproductive Health Library Focal Point, Professor of Obstetrics and Gynaecology, University of Cairo, Egypt

Guillermo Carroli, Reproductive Health Library Regional Editor, Centro Rosarino de Estudios Perinatales, Rosario, Argentina

Iain Chalmers, previous Director of the United Kingdom Cochrane Centre, currently Editor of the James Lind Library, Oxford, United Kingdom

Catherine d’Arcangues, WHO/RHR, Senior Medical Officer

Paul Garner, Coordinating Editor, Cochrane Infectious Diseases Group, Liverpool, United Kingdom

Sally Green, Director of the Australian Cochrane Centre, co-investigator on the SEA-ORCHID project

David Grimes, Family Health International, Research Triangle Park, North Carolina, USA

Jeremy Grimshaw, Coordinating Editor, Cochrane Effective Practice and Organisation of Care Group, Ottawa, Canada

Susan Hill, WHO Department of Medicines Policy and Standards

Justus Hofmeyr, Reproductive Health Library Regional Editor, Effective Care Research Unit, University of the Witwatersrand, South Africa

Ardi Kaptiningsih, WHO South-East Asia Regional Office, Regional Advisor in Sexual and Reproductive Health

Luis Lombardi, Reproductive Health Library Focal Point, Ginecologica Obstetricia Infertilidad Edificio Clinicas Medicas, Bella Hurora, Guatemala

Pisake Lumbiganon, Department of Obstetrics and Gynaecology, Khon Kaen University, Khon Kaen, Thailand

Frances Ndowa, WHO/RHR Team Coordinator, Sexually transmitted diseases and reproductive tract infections

Jim Neilson, Coordinating Editor, Cochrane Pregnancy and Childbirth Group, Liverpool, United Kingdom

Robert Pattinson, researcher and teacher, Medical Research Council Maternal and Infant Health Care Strategies Research Unit, Kalafong Hospital, Pretoria, South Africa

Deborah Pentesco-Gilbert, John Wiley, Publishers of the Cochrane Library

Nandi Siegfried, South African Cochrane Centre, Medical Research Council, Tygerberg, South Africa

## Annex 5. *The WHO Reproductive Health Library* user surveys, 2005 and 2007

A survey of all RHL subscribers with email addresses was undertaken in 2005, with a response rate of 11%. A second survey was conducted to evaluate the Library content and its use among participants at the RHL@10 Scientific Conference, held in Khon Kaen, Thailand, 27–29 April 2007; 53 of 86 conference participants completed the questionnaire. The participants were mostly clinicians and researchers who were familiar with *The WHO Reproductive Health Library* and who had contributed to it in the past 10 years. The results of the 2007 survey are summarized below.



- Which sections of *The WHO Reproductive Health Library* do you read?
  - Over 80% of respondents marked the main sections (effectiveness summaries, commentaries, practical aspects and Cochrane review abstracts) as always or often read.
  - The section on effectiveness summaries was the highest ranked section, with > 90% always or often read.
- How would you rate the different contents of *The WHO Reproductive Health Library*?
  - All the main sections were rated as useful or quite useful by > 90% of respondents.
- What kind of thematic content would you like to see expanded?
  - More than 50% strongly agreed that the current focus should be continued.
  - Around 35% strongly agreed with the options of increasing the gynaecology and newborn content.
  - Around 55% strongly agreed with the option of increasing the content related to implementation and behaviour.
- Would you like to see any of the following content included [a list was given]?
  - Most respondents (> 80%) strongly agreed that inclusion of 'guidelines' should take precedence over other relevant areas, such as systematic reviews of diagnosis and prognosis, formal grading of evidence, trial registries and policy and advocacy materials.
- Of the following options, which would you prefer [a list was given]?
  - Most (around 80%) preferred the current publication model, consisting of the Internet plus annual CD-ROM versions. More frequent updating than the current annual format was agreed or strongly agreed by a similar proportion.
  - Opinions were divided about the option of a primarily Internet publication, with CD-ROMs provided only on request. Around 50% disagreed, and the remaining 50% agreed (20%) or strongly agreed (30%).
- I use *The WHO Reproductive Health Library* in my work for [a list was given]:
  - More than 90% of the respondents used the Library for all the options listed, namely, updating their clinical practice, for teaching, for drawing up guidelines and in setting new policies in sexual and reproductive health practice.

## Annex 6. Workshops on *The WHO Reproductive Health Library* and evidence-based decision-making



Country	Year	Venue	No. of participants	Funding	Participant profile
South Africa	2001	Cape Town	10	WHO AFRO and headquarters	Reproductive health experts from five countries (Ethiopia, Mozambique, Nigeria, Uganda and Zambia) with knowledge of and links to WHO collaborating centres
South Africa	2002	Medical Research Council, Tygerberg	21	WHO AFRO and headquarters	Midwives, educators, policy-makers and obstetricians
Zambia	2004	Lusaka	26	WHO headquarters	Health workers in the public sector in Zambia, representatives of eight countries participating in the WHO Global Survey of Maternal and Perinatal Health, WHO Zambia, AFRO Brazzaville, headquarters
Nigeria	2004	Benin City	19	WHO headquarters	Health-care personnel of private and public health-care systems
Kenya	2004	Kisumu	20	German Agency for Technical Cooperation, WHO headquarters	Provincial doctors, midwives, health information officers
Maldives	2005	Indira Gandhi Memorial Hospital, Malé	11	WHO headquarters	Four obstetrician–gynaecologists, two medical officers, three nursing staff, one officer from Department of Public Health and one officer from Ministry of Health
South Africa	2005	East London	15	SPP <sup>a</sup> (WHO and UNFPA)	Mainly WHO, ministries of health and UNFPA staff from eight African countries
Fiji	2005	Suva	10	SPP (WHO and UNFPA)	Programme managers and clinicians in Fiji, Federated States of Micronesia, Cook Islands, Kiribati, Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu
Kenya	2006	Mombasa	27	SPP (WHO and UNFPA), International Centre for Reproductive Health	Statisticians, programme managers, rural health facility advisers, medical officers, field director International Centre for Reproductive Health, provincial pathologist

Country	Year	Venue	No. of participants	Funding	Participant profile
United Republic of Tanzania	2007	Dar es Salaam	11	SPP (WHO and UNFPA)	Specialists in obstetrics, public health, medical trainees, ministry of health officers, medical doctors, obstetrics and gynaecology consultants and senior technical adviser
China	2007–2008		To be determined	SPP (WHO and UNFPA)	Regional obstetrics and gynaecology specialists
	Hangzhou:	Zhejiang Institute of Family Planning Research, Hangzhou			
	3 days, late October or early November 2007				
	Chengdu:	Sichuan Family Planning Research Institute, Chengdu			
	3 days, mid-November 2007				
	Tianjin:	Tianjin Institute of Family Planning Research, Tianjin			
	3 days, March 2008				
	Shanghai:	Shanghai Institute of Planned Parenthood Research, Shanghai			
	3 days, April 2008				
Viet Nam	2007–2008	Hung Vuong Hospital, Ho Chi Minh City, Hanoi		SPP (WHO and UNFPA)	Regional obstetrics and gynaecology specialists

<sup>a</sup> SPP – Strategic Partnership Programme of WHO and UNFPA.



## Annex 7. *The Lancet* Sexual and Reproductive Health Series



The main partners of HRP in *The Lancet* Series were *The Lancet*; Family Care International; the United Kingdom Department for International Development; and three major foundations, The John D. and Catherine T. MacArthur Foundation, The William and Flora Hewlett Foundation and The David and Lucile Packard Foundation. The Series was endorsed by the International Federation of Gynecology and Obstetrics (FIGO).

### Dissemination strategy 2006–2007

- Presentations, launches
  - Cairo, 29 October–3 November 2006, Global Forum for Health Research
  - London, 30 October 2006, *The Lancet* launch
  - Kuala Lumpur, 5–10 November 2006, International Federation of Gynecology and Obstetrics Congress
  - Washington, DC, 17 November 2006, National Press Club
  - audio press briefing, December 2006
  - New York, 24 January 2007, UNDP/UNFPA Executive Board
  - Dar es Salaam, 18–20 April 2007
  - Buenos Aires, 25–28 April 2007
  - Khon Kaen, 27–29 April 2007, RHL@10 conference
- Booklet dissemination (15 000 copies)
  - governments, WHO regional and country offices, United Nations agencies
  - nongovernmental organizations (International Planned Parenthood Federation, Family Care International, EngenderHealth)
  - donors, foundations
  - scientific conferences
- Small, focused group meetings
  - round tables, London and Washington, DC, November 2006
  - CNN International public service announcement, from December 2006 for 6–9 months
  - Geneva diplomatic mission briefing, March 2007
- Policy briefs focusing on regions (being prepared)





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