



Turning Research into



Practice: suggested actions from case-studies of sexual and reproductive health research



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Collaborating agencies

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Preface

In March 2003 (in Geneva, Switzerland) and in June 2004 (in Hoedspruit, South Africa), the World Health Organization's Department of Reproductive Health and Research convened two meetings of experts to review case-studies of utilization of sexual and reproductive health research with a view to eliciting lessons that researchers, programme managers and others could apply to increase the use of findings of sexual and reproductive health research. The first meeting reviewed case-studies and other evidence related to research utilization from the standpoint of researchers and donors, while the second meeting reviewed additional materials from the standpoint of policy-makers and sexual and reproductive health programme managers. In each case, efforts were made to identify factors that facilitated or impeded research utilization. During the second meeting, instruments designed during the earlier consultation were used to document the utilization pathways. Case-studies were reviewed retrospectively with a view to extracting lessons learnt from the different approaches to research utilization employed in them, and a conceptual framework was developed to elaborate the process of utilization at various stages of research.

The present document includes these diverse materials. It is hoped that the information in this document will not only help researchers and others to increase the utilization of research findings, but also help them to monitor the extent to which research-based evidence is used for policy change and adoption of best practices to improve sexual and reproductive health. The suggested processes will no doubt be influenced by various local and global contextual factors. Therefore, the guidance presented here should be considered generic and users will need to adapt the advice offered to suit specific local circumstances. The group that drew up these guidelines will continue to collect more evidence and draw on case-studies as part of an ongoing effort to improve sexual and reproductive health through the translation of research findings into action.

Summary

Findings from well-designed and ethically sound research should contribute to the formulation of policies and the development and strengthening of programmes for improving the sexual and reproductive health and well-being of communities. In order to ensure maximum utilization of research findings, researchers need to be adept in a range of communication skills and information dissemination strategies, including the ability to identify and engage with relevant stakeholders. For their part, policy-makers and service providers need to have a sound appreciation of how research can contribute to the development and modification of policies and practices, including implementation of interventions. A key obstacle to the utilization of research is the lack of dialogue between the various stakeholders. The gap between knowledge generation and its use is now well recognized by many researchers, donors, policy-makers and service providers. The challenge before all stakeholders is how to develop strong communication linkages between the various parties in order to facilitate the uptake of research findings. To do this effectively, stakeholders will need to identify the barriers to communication and learn from successful examples of research utilization.

Research findings can contribute greatly to improving the reproductive health of people. Findings can be used to make decisions on new policies about provision of services (e.g. instituting new procedures, practices and interventions, including those for prevention) related to reproductive health-care delivery. They can equally contribute to the strengthening of existing programmes in terms of discontinuing practices found to be ineffective or harmful. Furthermore, research findings can also be used for advocacy for reproductive health or promoting the adoption of necessary interventions or for models of best practice to prevent or mitigate consequences of risks to health.

The present document identifies common concerns related to research utilization from the perspectives of a range of stakeholders: researchers, donors, policy-makers, and sexual and reproductive health programme managers. The central component of this document is a conceptual framework which highlights a variety of issues and processes that influence the utilization of research results at various stages of the research process. This framework was developed through an analysis of the definitions, determinants and key elements of research utilization as well as of

the conceptual pathways to the use of research. The conceptual framework incorporates utilization-related issues at three phases of the research process: pre-research, during research and post-research. Also factored in are contextual influences on research utilization, including the important role of stakeholders and communication in the uptake of research results. The conceptual framework captures many diverse elements of the research-to-policy process and should be considered a generic guide which will need to be adapted depending on the setting. The framework should assist researchers in incorporating actions into their research process and into the process of dissemination of findings so that the actions promote the utilization of the findings to improve sexual and reproductive health. A complete chapter is devoted to guidance for researchers in using the conceptual framework to identify activities aimed at promoting research utilization. Another chapter provides a checklist for policy-makers and programme managers to help them define the potential for utilization of research.

The present document also identifies common determinants of research utilization, listing key facilitating or impeding factors. Eight key factors are discussed as important determinants of research utilization: the research topic; the relationship between researchers and decision-makers; the political and programmatic context of research; research quality; dissemination (extent, quality, intensity, persuasive power) activities; development of study recommendations; promotion of research utilization; and sustainability of results.

A range of pathways to research utilization are presented, focusing on selected elements or approaches. First, sexual and reproductive health research often encompasses sensitive issues (i.e. domestic violence, abortion, female genital mutilation/cutting), which may be excluded from mainstream health agendas owing to cultural or political considerations; these research issues therefore require special communication skills and strategies to communicate results to decision-makers. Second, collaboration with the end users of research is often highlighted as a pathway to research utilization. Strategies are described for researchers to develop and maintain collaborative links throughout the research process, and beyond it, to facilitate effective utilization of results. A third pathway to utilization is a systems approach to analysing various components of the research-policy environment. This approach

can be a useful tool for assessing the interlinkages between research, advocacy, policy, programmes and practice and the role of each in research utilization. Using a systems approach to understanding the utilization environment is particularly relevant in developing countries or in countries in rapid transition, where emerging government structures and evolving health systems may face greater limitations in terms of being able to use available technologies or best practice guidelines. Another similar pathway is to identify key concerns of all relevant stakeholders, such as the researcher, donors to research, knowledge brokers, health system managers, and public policy-makers. Health system managers and policy-makers make decisions about the health system. Many of these decisions can be informed by research knowledge. The knowledge loop between all stakeholders can be used

to describe a pathway which facilitates the uptake of research knowledge by health- system managers and policy-makers and to identify the ongoing challenges that are faced by these players. There may also exist multiple pathways to utilization for each type of player. Finally, within each of these pathways, there exist critical issues in the utilization of sexual and reproductive health research, such as: varying definitions of utilization, policy and programme; challenges and competing tasks for researchers in producing and dissemination research and in acting as advocates; and the challenges faced in the utilization of research in diverse settings.

Finally, this document includes a range of diverse case-studies that are analysed retrospectively to elicit lessons learnt from the different approaches to utilization of sexual and reproductive health research.

Introduction

Michael Mbizvo and Jitendra Khanna, Department of Reproductive Health and Research,
World Health Organization, Geneva, Switzerland

The primary purpose of research funded through non-profit sources (governments, foundations, etc.) is to solve public health problems. Such research has a central role in providing the evidence base for policy-making, practice guidance and programme development for health care. Sexual and reproductive health is no different.

To improve reproductive health in developing countries, it is essential that development agencies, policy-makers (national-level as well as programme-level), researchers, service providers at the facility level, researchers and the community all participate in the improvement process. The overall roles of each are as follows: development agencies raise awareness of sexual and reproductive health problems and, where required, provide technical and financial assistance to help local researchers identify and find locally relevant solutions to specific problems. Policy-makers use the recommended solutions to establish the needed policies so that programme managers and service providers can implement the solutions with the cooperation and participation of the community.

In this process, the local researchers have a pivotal role. Hence, it is important to ensure that they possess the required knowledge and technologies so that they can find evidence-based solutions to problems. It is crucial to recognize here that a big challenge for all involved in the process of improving sexual and reproductive health is how to convert the new knowledge or technology generated by researchers into practicable actions. Experience shows that close communicative interactions between researchers and policy-makers can help ensure that research results are fed quickly into programmes, and conversely, lessons learnt from programme delivery rapidly inform priority-setting for new research. For donors, scientists and research institutions in developing countries, this means not only strengthening research capacity and conducting the research, but also enhancing the linkages between the various stakeholders in the research and service delivery spectrum. These links should extend to communities, who have the responsibility as well as the right to articulate their needs and participate in defining national or district-level priorities.

Unfortunately, in many countries, linkages between those involved in generating knowledge and those responsible for applying it are inadequate and frag-

ile. Much needs to be done to build strong linkages between research and action plans and programmes that are likely to benefit from the application of research recommendations. Effective communication between researchers, policy-makers, programme managers and service providers can help strengthen the links and encourage greater utilization of research-based knowledge to enhance the quality of sexual and reproductive health services.

In order to ensure maximum utilization of their research findings, researchers need to engage potential users and relevant stakeholders early in the research process. Moreover, researchers need to become adept in a range of information dissemination strategies. Policy-makers and service providers, for their part, need to build a better understanding of the rationale for changing policy and practice and for implementing new or modified interventions. The lack of dialogue between researchers and policy-makers in particular restricts the impact of new research on programme development and service delivery. This communication gap can be bridged by analysing previous pathways to research utilization with a view to identifying the impediments. Pathways from case-studies can also help foster greater understanding of factors that contribute to research utilization. Case-studies can also help identify the key elements and steps that have facilitated utilization of research findings in developing-country settings.

THE ROLE OF THE UNDP/UNFPA/WHO/WORLD BANK SPECIAL PROGRAMME OF RESEARCH, DEVELOPMENT AND RESEARCH TRAINING IN HUMAN REPRODUCTION

Since its inception in 1972, the UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP) (which functions within the WHO Department of Reproductive Health and Research) has not only coordinated and supported global and national research (earlier on fertility regulation and since the mid-1990s, more broadly on sexual and reproductive health), it has also committed a third of its operational resources to research capacity strengthening in developing countries. This support is based on the premise that research should assist governments in: (i) identifying crucial reproductive health issues and needs; (ii) gen-

erating new knowledge regarding reproductive processes and developing responsive health systems; (iii) developing new and improved tools and practice guidelines; (iv) developing new and improved technologies for strengthening service programmes; (v) identifying strategies and testing interventions for prevention and care; (vi) analysing specific problems and identifying possible solutions; (vii) improving the management and allocation of resources; and (viii) aiding the formulation of policies and serving as an evidence base for advocating for change and for the adoption of best practices. Since the 1990s, HRP has also conducted workshops in scientific writing and communication skills in order to help researchers acquire skills needed to write and publish scientific papers in peer-reviewed journals—the first crucial step towards implementing evidence-based solutions—and to communicate research findings to policy-makers and the public.

In promoting research and research capacity strengthening, from the very beginning HRP has been concerned with dissemination of research findings for effective policy action, where applicable, and utilization of knowledge. To this end, HRP's guidelines for *Preparing a research project proposal (1)* include a section that provides advice to researchers on publication of research results and their wider dissemination. The present document complements the information in the research proposal guidelines.

DYNAMIC PROCESSES, DYNAMIC SOLUTIONS

The processes involved in dissemination, communication, and utilization of research results are dynamic and require innovative strategies that are suited to the setting, type and topic of the research. In this regard, basic, biomedical, clinical, epidemiological, social science and operations research may, in each case, take a similar or different pathway towards utilization of the research findings. The pathways outlined in the present guidelines offer examples which can be adapted to specific situations to achieve impact with research.

The present guidelines identify factors that both facilitate and impede research utilization. This should also help researchers and others to define appropriate pathways in specific settings for advocating for best practices. Programme managers and service providers are encouraged to demand, access and interpret research results in terms of their health benefit. This guide uses lessons learnt about the process to inform both the researcher and the consumers of research.

To enhance and facilitate greater research utilization, researchers are encouraged to involve potential stakeholders in the research process, starting with research planning. Involving the stakeholders early in

the process can help to define gaps in knowledge and assess research needs and priorities. In addition, it promotes a sense of ownership of the research among the stakeholders. Once the results of the research are published, the partnership between researchers and stakeholders can also help identify the potential policy, programmatic and practice implications of the research findings. Researchers should develop a dissemination and advocacy strategy. Where relevant, a plan for the integration of suggested interventions (for prevention or service programmes) should be drawn up with stakeholders at various levels when findings are available.

THE PATHWAY TO IMPLEMENTATION OF RESEARCH

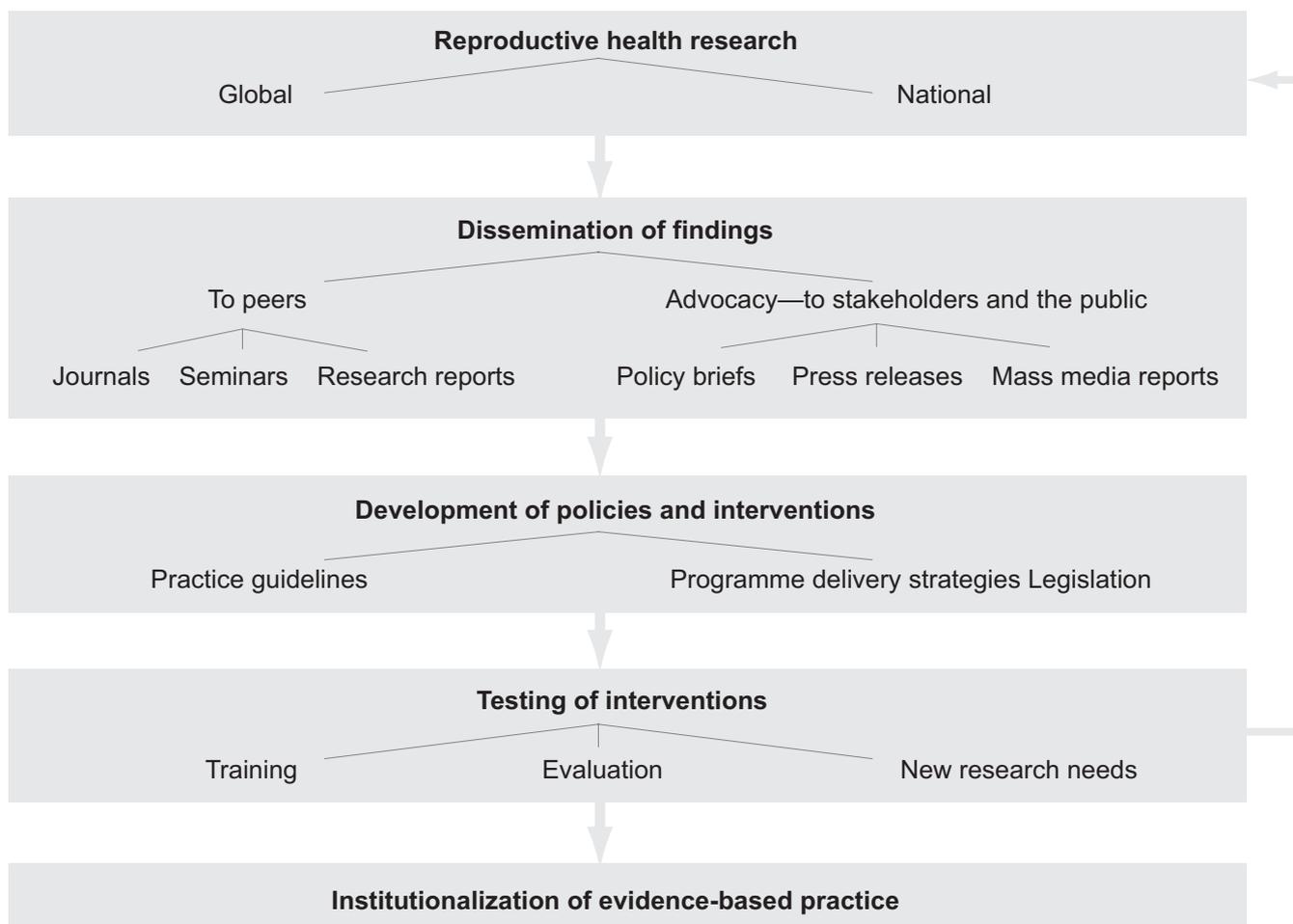
Figure 1 presents a simplified pathway from research to institutionalization of evidence-based practice. The success of this pathway depends on ensuring that appropriate media are used (journal article, report, policy brief, etc.) for the target audiences (researchers, policy-makers, practitioners, etc.). The journal article is aimed at the scientific community, whose role it is to ensure that the results are scientifically sound and valid. The same findings are then converted into policy briefs and press releases in order to reach policy-makers and the general public (via the mass media). Where relevant, and once steps appropriate for policy-making have been initiated, the findings are introduced into practice guidelines. The findings could thus be used to inform sexual and reproductive health policies or programme development and strengthening. They could equally serve to advocate for implementation of best practices. In some instances, and depending on the nature of the study, primary findings can be used to develop and test interventions. Successful interventions are subsequently promoted through training. Such interventions could further be integrated into health systems through an adaptation and adoption process and scaled-up for wider application. At the sexual and reproductive health system level, pertinent issues, problems and needs emerge or arise as part of a dynamic process for ensuring efficiency, effectiveness and quality of services. These feed back into global or national research questions and priorities.

Below is a list of questions to be considered at different stages of the research-to-practice continuum. The factors in these questions are likely to influence research utilization within the continuum.

Research planning

- **How relevant is the research question to the priority sexual and reproductive health problems in**

Figure 1. A simplified pathway from research to institutionalization of evidence-based practice



the country? The greater the relevance, the greater the chance of the research findings being utilized.

- **How significant is the research question in relation to other priority questions?** This determines the potential of the findings to have a significant public health impact.
- **What linkages and partnerships exist between the researchers and the stakeholders?** The closer the links, the better the communication between the interested parties and the higher the chances of the research being utilized.
- **In relation to the research question, what level of interaction exists between the research group and the service delivery programmes?** Close interaction between researchers and service delivery programmes is particularly important in the case of operations research.
- **Has a technical advisory team for the study been established?** This team guides the research plan-

ning process and usually includes researchers and various stakeholders (including, where relevant, end users).

- **Are the interventions to emerge from the research cost-effective?** It is vital to take a long-term view of the cost implications of the interventions being proposed based on the research, focusing especially on possible less expensive alternatives.
- **What level of credibility does the research team enjoy among its peers and other stakeholders?** The higher the level of credibility the researchers enjoy among the stakeholders, the greater the likelihood of the research findings being communicated widely. And the more the findings are talked about, the greater the likelihood of their utilization. The reverse is also true: the more the researchers engage in communicating their findings, the greater the public visibility they acquire, which in turn can help to build their credibility.

- **Is there interest in the research on the part of the beneficiary community or industry?** The more end users are interested in the research, the greater the chance of the results being utilized.
- **What is the potential for involving/creating advocacy “champions”, opinion leaders or groups that promote change?** All important social causes have their proponents. Such groups are usually well equipped to do advocacy in favour of the cause.
- **To what extent does a culture of finding scientific solutions to problems exist in the country?** Demand for evidence-based interventions and solutions is an important determinant of utilization of research findings. Sometimes, owing to sociocultural pressures, policy-makers may not be willing to accept scientific findings. For example, policy-makers in many countries were slow to accept the findings that HIV infection rates were rising rapidly.
- **How feasible is the proposed research project?** Research cannot answer all the questions. It is important to select research questions that can be answered with the available ethical research methods.
- **Have plans been made for dissemination of research findings during the life of the research project and beyond?** Getting stakeholders interested in the research project before it begins and maintaining their interest in it through the life of the project is as important as disseminating the findings after the project is completed.
- **Are the study design and methods appropriate and ethical?** The use of appropriate study design and research methods is vital for sound research results. The research methods must also be ethically sound. This is essential for credibility of the research.
- **Does the research question deal with an issue about which there is public sensitivity?** Research on sensitive issues is usually more difficult to conduct. Sometimes, opposing camps emerge even among the policy-makers and politicians, which may lead to lengthy debates on the merits and demerits of the research and later of its findings. This can thwart utilization of findings.
- **What actions are being taken to ensure that progress in research work is being communicated to the stakeholders, particularly the community in which the research is being done?** Enhancing the profile of the research, for example through community mobilization, is important. Ideally, researchers should aim to be in a situation where the community demands the rapid implementation of new research knowledge. One way to keep the community and other stakeholders, including policy-makers, interested in research is to appoint them to technical advisory bodies for the research project.
- **Are the measures taken to ensure adherence to ethical and safety standards in research functioning as intended?** Incoming research data must be monitored constantly during the research process. This will ensure that: (i) researchers will be able to take timely steps to protect the study population from any undesirable consequences of the intervention, should these be detected; and (ii) if preliminary data already indicate significant benefits of the intervention, the control group are not unethically denied the intervention on the grounds of scientific interest.
- **Are linkages with community advisory bodies established and working effectively?** Constant dialogue with the study community increases the likelihood of use of research results.
- **Are sound review and feedback mechanisms in place for the research project?** These are essential to ensure that the project remains on track.
- **Is local capacity-building planned for in the research project?** In developing research projects, it is advisable to take a long-term view of using research to solve public health problems. Thus, where possible, it is desirable to engage and train local staff in research conduct.

Upon completion of research

- **Have steps been taken to ensure that appropriate reports or journal articles have been written up in a timely manner?** Timely publication of research findings is crucial for research utilization.
- **Have steps been taken to ensure that the findings have been communicated to policy-makers and the public in the form of policy briefs or press releases?** The purpose of policy briefs is to inform policy-makers of the policy recommendations that emerge from the research findings. Press releases are designed to inform the mass media and the public about the research findings. Politicians

Research conduct

- **Is the research being conducted in accordance with the highest technical, scientific and ethical standards?** Deviation from the highest standards can affect the credibility of the researchers and the findings.

and policy-makers are very sensitive to what they read in the papers.

- **In preparing policy briefs and press releases, has care been taken to ensure that the findings are presented in the local context?** This is particularly important in the case of research undertaken at the global or national level. For example, if research shows a rise in risk of a condition from the use of a contraceptive method in one setting, the significance of the findings may need to be interpreted and presented for other settings so that health-care providers can take the necessary steps.
- **How compatible are the research findings with the existing health system?** Interventions that require less disruptive changes to the health system have a greater chance of being adopted.
- **What steps have been taken to ensure that people generally are aware of the contextual relevance of findings?** Researchers have an obligation to inform the public about the research and its findings.
- **How receptive are the staff in the health-care delivery system to the proposed interventions?** To bring about change, the staff in the health system need to be open to it. Keeping health-care staff informed about the research and its findings can help to increase their receptivity to introduction of new interventions.
- **How will advocacy for change be managed and who will be involved?** It is important to ensure that the advocacy campaign involves those best suited to undertake it (stakeholders, media, etc.) and reaches those who need to be informed and convinced (policy-makers, programme managers, end users, etc.).
- **Is the evidence strong enough to suggest changes (in policy, practice, etc.)?** Recommendations that are not backed by solid evidence are less likely to be implemented.
- **Will resources be available and sustainable to make the suggested changes?** To carry the implementation process through, funds will be needed. It is important to ensure that they are available and sustainable.
- **Are the recommendations concise and action-oriented?** If the recommendations are too general and not action-oriented, it will be difficult to act on them.

- **Will researchers remain involved in the process of applying the findings?** The real test of any research is in its application. Researchers can learn a lot about their field of research by remaining involved in the process of implementation of their research findings.

CASE-STUDIES IN THE PRESENT GUIDELINES

The selected case-studies presented in this document are based on diverse contexts and their pathways can be applied or modified to suit local conditions. Papers by Ian Askew (page 30) and Monique Hennink (page 36) include pathways which are backed up by different case-studies. A more comprehensive listing of sexual and reproductive health research utilization case-studies can be accessed, via a searchable database, on the Getting Research into Policy and Action Practice (GRIPP) web site (<http://www.jsiuk-gripp-resources.net/>). This web site, also provides links to other relevant Internet sites and publications.

Another important source of additional information is the WHO/RHR Programme to Map Best Reproductive Health Practices (2), which focuses on evidence-based clinical practices identified through systematic reviews of research. The latest evidence is disseminated through WHO's annual electronic journal, *The WHO Reproductive Health Library* (RHL). This HRP programme convenes a series of interactive workshops to encourage use of the RHL and adoption of evidence-based practices.

The adaptation and adoption of the guidelines in family planning, sexually transmitted infections and maternal health are supported by the WHO/UNFPA Strategic Partnership Programme. In addition, WHO/RHR leads an Implementing Best Practices Consortium Initiative in which 23 partner agencies work to disseminate guidelines and harmonize messages on best practices in sexual and reproductive health.

REFERENCES

1. UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction. *Preparing a research project proposal: guidelines and forms, 3rd ed.* Geneva, World Health Organization, 2000 (WHO/HRP/PP/2000, Rev.1).
2. *WHO Programme to Map Best Reproductive Health Practices* (available at: <http://www.who.int/reproductivehealth/rhl>).

Section 1
Concepts and pathways

What is research utilization?

Michael Mbizvo, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland; **Julia Kim**, University of the Witwatersrand, Johannesburg, South Africa; **Jim Foreit**, FRONTIERS in Reproductive Health Program, Population Council, Washington, DC, USA

Research utilization can be defined as the use of knowledge substantiated through research in addressing and solving sexual and reproductive health problems. This knowledge-use can range from creating awareness of health issues and problems (advocacy), to modifying existing public health policies or establishing new ones, to improving or developing specific clinical or service delivery interventions, including those related to prevention.

Advocacy in favour of adoption of necessary interventions or of models of best practice to prevent or mitigate consequences of risks to health may often be the first systematic step towards research utilization. This step involves translating research findings and recommendations into clear, intelligible messages for policy-makers, other stakeholders and the public. Launching multimedia communication campaigns, mobilization of service providers and sensitization of potential ultimate beneficiary communities are some of the operational processes in this step.

With regard to sexual and reproductive health research, an operational definition of research utilization would capture the extent to which research findings impact upon decisions relating to sexual and reproductive health policy, programmes, and service provision. However, as suggested earlier, the role of research in influencing this process varies according to the nature and type of research undertaken. Thus, indicators of “successful” research utilization may be quite different for basic, biomedical, clinical, epidemiological, social science and operations research. For example, basic or biomedical research helps to expand knowledge about physiological or pathophysiological processes and only occasionally has direct clinical applications; in most cases much further research is needed before clinical or public health interventions are developed.

In some cases, basic research can serve to diagnose a health problem or understand the prevailing situation. In contrast, research findings from a large, multicentre clinical trial may directly inform emerging treatment guidelines, whereas data from an epidemiological study may simply hint at important causal associations between risk factors and disease, stimulating further investigation. Findings from social science research may yield new insights into the understanding of a

particular issue, which gradually and subtly permeates theory and practice in the field. This in turn may lead to operations research that compares and tests the application of several programmatic approaches in order to guide policy within the field. Thus, in defining research utilization, it is important to acknowledge that the nature, pathway, and time course in which research findings are “utilized” may vary considerably both within and between diverse fields and disciplines.

Moreover, because research may have subtle, incremental impacts, and because it is often the collective influence of a number of studies (as well as other processes) that ultimately contribute to programme or policy change, it is often difficult to attribute such impacts to an individual study. However, starting from the perspective of a particular study, it is possible to explore the various elements that either impede or contribute to the eventual utilization of its findings. Indicators for research utilization can be developed and applied in order to evaluate and understand the extent of utilization through changes in procedures, practice or policies. This in turn can be a useful process, both for understanding and learning from prior experience, and for planning new and monitoring ongoing research projects in order to maximize their potential for research utilization.

Communication activities designed to enhance utilization of research are often targeted at four levels.

- *Scientific level*: through publication of an original research paper.
- *Policy and decision-making level*: through policy briefs/summary releases.
- *Programme management and service provision level*: through the publication of practice guides, tools and scientific literature.
- *General public or potential ultimate beneficiaries level*: mass media campaigns and community sensitization and mobilization.

For each level, utilization is very much determined by the format of dissemination.

Conceptual framework for research utilization

Julia Kim, University of the Witwatersrand, Johannesburg, South Africa

BACKGROUND

The following conceptual framework for research utilization was developed during the course of the WHO and Partners Technical Consultation on Turning Research into Practice (TRIP) held in Geneva, Switzerland, in March 2003, a subsequent TRIP Working Group meeting held in London, United Kingdom, in July 2003 and a TRIP Workshop to Review Case-Studies (held in Johannesburg, South Africa, in June 2004). The development process involved an analysis of definitions and determinants of research utilization, as well as an examination of existing case-studies, conceptual pathways and key elements of research utilization. The utility of the conceptual framework as a tool for documenting and examining research utilization through analysis of case-studies was tested and refined during the June 2004 TRIP Workshop, with input from policy-makers, researchers, and programme managers in the field of sexual and reproductive health.

Several guiding principles have informed the development of the conceptual framework, and include the following.

- There are many existing models and pathways to describe research utilization, but analysis often reveals common underlying concepts or elements. Therefore, a useful conceptual framework should draw on, and distill these common elements.
- Many models of research utilization have been developed, but these are mostly academic and quite complicated, as they are designed to capture the complexity of the processes involved. Hence, from a practical standpoint, such models may not be user-friendly for programme managers or policy-makers in the field. The purpose of the conceptual framework presented here is not to describe every potential pathway or factor, but rather to identify the key elements and simplify the pathways to permit analysis and learning (conceptual, analytical).
- It is not feasible to identify a “generic model” with steps leading to research utilization. But it is possible to identify common factors that facilitate and impede research utilization. Therefore, rather than being seen as prescriptive, the conceptual framework is designed to stimulate thinking about a range of options and approaches to enhance research utilization.

- It is often helpful to think of factors influencing research utilization in relation to three phases within the research cycle: pre-research, during research, and post-research. The conceptual framework should incorporate these phases, understanding that, in reality, they constitute a continuum.
- The further away the impact of research is from the point of research, the more difficult it becomes to link them and document the process and the pathway. Hence, it is more practicable to assess the end-point of research utilization as the impact at the policy level (rather than tracing the impact on programmes or practice). The conceptual framework should therefore encourage assessment of research utilization along a continuum of potential applications of the research results: initiation of further research, advocacy, and new or changed policy, programme, and practice.
- Often, critical factors influencing research utilization are “beyond the control” of researchers (e.g. the prevailing political climate, or evolving district health systems). Moreover, influential relationships or events may be unplanned or serendipitous. Therefore, the conceptual framework should capture these broader “macro-contextual” factors and should refrain from imposing a false sense of order on what is often a chaotic, nonrational process.

USING THE CONCEPTUAL FRAMEWORK

The conceptual framework may be applied both prospectively and retrospectively. Prospectively, donors, researchers, or programme managers can use it to assess and potentially influence factors that may enhance research utilization. Retrospectively, it may be used to analyse case-studies (of either success or failure) in order to learn from them. The conceptual framework is intended to be applicable across a range of research domains (e.g. basic, clinical, epidemiological, social science, or operations research), although it is expected that the research questions, stakeholders, communication strategies, and utilization goals may all vary. Although the conceptual framework may be applied prospectively or retrospectively to single research initiatives, in practice it is more productive to use it in the context of a broader body of existing and accumulating research evidence (i.e. a series of

related research studies that are contributing, or have contributed, to an applicable body of knowledge). Thus, in some cases, utilization of research may be measured by its contribution to a developing theoretical knowledge base, or by its influence in stimulating further areas for investigation. Finally, although the conceptual framework may be useful for highlighting where further attention to certain factors may be critical to achieve research utilization, it does not necessarily follow that these factors lie within the responsibility or sphere of influence of the researcher. Thus, in such cases, the conceptual framework may be a useful tool for alerting or involving other stakeholders, including donors, government, advocacy groups, policy-makers and programme managers.

The following section describes the main components of the conceptual framework for research utilization.

Core factors

A range of core factors can influence research utilization. These are divided into four broad categories in the first column of the conceptual framework shown in Figure 1.

Research process

These factors relate to the research process itself, and are divided into three phases.

- *Pre-research*: factors primarily relevant to the research planning stage.
- *During research*: factors relating to the conduct of the research.
- *Post-research*: factors of importance in the post-research period.

The three phases are not always distinct. It may be helpful to consider them as parts of a continuum.

Stakeholder involvement

Research projects have many stakeholders. Starting with the researchers working on a given project and other researchers (e.g. those in the same research institute), the stakeholders may include individuals, community groups, industry, the government, donors,

international organizations, the media, social activists (both for and against), etc. The cooperation and involvement of these interested parties or stakeholders is generally critical for research utilization. The stakeholders may vary depending on the type of research project (basic research, operations research, etc.), and the nature and extent of their involvement may vary throughout the three phases described above.

Communication

Communication is a process of exchange of information between two or more entities. It is a complex process and, as a factor in research utilization, it refers to activities designed to understand the information needs of diverse audiences (stakeholders) and disseminate research findings to intended target groups.

Macro-contextual factors

Although many of the above factors are, to some extent, within the sphere of influence of researchers, there are a range of contextual factors which may affect research utilization but which are generally beyond their control.

Utilization and scale-up activities

This set of activities is represented in Figure 1 as an arrow showing the crossover from research process to research application. These activities—explicit planning for utilization of findings, allocation of resources for the “push” activities, adaptation of findings and monitoring and evaluation of the push activities, and scaling-up of activities—can play an important role in the utilization of research findings. For example, in the absence of explicit planning, resource allocation, and modifications (e.g. adaptation from pilot phase to scale-up), the ultimate application of research findings may be limited.

Application

In Figure 1, the last column lists five potential areas of application of research findings: research, advocacy, policy, programmes and practice. The relative contribution of a particular piece of research to these areas will vary, as will the directionality of influence (e.g. research influencing policy, and hence programmes, or vice versa).

Figure 1. Conceptual framework for research utilization

Core factors	Subfactors that may influence the chances of utilization		
Research process	<i>Pre-research</i>	<i>During research</i>	<i>Post-research</i>
	<ul style="list-style-type: none"> • Problem identification • Relevance of research questions • Location within existing evidence base (e.g. through systematic reviews) • Credibility of research team • Feasibility of proposed research • Ethical considerations 	<ul style="list-style-type: none"> • Appropriateness of study design and methods • Quality, replicability of research conducted • Local research capacity used or developed 	<ul style="list-style-type: none"> • Credibility and ease of application of research results • Translation into recommendations • Timeliness of dissemination • Practical assessment of implementation needs • Potential public health impact of findings
Stakeholder involvement	<ul style="list-style-type: none"> • Nature of relationship between researchers, policy-makers and other decision-makers • Existence of formal and informal networks (e.g. a technical advisory team) • Extent of participation: fund-raising, research design, implementation, development of recommendations, dissemination activities • Existence of advocates/champions 		
Communication	<ul style="list-style-type: none"> • Level and type of activities undertaken throughout the research process • Use of mass media and other dissemination channels • Packaging and delivery of results for various target groups • Allocation of resources for dissemination 		
Macro-contextual factors	<ul style="list-style-type: none"> • Broader political, legal and programmatic climate • Sensitivity of research questions and findings • Considerations of costs associated with implementation • Synchronization of release of research results and policy cycle • Culture of use of evidence in policy-making • Compatibility of the results with current practices • External interests (e.g. industry, donors, government) • Capacity of the health system to implement policies or programmes (e.g. district health systems, health-care workers) 		

Utilization and scale-up activities

- Explicit planning
- Resource allocation
- Adaptation for scaling-up
- Monitoring and evaluation

Application

Research

- Contribution to evidence base
- Stimulation of new research

Advocacy

- Raising public awareness
- Use of results by advocacy groups
- Endorsement by key decision-makers

Policy

- Change in policies or priorities
- Change in organization of services
- Commitment of resources

Programmes

- Organization and systems change
- Actions (e.g. development of guidelines or training programmes)
- Allocation of resources

Practice

- Behaviour change (e.g. donors, providers, clients, community)
- Availability/use of service/product

How to use the conceptual framework to increase research utilization

Monique Hennink, University of Southampton, Southampton, United Kingdom; **Juliet McEachran**, John Snow International, London, United Kingdom

INTRODUCTION

The best use of the conceptual framework is as a comprehensive planning tool. When used as such, it can allow researchers to plan activities to enhance research utilization through the life of the project, and beyond. However, the conceptual framework can also be used once the project has been completed: (i) to identify and analyse the various factors and activities (communication, collaboration, etc.) undertaken during the research process to enhance utilization; or (ii) in cases where research utilization was less than expected, to identify and analyse factors and activities that may have been neglected or inadequately executed. It should be kept in mind that it is often difficult to prove a causal relationship between activities to enhance research utilization and actual utilization.

This chapter discusses the factors researchers need to consider during the three main phases of the research process: pre-research, during research and post-research. Although some factors are discussed individually in relation to a single phase of the research process, in practice they may need to be applied such that the three phases are seen as a single continuum. In applying the activities recommended in the conceptual framework, researchers need to be aware of what they can influence and what they cannot. For example, researchers can influence certain external factors to strengthen research utilization, in particular, by employing effective communication strategies and developing collaborative links with key stakeholders and end users of the research. However, they may not be able to influence such things as the current political, legal or programmatic climate in the country.

In this chapter, individual sections discuss factors in each phase of the research process. This is followed by a review of additional parallel processes of stakeholder involvement, communication and macro-contextual factors. The importance of these additional processes is described in the discussion of each stage of the research and scaling-up activities.

PRE-RESEARCH STAGE

The pre-research phase involves defining the research problem and developing the research proposal. At this stage it is essential to establish a range of mechanisms that would be implemented throughout the research process to enhance research utilization. In particular, this should include: (i) the establishment of collaborative partnerships with key stakeholders; (ii) mechanisms for communicating (with stakeholders and others) issues related to the research project and its findings; and (iii) the examination of macro-contextual factors related to the setting (see Box 4 on page 23).

The most fundamental activity in the pre-research stage is the identification of the research problem or issue and the key research questions to be addressed. Clearly, research that is viewed as important and relevant by stakeholders will receive more serious attention by these audiences. Research questions may emerge in various ways: they may develop as an extension of previous research findings, emerge from research literature, result from discussions with policy-makers or may stem from a lack of basic knowledge on a particular issue. Regardless of the manner in which the research problem has been identified, researchers need to determine whether the research issues are of central relevance to the stakeholders who may wish to utilize the research results or for whom the results are intended. The most straightforward approach to ensuring that the research problem is central to the concern of stakeholders is to set the research agenda collaboratively with the stakeholders. This involves conducting a “stakeholder analysis” (outlined later in this chapter) and consultations with key end users of the research in order to highlight areas of mutual concern to researchers and stakeholders, including end users. This process may highlight specific research areas for investigation and also yield information about events or processes to which the research findings may contribute (e.g. policy review processes or applications to nongovernmental organizations—NGOs—for further programme funding). A collaborative approach to the identification of the research question also includes involving key stakeholders in the research process from the outset. This helps to ensure that the research questions remain central to the concern of the stakeholders as the research process continues. By contrast,

the research results may be the catalyst for change, whereby findings highlight an issue or problem not previously considered important by stakeholders. This scenario may involve a process of advocacy or lobbying of stakeholders to draw attention to the issues highlighted by the research.

In addition, the development of research questions should be located within an existing body of previous research and supported by credible published literature. It should be clear how the research questions were derived from the existing evidence base and how new knowledge will extend the body of current information on the issue. The evidence base may be a variety of sources, such as published research literature, credible data sources or the collective experience of relevant stakeholders highlighting areas for investigation.

Research findings are more likely to be given consideration if the credibility of the research team is well established. Factors that affect the credibility of the research team include: reputation of the research institution; expertise of the researchers; their experience in applying the research methods (i.e. evaluation, survey, operations research, policy analysis, etc.); their experience in the area/topic of investigation; and their experience of research in the country where research is being conducted. These aspects should be highlighted not only in the research proposal but also in the documentation of research findings targeted to policy and programme audiences.

In utilizing research results, stakeholders need to be confident that the research team has conducted the research ethically. Researchers must obtain ethical approval for the research through the appropriate local, national or international review boards. Without such approval, policy-makers will face difficulties in utilizing the results, and it will be difficult for researchers to promote the research. Ethical considerations also need to be given to the research process, such as seeking participants' consent to take part in a research study, providing assurance of confidentiality for the information collected and providing data security. Lack of appropriate ethical approval was a key barrier to the utilization of the research described in some of the case-studies reviewed to develop this document.

Box 1 highlights research process issues for researchers to consider during the pre-research phase, which may increase the uptake of the research outputs.

One of the key factors contributing to research utilization is the involvement of stakeholders in the research process. Stakeholders include all the agencies (national as well international) who may use the research findings (for advocacy, policy-making, research and

Box 1. Research process—pre-research stage

- Were the research questions identified in a collaborative manner with the stakeholders?
- Do the stakeholders view the research questions as important?
- Do the key stakeholders endorse the proposal?
- At what levels can the results be used (e.g. research evidence base, advocacy, policy, programme or practice)?
- Is the development of a collaborative research proposal (with stakeholders) feasible?
- Is the research question clearly located within an existing evidence base?
- Is there evidence of the research team's expertise? Are relevant prior publications or research outputs highlighted (in the research project proposal)?
- Is the research feasible to deliver the stated objectives? Can the proposed research methods adequately answer the research question(s)?
- Has the research proposal received ethical approval from recognized local, national and/or international bodies? Has appropriate ethical consideration been given to the research process (e.g. research design, informed consent, confidentiality, data security, etc.)?

service provision) and the communities who may be affected by the research outcomes. Stakeholders will vary depending on the research topic, but typically include a range of policy or programme implementers, such as government ministries, public officials, legal representatives, programme implementers, NGOs, international organizations, service delivery organizations and community associations.

Research can have the greatest impact on policy and programmatic change when effective communication exists between researchers and the various stakeholders throughout the research process (1,2). Often interactions with stakeholders are considered only during the dissemination of the research findings, rather than as a central component throughout the research process. Stakeholder involvement in research provides the opportunity to develop a synthesis between the priority areas of policy or programme implementers and

the issues investigated by research organizations, an alignment which is critical for research uptake and utilization. This partnership ensures that research issues target current programmatic or policy needs, and that research results are disseminated to coincide with policy review cycles. In addition, stakeholder involvement in the research process often leads to a more effective consideration of policy issues, political limitations and practical realities in the interpretation and application of the research findings for policy development and service delivery protocols (3).

Stakeholder involvement should be viewed as a continual activity throughout the research process, and beyond it. Engaging stakeholders can have many purposes, among others: to identify stakeholders' issues, level of interest and endorsement of a planned research project; to conduct research "agenda setting" discussions; and to identify the research needs and priorities of various stakeholders, as strategic partners in achieving change, for example the media and advocacy groups. As previously discussed, initiating stakeholder involvement early in the research process will allow stakeholder input into defining the scope of the research proposal and the research questions. Such activities foster ownership of the research by the various stakeholder agencies, which will be beneficial for the uptake and utilization of the results (1,3,4).

Engaging stakeholders in the research process may begin by developing a range of forums to present and discuss the research issues and to invite participation. These forums may include workshops/conferences, roundtable discussions, and evening receptions, for debate, or the use of existing networks (meetings, seminars) to highlight the research issues and gauge stakeholder interest and involvement. The questions in Box 2 highlight the key issues for researchers to consider in fostering and achieving stakeholder involvement in the pre-research phase. Further activities to involve stakeholders in the research and post-research phases are described in later sections.

A comprehensive communication strategy can facilitate the dissemination and utilization of research outputs. During the pre-research stage, communication networks and dissemination strategies need to be developed and implemented for use throughout the research process and after its completion. Research communication activities are time- and resource-intensive and therefore need to be explicitly included in the research proposal, so that adequate resources are available to implement the communication strategy.

The key issues to be considered at the pre-research phase in relation to research communication and dissemination are highlighted in Box 3. Further communi-

Box 2. Stakeholder involvement—pre-research stage

- Who are the likely stakeholders (the government, NGOs, community agencies or representatives of the public, service delivery/policy development organizations, donors) in the research?
- What level (local, state, national, international) stakeholders are most interested in the research issue?
- How will partnership with the identified stakeholders benefit the research (e.g. raise profile of the research question (and the research team), initiate a public debate, increase public awareness of the issue, provide contextual relevance, place the issue on the agenda of the government)?
- How will the research findings benefit various stakeholders?
- What pre-research activities (e.g. workshop opening, receptions, conferences, research scoping documents) have been planned to engage key stakeholders?
- What can stakeholders do to help (e.g. refine the research question, assist with advocacy, endorse the importance of the research question, engage decision-makers, facilitate fieldwork) throughout the research process?
- Do stakeholders have a sense of 'ownership' of the research project?
- Could stakeholders 'champion' the cause for which the research is being conducted?
- What are stakeholders' current views on the research topic?

cation issues related to the research and post-research phases are described in later sections.

Researchers must also recognize that in many contexts there exists a range of macro-level contextual factors (political climate surrounding the research issue, priorities and attitudes of politicians and decision-makers, funding for programmes and services, etc.) which may inhibit or facilitate the utilization of research results. While these factors are usually beyond the influence of researchers, careful planning and smart communication can help mitigate the influence of these factors where they are unfavourable.

The absence of a strong culture of using research evidence in policy-making and programme development is one strong barrier to the uptake of research findings (3). Research findings may simply be undervalued in policy formation and seen to have little to contribute to the policy development process. In addition, research that advocates change may disrupt long-standing power relationships and organizational cultures that take a great deal of effort to implement, and as such, may be ignored by policy-makers (5). Although these contextual issues are largely beyond the influence of researchers, awareness of the macro-context within

Box 3. Communication—pre-research stage

- Does the proposal include funding for networking and dissemination activities?
- Has a mass media communication strategy been identified?
- Is the strategy feasible and cost-effective?
- Is the strategy flexible enough to react to macro-contextual factors? For example, will the strategy be able to deal with the emergence of new stakeholders, negative publicity related to the research issue, and new national or international initiatives?

The strategy must address the following:

- What are the communication needs (advocacy, policy-making, media briefings, etc.) of each stakeholder?
- What are the communication preferences of each stakeholder (face-to-face meetings, workshops, e-mail, regular mail, advocacy packages, presentations, research summaries)?
- Is information for the media presented in an appropriate format (in terms of language, brevity, print or electronic medium)?
- What is the optimal time (throughout the research process or after the completion of the research) for communication with each stakeholder?
- Who is responsible (a dedicated staff member, responsibility shared by all members of the team, or even a person from among the stakeholders) for communication activities?
- What mechanisms (e.g. steering committee, task force, technical advisory group, email list serve) have been developed to inform stakeholders of the research progress?

which the research is being conducted should be identified and researchers should keep up with any changes in these attitudes. Box 4 presents macro-contextual factors related to the pre-research stage.

RESEARCH CONDUCT STAGE

This is the stage in which the research is conducted. Since research utilization can be hampered by uncertainty about how the research was conducted and/or how the results were derived, researchers need to ensure that they are employing a sound and appropriate study design in relation to the research objectives.

Box 4. Macro-contextual factors—pre-research stage

- Does the research proposal include a description of relevant macro-contextual factors (e.g. analysis of the programmatic/policy context and the opinions of stakeholders)?
- What activities are planned to address the impact of those factors which can be influenced (e.g. support to staff in evidence-based decision-making, identification of funding sources to support implementation or publication of results to coincide with the policy cycle)?
- Have resources been allocated to monitor and address any additional factors emerging during the research?

Potential factors related to the research issue

- Public opinion of the issue
- Policy or programmatic 'goodwill' towards the issue in terms of both change and resource allocation
- Policy/programme cycle priorities and timing

Potential factors external to the research issue

- The political cycle—are there elections planned during the period of the research?
- Other research or programme initiatives that could eclipse or at least delay the utilization of research results
- Culture of evidence-based decision-making
- Health system capacity

It is equally important to ensure that appropriate data analysis methods are used to arrive at the study findings. Researchers also need to monitor the quality of the research; for primary data collection this involves taking appropriate measures to ensure that the data collected are reliable and valid.

The collaborative partnerships and communication networks established during the pre-research stage can also be utilized in the implementation stage to continue to involve stakeholders in the research process. However, with regard to quality assurance in the conduct of research, it is not being suggested that stakeholders need to be informed about every detail of the research process. The researchers will need to use their judgement in ensuring that policy or programme implementers receive as much information as required by them to feel confident that the research results they intend to utilize are based on scientifically sound methods.

Another issue with regard to research methods is that of contextualization of the methods for the study site. This means that the methods used reflect the context in which the research will be conducted. This may involve designing and translating the research instruments into local languages or dialects, using local research teams to collect the information, and selecting study locations that best reflect the research issues under investigation. If the research has been designed by researchers from outside the study area, the process of contextualization and selection of appropriate study sites may be achieved by collaborating with local researchers or by fostering research partnerships with local stakeholders who can provide valuable 'on-the-ground' input on these issues. The research process issues for consideration during the research conduct stage are highlighted in Box 5.

Keeping stakeholders involved with the research during the conduct stage can help sustain their enthusiasm for the research at the same level as was achieved in the pre-research stage. Of course, the degree of stakeholder involvement during the implementation stage will be different for each research project, and indeed, for different stakeholders. A high level of stakeholder involvement at the conduct stage can be achieved by establishing mechanisms that facilitate stakeholder input into the research activities. For example, research steering committees or technical advisory groups established in the pre-research stage may be allowed to continue during the implementation stage in order to facilitate stakeholder input and to reinforce the value of the collaborative nature of the research project. Stakeholder involvement may also be augmented by inviting stakeholders to play a role in events during the implementation stage (e.g. inauguration of interim workshops or regional activities designed to promote the research).

Box 5. Research process—research conduct stage

- Is the research design (e.g. evaluation, survey, operations research) appropriate to answer the research question(s)?
- Are the most appropriate research methods (i.e. qualitative/quantitative methods) being used to seek the information required?
- Is the research utilizing local research capacity?
- Is the research design sensitive to the context of the study country? Have the research instruments been appropriately contextualized?
- Have in-country collaborators been approached to advise on the research context?
- Is in-country capacity building appropriate to improve research quality?
- Are the research objectives feasible in the time frame of the research?

Some stakeholders (and their organizations) may also be in a position to advocate for the research (and its findings). These stakeholders may be at the community, national or international level or within programmes or ministries. Issues for consideration regarding stakeholder involvement in the research conduct stage are highlighted in Box 6.

During the research conduct stage, maintaining contact with local media networks can help to sustain the advocacy drive (and public interest) in favour of the research topic. This is best exemplified in the case-study on improving sex education in Nepal (see page 39). The researchers of the Nepal study had initiated links with the media by inviting them to pre-research forums. Then, during the conduct stage, they regularly wrote feature articles for local newspapers on the topic of sex education in Nepal, which in turn sparked debates on the issue on the local radio. Thus, even before the results of the research were available, the media helped the researchers to sustain public interest in the study. Broader communication issues during the research conduct stage are highlighted in Box 7.

Throughout the research conduct stage researchers must continually assess the macro-contextual factors related to their research (see Box 8). While the research team may have accurately mapped these factors during the pre-research phase, it is likely that

Box 6. Stakeholder involvement—research conduct stage

- Is there a role for stakeholders during the research implementation stage?
- Have the stakeholders been kept informed of the research process (e.g. through steering committees, working party reports, press conferences, research updates, email)?
- Have the stakeholders been involved (i.e. facilitating field activities, inaugurating interim workshops) in the research execution?
- Are the stakeholders represented on technical advisory groups?
- Are the research issues being ‘championed’ by the stakeholders or advocates?
- How have advocacy groups been involved in the research?
- Are there formal or informal mechanisms for stakeholder interaction throughout the research process?

Box 7. Communication—research conduct stage

- What plans exist to keep the research issues on the agenda of policy-makers?
- How are the media to be kept informed (e.g. through media articles, press briefings, radio debates) of the research issues?
- How are the stakeholders to be kept informed (e.g. through periodic progress briefs, quarterly project reports, technical advisory group meetings, project fact-sheets) of the research progress?
- What existing local networks (e.g. service provider networks, national academic forums, newsletters, bulletins) are to be used to update the stakeholders?

changes may occur during the course of the research. In addition, new factors or previously unidentified factors may arise. Not only should influential factors be examined, but opportunities to build or mitigate the

Box 8. Macro-contextual factors—research conduct stage

- Have any political or legal frameworks changed which may impact on how the findings of the research will be viewed?
- Are other macro-contextual factors still being identified and addressed?
- Have additional stakeholders emerged as a result of the continued examination of macro-contextual factors?

effects of those factors should be identified and actions planned.

Researchers should draw on the knowledge of the stakeholders to identify the macro-contextual factors. By doing so, researchers are likely to strengthen their relationship further with the stakeholders, and are more likely to identify all the factors that can affect research utilization.

POST-RESEARCH STAGE

The post-research stage begins when data analysis is largely complete and includes final analysis of the research results, interpretation of the results and the development of study recommendations. It is during this stage that activities to enhance the utilization of the research findings are concentrated. At this stage, the research information needs to be communicated to the stakeholders in a timely manner and in an appropriate format. However, if one takes the view that communication activities at this stage largely involve sending out information, one risks overlooking the opportunities that exist to enhance the final research products, in terms of both adding to the evidence base and fostering utilization of the research.

Researchers can extract greater insights from the research results—especially in terms of the implications of the findings—by interpreting the results in partnership with key stakeholders. This open process allows the stakeholders to examine first-hand the credibility of the results; it also allows the researchers to learn how the results will resonate with the target population. This feedback may result in a more comprehensive—and realistic—answer to the research question, as different/additional analyses can help increase the likelihood of research utilization by targeting results to the needs of different stakeholders. It is suggested that the results be finalized after this process.

The process of interpreting results in partnership also ensures that the interpretation is consistent with stakeholder understanding of the issue. This is not to say that research will not reveal new findings to stakeholders, but by their very nature, the stakeholders should be those most directly involved with the subject area in the study location and therefore interpret results differently than academic researchers.

One key to achieving research utilization is to communicate clearly with all those concerned by the public health and policy implications of the research findings. Stakeholder involvement in the identification of these implications and the development of recommendations is essential to ensure that these final recommendations are comprehensive, feasible and appropriate. The inclusion of an assessment of what measures (and resources) will be needed to implement the recommendations will further enhance the likelihood of utilization. The process of examining the implications, developing recommendations and assessing the implementation needs, is likely to be led by stakeholders rather than the partnerships that were involved in the finalization of research findings and interpretation of results (led mostly by researchers).

Involving stakeholders in the process of data analysis and framing of recommendations also facilitates the endorsement of results and recommendations by stakeholders, a factor which also greatly improves the likelihood of utilization. Since stakeholders are likely to be key advocates of the research, the more detailed understanding they have of the results and recommendations, the better they will be able to advocate for their utilization. It is possible that the research team may need to make a sustained effort to achieve this detailed level of understanding on the part of stakeholders. Documentation and understanding of these efforts are essential to ensure that external dissemination activities address any problems identified. Stakeholder involvement in the post-research stage is summarized in Box 9.

Having finalized the results and policy implications and recommendations, the dissemination plan developed in the pre-research stage should be re-examined in light of both the research results and macro-contextual factors. This step will help finalize the research messages for each of the identified stakeholders. The appropriate presentation formats of these outputs (messages) vary for different stakeholders and include dissemination workshops, face-to-face meetings, policy briefs, press conferences, final reports with executive summaries, journal articles, newspaper articles and conference presentations. Questions for the researchers to consider in this regard are outlined in Box 10.

Box 9. Stakeholder involvement—post-research stage

- Which stakeholders have been identified for involvement in the following:
 - finalization of data analysis
 - interpretation of results
 - examination of the public health and policy implications
 - development of the study recommendations?
- Have any additional stakeholders been identified as a result of the above process of data analysis and formulation of recommendations with stakeholders or in the process of reviewing the macro-contextual factors?

Box 10. Communication—post-research stage

- Have stakeholders provided input into the final communication strategy for the research?
- For each target audience have the following been clearly identified:
 - what information needs to be communicated
 - how it should be communicated (i.e. the format of communication)
 - when the communication should take place
 - who will be responsible for communicating the identified information to particular stakeholders?
- Is there clear allocation of the roles and responsibilities of members of the research team and stakeholders for implementing the communication strategy?

SCALE-UP ACTIVITIES

With certain research projects, planning for research utilization may need to go beyond the immediate implementation of the research recommendations. For example, basic formative research may have identified the reasons for low uptake of a contraceptive method in an area and to improve the situation further operations research may be needed to test the interventions rec-

ommended by the research team and the stakeholders. Such actions fall under “scale-up” activities—actions that naturally follow on from the research results. In some cases, the funding for such activities is included in the initial funding proposal, for example follow-up operations research. In others, additional funding is obtained to take the results further—for example, a review of the sex education curriculum in Nepal leading to additional funding to implement changes in the school curriculum and to provide the necessary technical support to achieve this.

In both cases, scale-up activities facilitate the ultimate utilization of research by providing support to the organization(s) implementing the research recommendations. As detailed in the conceptual framework, activities at this level include: explicit planning of specific actions for scaling-up the recommended intervention; listing and allocating the required resources as per need; setting up the framework for monitoring and evaluation; and adapting the intervention for scale-up.

APPLICATION

All research is expected to contribute to the scientific evidence base, in the form of conference presentations, peer-reviewed journal publication, and other printed materials. In the case of some research, utilization from within the evidence base may be the only level of utilization. For example, basic formative research examining the low uptake of IUDs in a certain context is likely to lead to additional research into ways the situation can be improved, but the research itself could not be acted upon by policy-makers or programme managers.

The other utilization level(s)—advocacy, policy, programmes and practice—targeted by research must be identified in the pre-research phase of the study. The identification of this level or levels will dictate the identification of stakeholders, the communication strat-

egy and the mapping of macro-contextual factors. The achievement of utilization at the chosen level must be feasible and consistent with the aims of the research. For example, an intervention to examine the change in IUD uptake when female family planning service providers are trained to undertake insertion techniques can feasibly change service provision within the family planning programme. Therefore, the utilization strategy should focus on change within the programme.

REFERENCES

1. Porter R, Pryor-Jones S. *Making a difference to policies and programmes: a guide for researchers. Support for Analysis and Research in Africa (SARA) Project*. Washington, DC, Office of Sustainable Development, United States Agency for International Development, Africa Bureau, 1997.
2. Aggleton P. *Promoting the use of 'reproductive health results' towards greater synergy. Workshop on Moving Beyond Research to Influence Policy, 23–24 January 2001*. Southampton, UK, Department of International Development, University of Southampton, 2002.
3. Hennink M, Stephenson R. Using research to influence policy: barriers and strategies in developing countries. *Journal of Health Communication*, 2005, 10: 231–242 [PubMed: 15804906] [DOI: 10.1080/10810730590915128].
4. Hanney S et al. The utilisation of health research in policy-making: concepts, examples and methods of assessment. *Health Research Policy and Systems*, 2000 (available online at: <http://www.health-policy-systems.com/content/1/1/2>, accessed on 5 May 2006).
5. Haaga J, Maru R. The effect of operations research on program changes in Bangladesh. *Studies in Family Planning*, 1996, 27:76–87 [PubMed: 8714305].

A checklist for policy-makers and programme managers to enhance utilization of research

John Townsend, FRONTIERS in Reproductive Health Program, Population Council, Washington, DC, USA

OBJECTIVE

The objective of this checklist is to help policy-makers and programme managers determine the potential for utilization of a research project. This list can be used either before the implementation of the project or upon its completion.

POTENTIAL USERS OF THE CHECKLIST

The following types of health professionals can use this list:

- policy-makers and programme managers (for deciding on whether to invest in an applied research project);
- potential advocates seeking to foster evidence-based programmes;
- policy-makers and programme managers seeking to enhance programme performance through the use of research.

HOW TO USE THE CHECKLIST

Simply make note of the answers as you ask yourself the questions below. Ignore the questions that do not relate to your specific situation. Collectively the answers will provide you insights into the value of the research project you wish to evaluate.

1. What is the topic of the research or the research question? Are other relevant national and/or international data on the topic included in the background of the proposal? (Closed question: if yes, so what data?)
2. What is the rationale for conducting the research?
3. What is (are) the objective(s) of the research?
4. Who are the sponsors of the research? Who is financing the research? (Not the same?)
5. Who are the principal investigators? With what organization are they affiliated? Are they credible sources of information?
6. Has the research undergone a technical review by a national authority? By which review board? Did the research receive ethical review? By whom?
7. What types of data will be collected (e.g. needs assessment, readiness of facilities, availability of human resources, process of intervention, client profile, coverage and quality of elements of service such as training, supervision, or logistics, and costs and financing, others)?
8. Where will the research be conducted? What other types of data are available on the topic for the same geographical area?
9. Is there a need for advocacy on the issues addressed by the research? If yes, at what level is it required and was the advocacy undertaken?
10. When will the data be made available? When is the data required for greatest policy relevance? Who will make the data available, and in what form?
11. What policy or programme decisions might be informed by the results of this research? What is the policy context in which the results will be used?
12. Who are the potential users of the results? What has been their involvement in the research design or implementation? Please identify individuals and their organizational affiliation.
13. How will the data be made available to each audience (e.g. presentation, policy briefing, reports, publication)?
14. What are the principal findings to date? Are the results positive or negative relative to the objectives and hypotheses?
15. What are the plans for dissemination? Has dissemination been budgeted for? Have dissemination efforts already been conducted? If yes, with what result?

16. Are data on the same theme available from other sources? How do these results compare to data from other studies?

17. What are the resource implications of the research for the scaling-up of services?

18. What are the potential implications of the research for financing new or improved services?

19. Has there been an attempt to use the results to date? What was the outcome? How could the process of utilization have been improved?

20. Where have the data produced by the research been archived? Is there access to the data for secondary analysis or review?

RECOMMENDATION

The results of this checklist should be filed in a way that they can be retrieved and consulted as strategies evolve or related research is reviewed.

Factors commonly influencing research utilization: lessons from eight operations research studies in Africa

Ian Askew, FRONTIERS in Reproductive Health Program, Population Council, Nairobi, Kenya

The Population Council's Frontiers in Reproductive Health program (FRONTIERS) provides technical and financial support to research that is intended explicitly to be utilized for strengthening the delivery of sexual and reproductive health services. As such, this research programme sponsors research studies for which one of the main criteria of success is whether or not the results have been used. This paper describes the findings from an assessment of eight case-studies of operations research projects undertaken during the 1990s in four countries of sub-Saharan Africa (1). The case-studies sought to identify the determinants that most commonly influenced whether and how the research results were utilized. Utilization was measured in terms of changes in health-care delivery procedures or policies by service organizations, and the extent to which the results were used by additional organizations external to the research. The assessment identified eight factors that influenced the extent to which research findings were used in all of the eight case-studies. These eight factors are described below. For each factor, the questions used to determine the extent to which utilization occurred are given, followed by a brief description of why and how each factor was influential.

DEFINITION OF THE PROBLEM

The more the programme managers were in a position to determine the research question the more likely they were to use the results. Utilization was greatest if they were, in effect, commissioning the research by determining the nature of the problem, specifying the research question, and determining how they would use the results, rather than simply approving a research project presented to them with limited or no consultation. In defining the problem, the programme managers considered the following questions.

What was the nature of the programmatic problem and who defined it?

Was helping resolve this problem a priority for programme decision-makers?

How was the need for a research study to address the problem initiated, and by whom?

Developing research projects in collaboration with national stakeholders to address their expressed needs and problems was probably the most critical determinant for ensuring that the results would be used. Indeed, the closer a study could become to being "commissioned" research, the greater the likelihood that programme staff would be interested in using the results.

RELATIONSHIP BETWEEN RESEARCHERS AND PROGRAMME DECISION-MAKERS

What type of relationship existed between researchers and programme decision-makers? How frequently did they meet and what was the quality of the contacts between them?

Did researchers and programme decision-makers collaborate during the different stages of research?

What was the quality of this collaboration?

Paying explicit attention to, and spending time on, building and maintaining close relationships with programme collaborators through frequent and cordial interactions (determinants of quality of collaboration) during all stages of research was found to be crucial to enhancing utilization. Holding regular meetings and feeding back information about progress encourages a feeling of ownership and expectancy for the results.

POLITICAL AND PROGRAMMATIC CONTEXT

At the time of the study, what was the general political situation in the country?

What was the programme's political and organizational climate?

Were there any concurrent research studies on the same subject?

An assessment of the prevailing programmatic and political context when developing a study is important in determining whether the results could be

used once the study is completed. It is essential to minimize duplication of effort and maximize potential interrelations among research activities by identifying other projects that are being conducted concurrently around the same topic. Ensuring that the results are produced at a time when they can be used by decision-makers is also an important determinant.

QUALITY OF THE OPERATIONS RESEARCH STUDY

How relevant were the hypotheses in terms of programme needs?

What was the general regard for the quality of the operations research?

What was the quality of the technical assistance provided by researchers from the operations research/technical assistance project?

Even if programme managers are not conversant with the research process and methods, they are able to distinguish between good- and poor-quality research. In order to generate strong evidence, researchers need to use a tight experimental design. Sometimes, this may impose restrictions on how the intervention is implemented and create ethical concerns around using control groups. The reasons why a particular research design is thought by researchers to be necessary should be discussed with programme managers at the pre-research stage; researchers may need to compromise somewhat on the strength of design if it is not acceptable to managers for logistic or other reasons.

DISSEMINATION ACTIVITIES

Written

What types of reports were prepared for the written presentation of findings and in what languages?

What was the timeliness of the reports?

How useful were the study reports?

What types of audiences were exposed to the study reports?

Verbal

Have the research findings been presented?

If yes, at what type of forum?

What was the timeliness of the presentations?

What types of audiences were exposed to the presentations?

In general, information dissemination activities should aim to reach as many people and as diverse (but relevant) audiences as possible. Many sexual and reproductive health researchers work in academic settings in which there is neither the experience nor the motivation to provide feedback about research results to programme managers in a user-friendly way. Therefore, it is important to improve researchers' capacity to communicate the programmatic implications of research results to non-academic audiences using appropriate language and to engage with individuals or organizations.

DEVELOPMENT OF STUDY RECOMMENDATIONS

Who participated in the development of recommendations?

Were the recommendations submitted in writing so that they could be easily translated into policy statements or programmatic changes?

What were programme managers' reactions to the study's recommendations?

It is critical for researchers to develop clear, concrete and detailed recommendations in collaboration with those who will be using the results to change their programmes. At the programme level, recommendations must outline specific actions to be taken, including the person(s) responsible for them, timelines for completion, and a clear indication of where the resources needed for their implementation are going to come from.

EFFORTS TO PROMOTE THE UTILIZATION OF STUDY FINDINGS

What type of relationship existed between researchers and programme managers at the conclusion of the study and after that?

Who took the lead in initiating activities that led to the utilization of the findings?

Were there funds available to pursue the utilization of findings?

As far as possible, funding should be included in the research budget to support staff time for promoting and facilitating utilization as well as communication with stakeholders. Funding should also be included in

the budget for helping institutions to obtain funding and for developing new service delivery procedures or policies.

SUSTAINABILITY

Is the study's impact short-term or long-term?

Did the intervention itself include a component on sustainability?

The sooner it is anticipated what actions will be needed if research shows an intervention to be effective, the better the chances of the results being implemented. For example, if programme managers commit them-

selves to implementing the findings of a research project before it is conducted, the chances of utilization of the findings are increased. Similarly, if at the pre-research (planning) stage, tentative plans are made of what actions would be needed if the interventions to be tested were to prove effective, the service delivery programmes can consider the implications (in terms of resources, staff, training, etc.) of sustaining the intervention even before the study begins.

REFERENCES

1. Solo J et al. *Strengthening the utilization of family planning operations research: findings from case-studies in Africa*. Nairobi, Kenya, Population Council, 1998.

A pathway to promote and guide the use of sexual and reproductive health research on sensitive issues in policy formulation and service programmes

Juliet McEachran, John Snow, International, London, United Kingdom

INTRODUCTION

This section discusses factors that researchers need to consider when promoting the use of sexual and reproductive health research on sensitive topics, such as abortion, domestic violence, female genital mutilation/cutting or young people's sexual health, in policy formulation and programmes. The section highlights the distinct challenges that research on these topics poses in terms of influencing policy formulation and services delivery. These challenges exist because:

1. Sensitive health issues are more likely to be excluded from the mainstream health agenda within a country. In order to communicate with policy-makers on these charged issues, researchers require special communication skills and strategies, including detailed understanding of the health and the sociopolitical/religious/cultural context of the issues.
2. In situations where a sensitive topic has not yet entered the mainstream health agenda, research is more likely to be exploratory or descriptive—e.g. documenting the nature of young people's sexual behaviour. While this type of research may highlight the lack of policy on a specific topic, it is unlikely to be able to feed directly into detailed policy formulation.

BACKGROUND TO THE PATHWAY

The pathway described in this paper is derived from an international workshop held at the University of Southampton, Southampton, United Kingdom, in 2001. Entitled "*Moving beyond research to influence policy*" (1), the workshop focused on examining ways of enhancing the impact of research on policy, primarily from the researchers' perspective. The components of the pathway are as follows: development of the research question; identification of target audience(s); communication strategies; utilization of research findings; evaluation of research findings; facilitating factors; and barriers.

In the case of research on sensitive issues three components of this pathway are discussed in detail: identification of target audience(s), communication strategies and evaluation of research findings. Other components of the pathway are discussed in brief only.

THE PATHWAY

Development of the research question

A research question that has been identified in collaboration with key stakeholders is more likely to address key issues than one formulated by researchers without consultation with stakeholders. The pre-research stage is the ideal time to engage with key stakeholders, for example by offering them the opportunity to investigate an issue which they have identified and which can be incorporated into the study.

Identification of the target audience(s)

The target audience(s) of research can include a diverse group of stakeholders. Three basic components of the target audience(s) are:

- the beneficiaries—e.g. young people or women who have experienced an unplanned pregnancy;
- the implementers of programme/policy change—e.g. midwives, district health officers or family planning nurses; and
- national policy-makers.

Other groups may include advocacy groups, the media, other health service providers (e.g. local and international nongovernmental organizations—NGOs).

Who is a policy-maker?

The ministry of health is not always the only policy target for sexual and reproductive health research. For example, in the case of a study that aimed to change abortion legislation in Nepal, the key policy-makers identified were those who could influence the legal status of abortion; they included the judiciary, parliamentarians, political parties and administrative policy-makers (2). Other sexual and reproductive health policy targets may include the ministry of education—e.g. to inform the sex education curriculum in schools or change policy on school attendance for pregnant teenagers/teenage mothers.

Who is involved in the policy process?

Understanding the policy process is crucial. In the case of research on sensitive topics it is likely that the target audience will have to be broader than the beneficiaries, policy-makers and implementers; it would have to include all those involved in the policy change process, such as lawyers, political parties and religious leaders (e.g. to counter opposition to sexual and reproductive health services for unmarried young people or changing the law on abortion). Also, in order to publicize the issue widely, researchers would need the support of the media and advocacy groups, as well as international and national NGOs. All the target audiences should be involved in the research from the earliest opportunity and should ideally be involved in finalizing the research questions and design of the study.

Communication strategies

The ideal mode of communication varies for different target audiences and this issue is not covered in depth in this chapter. However, depending on the audience, the types of communication should include the following: regular information updates (in printed format and through face-to-face meetings), research summaries, press releases, dissemination workshops (especially for less literate populations), policy briefs and final reports (with executive summaries and policy recommendations).

One issue that may be key in disseminating research on sensitive issues is consideration of the need for advocacy. Who pays for/informs/controls advocacy? At a minimum, researchers must be able to ensure that the messages coming out of their study are accurately communicated. The researcher producing the advocacy materials, for example posters, leaflets, press releases and policy briefings, can best achieve this. The extent to which the research budget might pay for advocacy or the researcher might inform (or be involved in) an advocacy campaign will vary in different research studies but should be considered at the study's inception.

What to communicate and when?

Research on sensitive issues is more likely to be utilized if the formulation and presentation of initial results are strategic as opposed to comprehensive. Working with those who are going to implement the programme or policy change, for example youth workers or health-care providers dealing with the consequences of

unsafe abortion, helps to ensure that recommendations are achievable on the ground.¹

In addition to formulating feasible recommendations, it may be more effective to be strategic in choosing the initial recommendations made to policy-makers. For example, in a study examining pregnancy in school-girls, it may be better to start by simply recommending that young women who become pregnant are not immediately barred from attending school. Once the acceptability of this message has been assessed, recommendations concerning the provision of sexual and reproductive health services in schools could be followed up. In socially conservative settings, if both recommendations are pushed from the outset, there is a risk that neither may be implemented, or implementation of both may be delayed.

Utilization of research findings

This component of the pathway refers to the activities undertaken to ensure that research makes the step from simply being communicated to becoming policy and being implemented at the appropriate level.

Evaluation of research findings

In the case of descriptive or exploratory research on sensitive topics, the policy outcome is likely to be less distinct than a change in policy. The impact of initial research on sensitive topics in a country may be limited to increased press coverage, be it positive or negative. Alternatively, it may lead to increased awareness of the topic among policy-makers. In the context of evaluation of research impact, this awareness may be measurable either in terms of the manner (depth of knowledge of the topic) in which it is discussed or the frequency with which it is discussed in public forums; the latter is usually easier to measure. Subtle contextual changes are difficult to measure but in the case of research on sensitive topics it is this type of evaluation that may be necessary.

Sometimes it is difficult to credit one study alone for a major policy change. For example, in 2002, a bill was passed in Nepal that legalized abortion. Several research projects and advocacy campaigns brought about this change in the law (3), but no one study could claim sole responsibility for this change.

The fact that clusters of research studies more frequently result in policy change than single studies highlights another issue: the time period over which a

¹ The workshop led to the development of the *Getting Research into Policy and Practice (GRIPP)* Internet web site, a resource for researchers at <www.jsi-GRIPP-resources.net>

study is evaluated for its policy impact. The first study on a major public health issue is unlikely to lead to immediate policy change. Policy changes come about only after other studies on the same topic have been conducted and a sufficient body of evidence has been generated. This should be discussed at the planning stage of the initial study and it is possible that after a defined time has elapsed the responsibility for the required evaluation of impact might switch back to the funding agency.

Facilitating factors

These are factors that may have been previously mentioned in the pathway or may be external factors that facilitated the utilization of research findings in policy-making and/or their use in practice (democratic institutions, strong mass media networks to facilitate public debates, respect for science and scientists, etc.).

Barriers

In this component of the pathway researchers are encouraged to reflect on the barriers which they encountered in trying to ensure that their research influenced policy-making or programme management.

CONCLUSION

Research on sensitive topics broadly follows the same generic pathway to utilization as research on other topics. However, researchers need to give special attention to building liaisons with appropriate stakeholders even before the research is conducted and especially when recommendations based on the results of the research are being framed. A collaborative effort in formulating recommendations ensures that the recommendations reflect a wider consensus on actions, thus increasing their chance of being implemented.

REFERENCES

1. *Workshop on moving beyond research to influence policy*. University of Southampton, Southampton, United Kingdom, 23–24 January 2001. (Available online at: <http://www.socstats.soton.ac.uk/choices/workshop/index.html>; accessed on 1 September 2005).
2. Askew I, Matthews Z, Partridge R. *Going beyond research: a key issues paper raising discussion points related to dissemination, utilization and impact of reproductive and sexual health research* (available online at: <http://www.socstats.soton.ac.uk/choices/workshop/keyissues.pdf>; accessed on 5 May 2006).
3. Tamang A. *Public education and advocacy against unsafe abortion; a case-study of Nepal* (available online at: <http://www.socstats.soton.ac.uk/choices/workshop/tamang.html>; accessed on 5 May 2006).

Improving utilization of sexual and reproductive health research through collaboration

Monique Hennink, University of Southampton, Southampton, United Kingdom

SUMMARY

One of the essential elements for utilization of research results in policy-making or service delivery practice is the involvement of key stakeholders in the research process. Collaboration with stakeholders is beneficial to all—researchers, policy-makers and programme managers—as it helps ensure that the results are disseminated widely and effectively. A further benefit which is often overlooked by researchers is the advocacy role of the stakeholders in the process of policy development.

There are numerous pathways to promoting the use of research in policy-making and service delivery that are applicable in differing scenarios. The pathway discussed in the present paper focuses on collaboration with the stakeholders (especially the end users) of the research. To be able to use this pathway, researchers need to be familiar with strategies that can help to develop and sustain collaborative links with stakeholders throughout the research process, and beyond it. One way of helping researchers in this regard is to develop guidelines for planning collaborative research projects. Such guidelines may include examples and case-studies of how to foster collaborative research at various stages of the research process.

RATIONALE FOR THE SUGGESTED PATHWAY

Research conducted in collaboration with stakeholders helps to ensure that the results are disseminated widely and effectively. Policy-makers acknowledge that research results are more likely to be used for policy development if the research is directly commissioned by them, if it clearly responds to a policy need or if the end users are involved in the research process. Involvement in the research process enables policy-makers to express their needs and to remain informed of the study results and implications. For the researcher, involving policy-makers and programme managers in the research process often leads to a more effective consideration of policy issues, political limitations and practical realities in implementing the research findings. In addition, the endorsement of the results by key stakeholders is critical when disseminating and advocating for the findings.

Collaboration between researchers and policy-makers and programme managers should be viewed as a continual process with possibilities for interaction at various stages of the process. The stakeholders can contribute to the development of research proposals and formulation of research questions and policy recommendations. This can help ensure that the research questions relate to priority problems and the recommendations take account of the resource constraints in the area where they are to be implemented. Ensuring that stakeholders gain a sense of ownership of the research is critical to utilization of the findings. The statements below from a researcher and a policy-maker illustrate this point:

“I can’t think of a single effective way of dissemination. Dissemination is very difficult. It is not an event, it is a process. There is not just one effective way. Research is also a process of stages and at each stage there is an opportunity to involve the policy-makers—do this and then they don’t look at the product at the end as something they didn’t endorse.” (Researcher in Malawi)

“There needs to be a whole dialogue between policy-makers and researchers at the beginning of the research study, so that it becomes something that programmers have a vested interest in and researchers understand that vested interest and try to meet it. That might help to facilitate the uptake of research findings in decision-making.” (Policy-maker in Malawi)

A greater understanding of the potential contribution of research to policy and practice and the constraints of policy formation or service delivery would undoubtedly arise from closer collaboration between researchers and policy-makers.

Aggleton (1) identifies two types of collaborative research relationships (Table 1). In the ‘dominant’ model, research is dominated by richer countries and in the ‘alternative’ model, which promotes collaboration between primarily local stakeholders, interaction at various stages of the research process is a central component. The dominant model may be viewed more as a cooperation and a transfer-of-knowledge model and the alternative model as a partnership model. Aggleton argues that the alternative model would be more effective in increasing the utilization of research results as

the end users are engaged as directly as possible in various stages of the research process and crucially in the interpretation and application of research in policy development or delivery protocols.

A further benefit of collaboration in research, which is often overlooked by researchers, is the role stakeholders can play in advocacy for policy development. For some research topics, advocacy to inform the community or delivery agencies is important in order to attract the attention of decision-makers. In-country organizations, such as relevant NGOs, are often best placed to act as advocates for research issues. They often have extensive community networks and have experience in advocacy and sufficient standing with relevant government bodies to be able to influence policy-making. However, NGOs often do not have the capacity to conduct research themselves or government agencies do not see most of them as independent enough to be able to conduct credible research in order to generate the needed evidence base for the issues they promote. Therefore, they are frequently keen to enter into partnerships with researchers, and this can be mutually beneficial.

PLANNING COLLABORATIVE RESEARCH

Given that collaborative research relationships are seen as crucial to increasing the likelihood of research utilization, one pathway to improving research utilization is to provide researchers with strategies to develop and maintain collaborative links with key stakeholders throughout the research process and beyond it. It is acknowledged that there are numerous pathways for

promoting the use of research in policy formulation and service provision which are applicable to differing scenarios. However, a consistent component of successful research uptake is the involvement of the end users in the research process. The pathway promoted here is applicable when planning a research project to enhance the prospects of findings being used once generated.

The case-studies outlined in Table 2 describe how collaborative research led to the utilization of research results by policy-makers. The collaborative activities undertaken at each stage of the research process are highlighted in the case-studies.

Case-study 1 refers to improving the provision of sexual and reproductive health services for adolescents in Pakistan. This example shows the role of advocacy and community networking in sensitizing a wide range of stakeholders and decision-makers prior to conducting research on sensitive issues. The endorsement of the Ministry for Population Welfare of the research issues raised the profile of the research and the collaboration led to the identification of adolescent sexual and reproductive health as a priority area on the agenda of national policy-makers in Pakistan.

Case-study 2 refers to research that aimed to improve school-based sex education in Nepal. This example highlights: (i) the partnership between researchers and key policy-makers throughout the research process; (ii) the emphasis placed on engaging stakeholders in the research from the outset (in proposal development) and raising awareness of the research issues; (iii) the influence of positive media coverage to advocate for

Table 1. Models of collaborative research

Dominant model	Alternative model
<ul style="list-style-type: none"> Developed-country institutions <i>identify problems</i> Developed-country institutions <i>send researchers/intervention specialists</i> to developing countries Developing-country institutions <i>collaborate</i> with institutions in developed countries Developed-country institutions <i>learn</i> from the research Developed-country institutions <i>transfer</i> the learnt knowledge to institutions in developing countries Poorer countries are invited to <i>participate</i> in further research 	<ul style="list-style-type: none"> All stakeholders (in developed and developing countries) work together to <i>identify problems</i> Research is <i>planned locally</i>, with on-site training of the required staff and provision of support Institutions in developed and developing countries and other stakeholders <i>together develop</i> research projects and approaches to research conduct All stakeholders <i>jointly analyse and disseminate</i> the results New knowledge is <i>shared</i> by all stakeholders

Source: Adapted from Aggleton (1).

Table 2. Two case-studies highlighting actions that contributed to research utilization

Case-study 1: Adolescent sexual and reproductive health in Pakistan¹	
Steps in the research process	Actions taken
1. Identification of research issue/need	A local NGO (PAVHNA) identified the need for sexual and reproductive health care for adolescents in Pakistan.
2. Identification of, and engaging with, stakeholders	PAVHNA convened a national meeting on sexual and reproductive health issues for adolescents, inviting parents, teachers, youth leaders, private/public health-care service providers, donors, journalists and policy-makers to raise awareness of the issues and encourage a debate on the subject. Pakistan's Ministry of Population Welfare endorsed the study proposal.
3. Development of research proposal	UNFPA and the International Council on Management of Population Programmes (ICOMP) provided technical assistance for the development of the research proposal and instruments.
4. Securing funding	
5. Research conduct	Fieldwork conducted using PAVHNA networks in local communities.
6. Interpretation of findings	Findings were interpreted for action by PAVHNA.
7. Development of policy recommendations	PAVHNA developed the policy recommendations with stakeholders.
8. Dissemination of, and advocacy for the findings	A national workshop was held to disseminate the results. All stakeholders who had participated in the national meeting at the beginning of the project were invited. All stakeholders supported the findings and the need for increasing public awareness of the issue.
9. Adoption of recommended interventions	<i>Outcomes:</i> Sexual and reproductive health care for adolescents was recognized as a priority area by national level policy-makers. PAVHNA was invited to steering committee meetings to design a sexual and reproductive health programme with the Ministry of Population Welfare.

¹ Qazi Y. *Promoting the use of reproductive health research results. Paper presented at the Moving beyond research to influence policy workshop*, University of Southampton, 23–24 January 2001, Southampton, United Kingdom (available at: <http://www.socstats.soton.ac.uk/choices/workshop/qazi.html>; accessed on 5 May 2006).

Case-study 2: Improving school sex education in Nepal²

Actions taken

The issue was identified by a local researcher in consultation with the Ministry of Education. The idea was developed further with input from a key NGO (SOLID Nepal). Funding was secured from the UK Department for International Development (DFID).

Identification: SOLID Nepal conducted an analysis of stakeholders to identify individuals and organizations (government officials, teachers organizations, national and international NGOs, academic institutions, media) with a direct interest in the topic. Individuals and representatives of the organizations were personally invited to the initial research planning workshop.

Engaging stakeholders: Prior to the research planning workshop, the stakeholders (the Minister of Education, education officials and members of the curriculum development committee) were invited to a reception. A workshop was conducted to raise awareness of issues, develop links between stakeholders and finalize the research proposal. The workshop was opened by the Minister of State of Education, Undersecretary, Ministry of Education and print media and television journalists. Press briefings were held and media packs distributed.

The research proposal was finalized (with key stakeholders) at the above workshop.

Funding was secured at the outset for the entire project.

Media were invited to all events and continually sent articles through the local SOLID office. Debate on the topic was kept alive in the media (newspapers and television).

The basic analysis was done by the local research team and SOLID Nepal.

Policy recommendations were developed in partnership with local collaborators, NGOs and civil servants, by devoting one day of the national conference to dissemination of results (see below) for this purpose.

A national conference, inaugurated by the State Minister for Women/Children, was held to disseminate the findings and to advocate for evidence-based policy planning. The participation of the Minister and key stakeholders generated media interest in it. Conference proceedings were published along with press releases, executive summary sheets, and articles in NGO publications; presentations were made at international academic conferences.

Outcomes: The school curriculum was revised, training of trainers was undertaken in how to impart sex education, and coordination between training institutions and schools was established. A two-day meeting with key stakeholders (including Ministries of Health and Education) was held to discuss further work on the same topic.

² Stone N et al. Knowledge of sexual health issues amongst unmarried young people in Nepal. *Asia-Pacific Population Journal*, 2003, 18:33–54.

Table 3. Questions for researchers to consider in developing a collaborative research project

Steps in the research process	Questions
1. Identification of research issue/need	<ul style="list-style-type: none"> • How was the research issue identified? (Was it identified in partnership with in-country organizations?) <ul style="list-style-type: none"> • Is the issue of interest/importance to policy-makers and programme managers? • Has collaboration with in-country organizations been planned?
2. Identification of, and engaging with, stakeholders	<ul style="list-style-type: none"> • Which agencies have an interest in the research issue? Who will be the end users (government, NGOs, communities, service delivery/policy development agencies, donors, academics)? <ul style="list-style-type: none"> • What level (i.e. local, state, national) stakeholders are most relevant? • How will stakeholders be identified and reached? • How will stakeholders' views be identified? • Does the research coincide with any planned policy reviews? • Who are the advocates for the issue (e.g. NGOs and community groups)? • Which are other influential groups (e.g. religious leaders, parents and lobby groups)? • Will the issue be of sufficient interest to the media? What is the communication strategy regarding contacts with the media? • What activities would best facilitate developing links with and between stakeholders? • What roles can stakeholders play in the research process (e.g. opening workshops, endorsing issues, engaging decision-makers and facilitating field operations)? • How will research benefit stakeholders (e.g. evidence base for policy/service delivery, technical expertise and funds for research)? At what level could different results be used? • How will partnerships benefit research (e.g. raise profile of the research, initiate public debate, increase public awareness, provide contextual relevance and place the issue on agenda of the government)? • Will the collaboration depend on cultivating close contacts with individuals (e.g. involving key government officials can increase their awareness about the issue)?
3. Development of research proposal	<ul style="list-style-type: none"> • Does the proposal reflect the issues/concerns of stakeholders? <ul style="list-style-type: none"> • Are stakeholders involved in proposal development? • Will the outputs of the research benefit stakeholders? • Do key stakeholders endorse the proposal? • Is a dissemination/utilization plan identified in the proposal?
4. Securing funding	<ul style="list-style-type: none"> • Is application for joint funding (e.g. jointly with government ministries, NGOs and others) appropriate? <ul style="list-style-type: none"> • Has funding been allocated in the proposal for dissemination activities?
5. Research conduct	<ul style="list-style-type: none"> • Is there a role for stakeholders in the implementation of the research? <ul style="list-style-type: none"> • Is capacity-building appropriate with selected agencies? • How are stakeholders kept informed of the research progress, initial findings, etc.? • How is the issue kept on various public agendas (government, community organizations, the media)?

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|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6. Interpretation of findings | <ul style="list-style-type: none">• Are stakeholders involved in interpreting the research findings?<ul style="list-style-type: none">• Are the findings sensitive to the context, resources and priorities of the study country? |
| 7. Development of policy recommendations | <ul style="list-style-type: none">• Are stakeholders involved in developing research recommendations?<ul style="list-style-type: none">• How have the recommendations been made appropriate for context, resources, politics? Are recommendations short, clear, jargon-free and action-oriented? Do they identify who should act? |
| 8. Dissemination of, and advocacy for, the findings | <ul style="list-style-type: none">• What is the dissemination plan (audience, messages, media/channel, activities, funding, timing)?<ul style="list-style-type: none">• Who are the target audiences (i.e. primary and secondary levels of influence)?• What are the key messages from the research? (Note the need for different messages for different audiences.)• What is the scope (local, national, international) of dissemination?• Will results be communicated through a range of activities?• Are materials developed for different audiences?• Who is most appropriate to disseminate materials?• What are the roles of stakeholders in dissemination activities?• Is the timing of each dissemination event appropriate (i.e. pegging of dissemination to special events such as World Health Day, etc.)?• Are the media involved in dissemination activities? Which channels are most appropriate?• Which are the most appropriate target agencies for dissemination of the results?• What could hinder dissemination activities? |
| 9. Adoption of recommended interventions | <ul style="list-style-type: none">• Has a research utilization plan been prepared?<ul style="list-style-type: none">• Has collaboration beyond the research been planned?• With whom should partnership be continued?• Have time/resources been allocated for the application of research findings in practice? |

Table 4. Examples of activities to promote collaboration by stages of research project

Steps in the research process	Examples of ways to promote collaboration
1. Identification of research issue/need	<ul style="list-style-type: none"> • Stakeholders participate in identification of research issue • Formal needs assessment is conducted
2. Identification of, and engaging with, stakeholders	<ul style="list-style-type: none"> • Identify stakeholders by conducting stakeholder (proponents and opponents) analysis • Build networks of media contacts, advocates/stakeholders, and personal contacts • Engage stakeholders through roundtable discussions, evening receptions, etc. (<i>Potential stakeholders:</i> Government ministers, political advisers, legal representatives, civil servants, community associations, journalists, end users, programme managers/providers, community leaders, influential players (teachers, parents, religious leaders. etc.), national and international NGOs, etc.)
3. Development of research proposal	<ul style="list-style-type: none"> • Develop proposal through a technical advisory committee • Circulate draft study protocols among interested groups to get input and support
4. Securing funding	<ul style="list-style-type: none"> • Identify stakeholders who can either provide funding or can help secure funding for the project
5. Research conduct	<ul style="list-style-type: none"> • Keep stakeholders informed through periodic update briefs, quarterly project reports • Promote debate/advocacy via media articles, radio programmes, etc.
6. Interpretation of findings and development of recommendations	<ul style="list-style-type: none"> • Interpret findings jointly with stakeholders: working group to refine/ interpret findings • Develop study resolutions for adoption, implementation, and further work • Conduct workshop with discussion groups involving relevant stakeholders
7. Dissemination of, and advocacy for, the findings	<ul style="list-style-type: none"> • Use multiple channels: institutional mailing lists (policy briefs, executive summaries, project fact-sheets, key issues papers), mass media (print, radio, television, press releases/briefings), traditional community channels (drama), advocacy workshop, conferences, policy presentations, informal briefings • Use all existing networks (local/regional/national), newsletters, bulletins, meetings/seminars, community groups, provider networks (e.g. medical associations), etc. • Use communication mediators • Coincide dissemination with key events, launches, reviews, meetings, etc. • Plan roles for stakeholders: to open workshops, to endorse issues, to advocate
8. Adoption of recommended interventions	<ul style="list-style-type: none"> • Develop working groups, steering committees, task forces • Develop agenda for further work

issues in the community; (iv) fostering ownership of the research by policy-makers by engaging them at key stages of the research process; and (v) tailoring dissemination activities to differing audiences.

The common elements of the two case-studies in improving the use of the research results by policy-makers included:

- identification of the research issue by in-country stakeholders/local agencies
- partnership with a local 'champion' for continuity and advocacy of the issues
- fostering ownership of the research by stakeholders/decision-makers
- collaboration with stakeholders at various stages in the research process
- emphasis on engaging stakeholders early in the research process
- involving policy-makers and programme managers in proposal development in order to identify issues and priorities from a policy and programme perspective
- facilitating interaction with stakeholders through forums
- using media and community networks to conduct an advocacy campaign to raise public awareness of the research issues
- obtaining the endorsement of key decision-makers for the research issues
- providing technical/scientific expertise with research execution
- giving stakeholders special roles at various stages of the research process (e.g. inaugurating workshops)
- researchers remaining involved with stakeholders in the application of the findings to policy or practice beyond the completion of research.

Since collaboration is the central theme of these common elements, it would be logical to suggest that researchers be provided with guidelines on how to foster collaborative research relationships and how to maintain these throughout the research process and beyond it. Table 3 lists the types of questions researchers need to consider in planning research projects in order to maximize collaboration in research. Focusing on these questions will enable researchers to give due

consideration to issues of collaboration, dissemination and utilization early in the research process. Table 3 shows that the emphasis in planning collaborative research is particularly focused on identifying/engaging stakeholders (stage 2) and in the dissemination and utilization of the results (stages 8 and 9), but partnership at all stages is important. The questions in Table 3 could equally be used by donor agencies to assess a research proposal for the extent to which collaborative activities have been planned in it.

Guidelines for researchers would need to include a range of strategies of how to develop and maintain effective collaborative relationships. Strategies should be suggested for the various stages of the research process, such as the examples shown in Table 4, which provide a "menu" of activities that researchers can use to develop collaborative research strategies. The examples may be drawn from:

- known factors or activities which improve research utilization (i.e. from the literature)
- examples of good practice/detailed case-studies of collaborative research projects.

Clearly, the exact nature of the partnerships and collaboration may only emerge during the process of the research itself and will differ depending on the context and topic area of each research project. However, it is important to consider the range of activities which may foster collaborative research, effective dissemination and utilization of the results while in the planning stages of research projects.

Finally, it is acknowledged that collaboration with end users alone will not guarantee utilization of research results. There are likely to be a combination of factors which, if applied together, will enhance utilization. Such other factors can be identified from the literature and include the quality of research, a positive political climate, the timing of the research, the relevance of the study to identified needs, clear study recommendations, the characteristics of research reports (non-technical, clear, short, etc.) and funding for dissemination. However, many of these factors can be assisted through research in partnership with end users. It is also acknowledged that there are various types of research (i.e. operations research, field-based studies, survey analysis, evaluations), and for some of these collaborative approaches are less appropriate.

REFERENCES

1. Aggleton P. *Promoting the use of 'reproductive health results' towards greater synergy* (available at: <http://www.socstats.soton.ac.uk/choices/workshop/aggleton.html>; accessed on 5 May 2006).

Pathways to promote and guide the use of sexual and reproductive health research

James Trostle, Trinity College, Hartford, CT, USA, and National Institute of Public Health, Mexico City, Mexico

This paper explores the definitions of certain key words related to research utilization and challenges at the international level related to the use of sexual and reproductive health research to influence policy and programmes. These are:

- the meaning of words like “pathway,” “use,” “programme,” and “policy”;
- the challenges facing research institutions in developing countries as they try to implement incentives to promote greater and broader use of research;
- the difficult and vexing role of actions that fall under “advocacy” in the research process; and
- the fact that policy processes vary across nations, and that standard guidelines for how scientific researchers participate in or otherwise influence policy processes may present complex challenges in diverse settings.

This is not an exhaustive list of critical issues, rather these are examples of some of “the bumps on the road” between research and policy.

Pause for just a moment on that metaphor of “bumps on the road”. Such metaphors abound in discussions of research and policy: pathways, roads, bridges, ladders, obstacles, translations, architecture, flows, channels, stakeholders, and vehicles are all frequently encountered. But how straight and direct is a pathway? How congested is a bridge? Can researchers themselves be stakeholders? Is it ever helpful to think about policy in terms of a single rushing river? A Mexican health official may have said it best when he stated that “policy is the rechanneling of existing rivers”. Metaphors of braided currents, oxbow lakes, whirlpools, and undercurrents might more effectively guide our thoughts about policy than metaphors of rushing rivers. Each metaphor carries a set of implicit assumptions within it that should be carefully examined if the metaphor is to do its difficult work of conveying the intended meanings.

MEANINGS

An unpublished background paper produced by WHO outlining a guide to utilization of research described the broad variety of possible uses of research findings, including advocacy, policy formulation, policy change, programme development, programme strengthening (via the introduction of new practices versus the abandonment of old ones), improving service delivery, informing practice, and improving public health.

These varied uses involve different pathways. For example, advocacy seems to work best when it creates or follows many pathways, building alliances, disseminating news to the mass media, understanding political processes, knowing what decision-makers care about and what influences them. In contrast to advocacy, programme development may involve the formation of fewer alliances between researchers and programme staff, but these relationships are closer and the success of these relationships depends on how well informed the researchers are about the local resources and constraints and how well the programme staff can understand scientific and technical issues. A pathway towards strengthening rather than developing new programmes will probably require more in-depth knowledge of existing programme objectives and their history and operations, as well as closer relationships between researchers and programme staff and sound knowledge of programme staff’s motivations for change. Similarly, the goal of informing practice will require multiple pathways leading towards practitioner groups (professional organizations, workplaces, labour regulations and standards) and knowledge of existing practice standards. In contrast, the goal of changing policy requires pathways towards government institutions, managers, and decision-makers more than practitioners.

This points to the uncertainty about the meaning of the words “policy” and “programme.” Even where the intended goal of research is clearly policy change, the level of that policy or programme will also clearly influence the pathways discussed in this document. Thus, management policies at the individual-site level (e.g. how job descriptions and work schedules must be changed to integrate contraceptive services into a primary care practice) pose different research needs and

challenges from management policies at the national level (e.g. how to obtain reliable sources of contraceptives and other supplies or how to implement a national training programme in sexual and reproductive health for primary care providers). The type, context, and level of a policy or a programme must be understood and specified by researchers who seek to meet local challenges.

CHALLENGES

Despite the complexity of potential uses for their research, researchers may actually face a limited set of major options in thinking about how to contribute to a political debate or issue. These include: providing information directly via a scientific publication; presenting information in a distilled summary format in non-technical language; preparing policy memoranda and briefings; coalition-building and lobbying to conduct advocacy; and creating a facilitating environment for proposed interventions through media interviews, press releases, letters to the editor, commentaries, and other forms of social expression like popular songs, television, drama, etc. Much has already been said about the burden of these additional activities on researchers who have been trained to perform other functions.

This challenge is institutional as well as individual. Researchers respond and conform to the incentives and expectations they encounter in their workplace. If a research institution seeks to increase the contribution of its research to policies or programmes, it must clarify whether it expects its researchers to do all these varied tasks (direct provision, distillation and translation, advocacy, and creation of a facilitating environment) themselves, or whether it will promote the necessary partnerships for this. The institution must reward these knowledge-use functions in addition to the knowledge-production functions. Academic incentive systems that reward publication in scientific journals do not usually reward researchers for publishing in newspapers and magazines, appearing in television interviews, contributing to soap operas or *telenovelas*, or serving on national commissions. While peer-review and publishing in scientific journals should be a primary aim, subsequent multimedia dissemination of findings can enhance utilization. Incentive systems can be changed to encourage subsequent wider dissemination, but doing so is complex and time-consuming and requires pressure from both within and outside the institution.

Donors to research institutions confront similar challenges. They need to consider whether they should fund research institutions to undertake this work, or whether it might be done better by professionals who work in separate organizations that translate findings into policy actions and promote research in policy-set-

tings. Might the work be better undertaken by passive repositories of policy-relevant research findings available for consultation by policy-makers? Donors face the challenge of deciding what types of institutional structures can best transform research into policy, and then provide the training and operational funds to these structures so that they can work efficiently but also create their own self-sustaining operations over time. Most industrialized countries already have these types of organizations both in and outside government; in the United States they include the Population Reference Bureau, the Guttmacher Institute, and the Kaiser Family Foundation Media Resource Project. But developing-country environments are more difficult settings in which to help these types of free-standing policy institutes to prosper and thrive. To determine whether policy institutes are desirable and feasible, donors and researchers together need to understand their strengths and weaknesses. In summary, they need to assess the local appropriateness of various researcher roles, in particular the vexing case of advocacy.

THE CASE OF ADVOCACY

Among all the varied ways that researchers can use their results in programmes and policies, the case of advocacy is the most problematic and least understood, but at the same time potentially the most powerful. It is problematic in part because it conflicts with a cultivated and cherished self-image of researchers that their primary role is to produce knowledge while it falls to others to use that knowledge. Researchers are trained to be value-free, neutral, dispassionate producers of knowledge. This stance is thought to improve the quality and accuracy of measurement, but it also could be said to promote the continued social power of a scientific discipline, remaining above battles about the purpose and uses of measurement. Yet researchers are a definable lobby advocating for certain kinds of government and foundation financial support, and often for certain political positions based in their data. They are stakeholders upholding the value of their research and knowledge, which cannot be a dispassionate position in an arena (such as human health) filled with competing claims of truths, limited resources, and conflicts between measures of justice and of efficiency.

Few researchers have training or experience in arguing for particular legislative or programmatic initiatives supported by their research. What training they have rarely helps them build bridges to other disciplines or to other groups that favour such initiatives. The process, when successful, can be extremely complex. This is highlighted in the HRP Biennial Report 2000–2001 (Box 6.4, p. 54) (1). The report relates the experience of a group of Chilean investigators who went through a complex set of advocacy steps over five years to

obtain an approved brand of emergency contraception in their country. Stakeholders in this process included: health providers and activists, educators, potential users, legislators and law and justice officials; and health authorities, professional associations, and the pharmaceutical industry. The researchers first identified allies, then the authorities needing to be sensitized and then allied themselves with NGOs and politicians before undertaking the research to justify treatment protocols to implement emergency contraception. The Chilean Ministry of Health approved emergency contraception, but the Supreme Court later stepped in to ban an emergency contraception product. The researchers then again networked with NGOs and professional groups, collaborated with legislators and the executive branch, and participated in a heavy mass media campaign that involved at least 70 interviews in three months in addition to academic presentations. At this point, unlike earlier, there was high involvement of women's groups. In the end, the Chilean authorities approved a different brand of emergency contraception and there was no further opposition from the Supreme Court.

INTERNATIONAL VARIABILITY IN TRANSLATING RESEARCH INTO POLICY

While all governments by definition face similar challenges of creating and enforcing laws and policies, there is no reason to expect that all governments deal with these challenge in the same way, or even that all health issues within a country are dealt with in a uniform fashion. In a study (2,3) of use of research in policy-making in Mexico, it was shown that a list of factors impeding or promoting research utilization (Table 1) developed by Gill Walt (4) could usefully be applied in developing countries. However, some of the particularities of the Mexican case (in vertical programmes devoted to immunization, family planning, cholera, and HIV/AIDS) did not seem to fit the types of models of research to policy that have been developed in industrialized countries. For example, while the quality of research was one factor thought to promote its use in policy, quality in Mexico was conceived by policy-makers as a characteristic of researchers rather than of the research results: it was the prestige of researchers that made their research of high quality and not the reputation of journals in which they published their paper or the strengths of research design and the data. Opportunities for informal communication between researchers and policy-makers were identified by both audiences as important promoters of research utilization. On the other side, Mexican policy-makers often lacked the technical background to be able to understand relevant research, and this impeded research being used in policy. Another impediment was the centralized manner in which power and information were

managed in the Mexican Government. This made it more difficult for researchers outside the capital to get their findings included in policy discussions.

Studying four types of health themes helped to show additional kinds of variability beyond that differentiating industrialized from developing countries. For example, social science research played a larger role in policy in the HIV/AIDS programme and a smaller role in the immunization programme. Operations research was particularly important in some phases of policy-making in family planning, but less so in other phases. And the mass media were thought to play a role in increasing social discord around policy changes in family planning and HIV/AIDS programmes, while they were thought to increase consensus for changes in the cholera and immunization programmes. Thus, this study in Mexico found variability across sites, within sites by programme, and within programmes by type of research or extent of supportive context (2,3).

Research is brought to policy for at least two quite different reasons. The commonly recognized objective is to improve policies by basing them on good evidence. This objective is attained by disseminating high-quality peer-reviewed research, promoting individual results of particular studies, or promoting more widespread evidence from multiple studies. But there is also a second, less obvious objective, namely to improve researchers' social capital and local prestige by linking them more closely with local and international sites of power. This objective is attained through: engaging in media work that enhances researchers' public image and voice; sponsoring meetings that give a researcher authority and connections with local decision-makers; and serving on international committees to increase their stature and regional connections. This second objective helps to justify two activities that might otherwise seem pointless: duplicating research work that has been undertaken elsewhere, and arguing for the relevance of a single study when in reality multiple studies have been undertaken and a body of supportive evidence exists. In each of these activities the pursuit of local prestige justifies actions that would not otherwise seem rational. Local variation in how scientists acquire prestige (among other benefits) also influences what strategies can and will be brought to bear influencing policy.

It is possible and desirable to augment researchers' and policy-makers' capacity to use good data in decision-making. In this regard, it will help researchers to understand better the macro-contextual factors in their local environment and the options available to them. They should learn also from the successes and failures of other researchers before following the recommended guidelines or pathways. Like narrow clear streams and murky curving rivers, metaphors can both reveal and conceal, expose and confuse.

Table 1. Translating research into policy: categorizing factors that promote or impede research utilization across four vertical programmes in Mexico

Category	Influence	Factor
Content	Promote	Target specific issues, concrete results, low-cost recommendations High-quality research (not measured through publication) Biomedical and quantitative research favoured
	Impede	Mutual intellectual disdain Differences in technical language
Actors	Promote	Groups have identified priority problems Official research organizations in the health sector International support for research
	Impede	Differences in agendas, times, styles Lack of technical background for policy-makers Political culture values experience over information Actions of interest groups, especially financial interest
Process	Promote	Opportunities for informal communication Formal communication channels (e.g. monthly bulletins) Interest group equilibrium, or solutions consonant with interests
	Impede	Difficulty communicating research questions or results Vertical management of information
Context	Promote	Researcher/decision-maker rotation When research is urgent and relevant Administrative change can promote policy change (new audiences)
	Impede	Centralization: power and information Vertical organization Hierarchical power (middle more resistant) Administrative change can impede policy change (discontinuity in priorities) Restricted economic resources

Source: Summarized from Trostle et al. (2).

REFERENCES

1. UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction. *Research on reproductive health at WHO: biennial report 2000–2001*. Geneva, World Health Organization, 2002.
2. Trostle J, Bronfman M, Langer A. How do researchers influence decision makers? Case-studies of Mexican policies. *Health Policy and Planning*, 1999, 14(2):103–114.
3. Bronfman M, Langer A, Trostle J. *De la investigación en salud a la política: la difícil traducción*. [From health research to policy: the difficult translation]. Mexico City, Manual Moderno and the Instituto Nacional de Salud Pública, 2000.
4. Walt G. *Health policy: an introduction to process and power*. London, Zed Books, 1994.

Section 2

Case-studies

WHO ProTest initiative in South Africa: a utilization framework case-study

Julia Kim, University of the Witwatersrand, Johannesburg, South Africa, and London School of Hygiene and Tropical Medicine, London, United Kingdom

INTRODUCTION

The following framework is presented as one approach to analysing the research/policy environment in relation to its potential for effective research utilization. The term “environment” is used deliberately to broaden the scope of analysis to include elements relating to advocacy, policy, programmes, and practice. As with any conceptual framework, it represents an over-simplification of what is admittedly a complex process. However, its utility lies in breaking down a complex environment into its component parts, in order to facilitate analysis.

RESEARCH UTILIZATION FRAMEWORK

In an ideal scenario, research can contribute to all these: advocacy, policy-making, programmes and practices. This is usually expected to happen in the following sequence: research evidence strengthens advocacy efforts, which in turn facilitate policy-making; improved policies lead to better objectives and guidelines for programmes and this further leads to improved practices; the practices may be evaluated again through research, thus completing the loop. In practice, however, it is easier to see how research may affect advocacy and policy-making, but the direct influence of research on programmes and practices is less evident. For example, many programmes or practitioners do not have the time or the capacity to seek out and apply new research findings, let alone to conduct operational research.

An important question related to this conceptual framework is, Who determines the research questions? The impetus driving a particular research focus often includes a broad range of contextual factors (e.g. media attention, donor funding, or the prevailing political climate) which, in turn, may impact on the perceived acceptability and eventual utilization of the research findings.

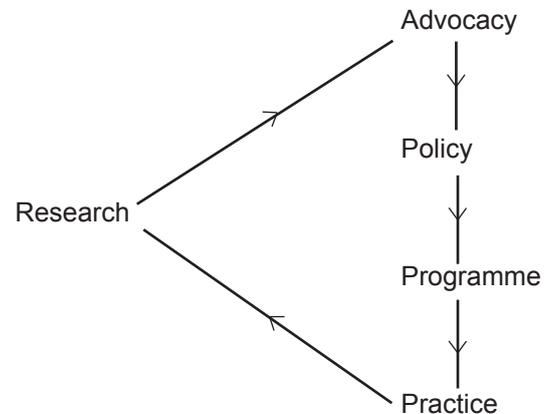
Using the framework

This framework can be used in several ways:

- Retrospectively—to analyse prior experience, in order to clarify lessons learnt (e.g. see the case-study below).

- Prospectively—to assess a particular environment and see whether it is favourable to research utilization (situation analysis).
- Intervention—to deliberately target and strengthen aspects of the environment in order to encourage research utilization.
- Monitoring—to evaluate the effectiveness of research utilization, and to assess the functioning of the entire system over time.

Figure 1. Diagrammatic representation of the framework showing the potential directions of pathways for research utilization and relationships between research, advocacy, policy, programme and practice



The following sections describe how the framework was used in the analysis of a case-study with a view to describing and assessing how a particular research/policy environment affected utilization of research findings in South Africa.

CASE-STUDY: OVERVIEW OF THE WHO PROTEST INITIATIVE, SOUTH AFRICA

The ProTest initiative was conceived and developed by WHO in response to the unprecedented scale of the epidemic of HIV-related tuberculosis (TB) in South Africa. Its aim was to develop, through operational research, a district-based programme approach to deal

with TB and HIV jointly. The approach entails the promotion of HIV voluntary counselling and testing (VCT) as an entry point into a package of interventions aimed at reducing the dual burden of HIV/TB. Over the past three years, pilot projects have begun in South Africa, Malawi, and Zambia, with funding coming mainly from partner and country funds, with some contributions from WHO. The intention was to develop and evaluate the feasibility, impact and cost-effectiveness of a set of interventions to decrease the burden of HIV-related TB. The interventions evaluated were as follows:

- increasing access to voluntary counselling and rapid HIV testing;
- improving TB case-finding among HIV-positive clients and treating those infected also with TB to reduce TB transmission;
- providing preventive therapy (with isoniazid preventive therapy and insulin potentiation therapy (IPT)) and reducing reactivation of, and reinfection with, TB (using cotrimoxazole preventive therapy and comprehensive performance test (CPT)) to reduce TB-related morbidity and mortality; and
- improving collaboration with stakeholders and service providers to generally improve the health system.

Analysis of case-study using framework

The following analysis is based on interviews with three key informants involved in the South African ProTest initiative at national, provincial, and district levels. It describes experiences covering a period from 1999 to 2003—from the identification of the pilot districts to the closure of the study. This case-study focuses primarily on the Bohlabela district (one of the rural sites), in Limpopo province. Analysis of the case-study is presented in a step-wise fashion, using the framework to ask the following five core questions.

1. What was the impetus for embarking on the ProTest initiative in South Africa?

The subquestions under this question are: Which stakeholders were consulted? Who was funding the research? and How were the research questions determined?

Historical context

In 1996, the South African Department of Health (DOH), together with WHO, reviewed South Africa's TB programme and noted the alarming rise in the related epidemics of TB and HIV. Provincial TB managers expressed the need to focus on both diseases

as priority issues, and to integrate the two programmes more effectively. In 1998, a new post of National TB/HIV coordinator was created and tenders were invited for the establishment of several national TB/HIV pilot districts. Following a competitive process, two urban and two rural sites from four provinces (Limpopo, Kwa-Zulu Natal, Eastern Cape, and Western Cape) were chosen. These pilot sites were funded through the national DOH AIDS budget, and eventually linked to the WHO ProTest initiative in order to facilitate exchange of information with other African countries. In the end, six hospitals and 41 clinics were involved in the ProTest activities in South Africa.

Research questions of interest

At the same time, several new rapid (finger-prick) HIV tests had become available, and offered the possibility of making VCT services more widely accessible, particularly at the primary health care (PHC) level. Although antiretroviral therapy was not available through the public sector, it was felt that VCT was still an important entry point for accessing existing preventive therapies and establishing links with TB/HIV care and support within clinics and communities. However, several questions remained to be answered:

- How acceptable would the new rapid tests be? Would there be a demand for VCT services?
- What were appropriate delivery models for VCT in different settings?
- Could IPT and CPT be effectively delivered at the service level?
- Could TB/HIV programmes be better integrated to improve services at district level?

2. What were the main research findings arising from the study?

Under this question, the subquestions are: Were results clear and readily applicable? and Did they answer the main research questions?

Research findings

- The rapid tests dramatically improved uptake of VCT services (290% increase from 1999 to 2001) (1). Although this indicated a high demand for services, concern about the quality of counselling, as well as burnout of counsellors was noted.
- Different delivery models for VCT were developed, which were appropriate for different settings (including clinics, hospitals, stand-alone VCT sites,

and youth centres), and counsellors included both health-care workers and lay people.

- Adherence to IPT and CPT varied considerably between sites. Adherence to IPT in particular was suboptimal, reflecting the impact of broader contextual factors such as poverty and weak health systems on compliance. As a result, it was difficult to formulate clear policy guidelines; they are currently being revised.
- The pilot centres demonstrated the need for a phased approach to implementation which was appropriate to local capacity and resources.
- In general, the pilot centres demonstrated the feasibility of joint TB/HIV programme activities at the service level. District health committees were key players in improving collaboration and continuity of care. This underscored the importance of involving community structures and creating local political commitment for the success of joint TB/HIV activities.

In general, the main research questions were addressed, although the capacity to conduct research varied widely between sites. For example, at the rural sites, where clinical record-keeping was poor or non-existent, the data collection systems necessary for monitoring the pilot activities had to be created. Hence, there was a conflict between the need to standardize research tools, on the one hand, and the need to accommodate wide differences in existing systems, on the other. In some circumstances (e.g. detection of active TB cases), pre-existing weaknesses in routine TB management, referral, reporting and recording systems confounded efforts to improve, or even evaluate, these services.

3. Did the research findings influence advocacy and policy? If so, how?

The related subquestion here is: What were the strengths and limitations of existing structures in facilitating research utilization at the policy level?

Impact on advocacy and policy

In 1999, based on preliminary findings from the pilot sites, the South African DOH developed a five-year national strategy for expanding VCT. This included the goal of having two trained nurses and two trained counsellors per health facility. In addition, the Government set out a five-year expansion plan for establishing joint TB/HIV programme activities in all districts of the country by 2007. The pilot sites played a key role in the planning and allocation of funds for this expansion,

as well as for mobilizing new funds (e.g. through the Belgian Government, and the Global Fund to Fight AIDS, TB, and Malaria).

Strengths of the pilot study in relation to facilitation of research utilization at policy level

In many ways, the pilot sites created a favourable environment for the flow of information and influence between research, advocacy and policy-making. Because the impetus for the research had arisen out of priorities identified by stakeholders in the national Government (rather than by external agencies or donors), ownership and interest in the process was strengthened early on. The invitation of tenders for pilot sites opened up the research process, allowing broader consultations at provincial and district levels, thus lending further legitimacy to the initiative. Because the sites were chosen to represent both rural and urban settings with quite different levels of infrastructure, the research findings were later felt to be relevant to the country as a whole. Association with WHO and ProTest conferred a certain prestige to the initiative, thus ensuring that influential policy-makers (such as senior programme managers and heads of health-care programmes) had regular exposure to the research findings. In this respect, feedback to policy-makers was possible through routine meetings between national AIDS coordinators as well as provincial and national TB coordinators. The creation of a national TB/HIV Advisor post within the DOH was also instrumental in maintaining momentum and focus. Because these favourable networks existed largely within DOH structures, external advocacy efforts (e.g. media, pressure groups) did not play a significant role in bringing the research findings to the attention of policy-makers.

Limitations of the pilot study with regard to facilitation of research utilization at policy level

Although there was relatively high ownership of the initiative at national level, this did not necessarily translate into a sense of ownership at provincial levels. Once policy was articulated by the national Government (e.g. expansion of VCT training within provinces), responsibility for action was left to provincial programme managers. Commitment and capacity to do so varied widely across sites (see next section). Many provincial stakeholders saw the ProTest initiative as a national DOH project and did not engage actively in meetings and discussions. In addition, because the research was supported through government funds it was more open to political scrutiny. This meant that the relevance of research had to be justified against Government's more traditional focus on implementation.

4. Did the research findings influence programmes and practices? If so, how?

The related subquestion here is: What were strengths and limitations of existing structures in facilitating research utilization at the programme and practice levels?

Impacts on programmes and practice (Bohlabela District, Limpopo Province)

As a result of Bohlabela's participation in the ProTest initiative, 250 nurses have been trained, and 60 clinics are now able to offer VCT services. National guidelines for VCT training have been adopted, and the provision of training has begun throughout the province. However, ongoing monitoring and support of these services has been limited, and implementation of IPT and CPT beyond the pilot site has been minimal. Provincial and district programme managers have taken little ownership of driving the process of implementation beyond the pilot site, and further integration of TB and HIV programmes has been limited. Because many of these posts have changed hands several times over the course of the initiative, accountability structures for implementing policy have been found to be weak. A key lesson emerging at this level of analysis is the critical importance of adequately functioning health systems for translating research and policy into practice.

Strengths of pilot study for facilitating research utilization at programme and practice levels

The process of inviting tenders ensured that local consultation and buy-in was sought from the start. Moreover, in a remote rural area such as Bohlabela, where health managers and health workers generally receive little support, the ProTest site visits were important for raising morale and heightening accountability among stakeholders, at least in the short term. The visible "proof" that VCT services could be implemented using existing health-care workers was important for provincial managers to buy into national targets for programme expansion.

Because the research had an operational focus, it was able to uncover and define minimum systems necessary for policy to be implemented in a rural, underdeveloped setting. The site served as a "reality check", highlighting the importance of strengthening basic structures, such as human resources and management, drug procurement, transport, record-keeping, and laboratory services. Finally, because the research protocol was not rigidly predetermined, an organic fluid process was allowed to evolve that responded to real situations that could be interpreted by local players. For example, introduction of VCT at the hospital

in Bohlabela led to the establishment of an HIV clinic and a support group for people with AIDS, which in turn increased the uptake of services.

In many respects, participation in the ProTest initiative created new and direct links between local research and programme implementation. For example, important consultative and reporting processes were catalysed through the establishment of a district TB/HIV committee, which met on a quarterly basis throughout the study. However, because the initiative brought in extra resources and set up new systems (e.g. clinical record-keeping, the TB/HIV committee), it in some ways created an "artificial environment". It remains to be seen how sustainable these systems will be.

Weaknesses of pilot study for facilitating research utilization at programme and practice levels

In theory, opportunities for exchange of information between various stakeholders at national, provincial, and regional levels were built into the ProTest initiative. Periodic meetings convened by the national DOH and WHO were intended to maintain ongoing contact between pilot-site coordinators and provincial and district managers. In addition, some capacity building activities (including goal-oriented project planning) were incorporated into these meetings, focusing on skills such as problem analysis, logical frameworks, budgeting, monitoring, and stakeholder analysis. However, owing to the lack of ownership and high turnover of players described earlier, a series of different health managers attended these meetings, resulting in poor continuity, accountability and follow-through. As a result, existing mechanisms for translating research and policy into programme implementation at provincial or district levels were weak.

In part due to the long distances involved, provincial health managers rarely visited the pilot district, apart from when the formal WHO field visits took place. Quarterly reports sent to provincial and district managers were rarely read, probably due to lack of ownership, shifting organigrams and poor communication networks. Although the pilot site was initially consulted in planning the strategy for province-wide provision of VCT services, the strategy was not implemented due to a subsequent change in health managers. Research findings clearly indicated the importance of ongoing support for nurses in order to maintain the quality of service delivery. Yet, outside of the pilot project, few nurses had any regular contact with supervisors. Finally, because of weak systems for monitoring and evaluating implementation at the field level, the opportunity to create a feedback loop to those responsible for developing the policies at national level has not been fully realized.

5. *What overall lessons have emerged from this “systems approach” to analysing the research/policy environment?*

The related subquestion here is: Which linkages were strong and which were weak?

Having applied the research utilization framework to this case-study, we can now summarize the points raised by the previous enquiries to map out where the links in the chain were strong and where they may have been weak.

- Reflecting on the impetus for launching this research project, the consultative process leading up to the ProTest initiative, the identification of timely operations research questions, and the commitment of funding by the DOH were all helpful in creating a favourable environment for subsequent research utilization.
- Although there was some variability in results between sites, in general the research findings addressed the main questions raised and provided a basis for developing subsequent policies.
- The involvement of key positions and structures within the national DOH, as well as the project’s high profile, allowed the findings from the initiative to reach relevant policy-makers within the Government.
- However, turning to the Bohlabela site, once national policies had been developed, serious pre-existing weaknesses in management, accountability and communication systems at provincial and district levels hindered efforts to translate policy into programmes and practice. The effect of the pilot site’s presence in addressing some of these obstacles must be considered when considering the replicability and sustainability of the initiative.
- In the absence of a reflective process such as this, it is unlikely that important lessons learnt through studying the entire cycle would be available to relevant stakeholders, in order to close the feedback loop.

Finally, a retrospective analysis has the advantage of bringing a historical perspective to the picture. As many analysts have pointed out, policy-makers are frequently influenced by a complex interplay of factors apart from research, and rarely make decisions based on scientific evidence alone. One of the key outputs of the ProTest initiative has been a strong Government commitment to rapid expansion of VCT services throughout the country. Yet, it is interesting to note that the study spanned a period of time during

which advocacy to introduce prevention of mother-to-child transmission programmes, as well as access to antiretroviral therapy (ART) has gained considerable momentum. Because the provision of VCT is a necessary entry point to these initiatives, it is likely that synchronous events such as these may have played a critical role in creating a favourable policy environment through the advocacy efforts of external actors including the media and local and international interest groups. Even taking this into account, the ProTest initiative likely played an important role in ensuring that once political will for VCT was actively mobilized, an evidence base supporting its feasibility and a mechanism for encouraging implementation were already well in place.

THE RESEARCH UTILIZATION FRAMEWORK: POTENTIAL APPLICATIONS AND IMPLICATIONS

As the above case-study has shown, a research utilization framework can be a useful tool for delineating and assessing existing pathways linking research, advocacy, policy, programmes, and practice. Although the component elements of the framework may seem self-evident, in the absence of a methodical approach, gauging “success” or “failure” of the system as a whole may be difficult. Often, stakeholders have only a vague sense of existing mechanisms for research utilization and whether or not they have been effectively used. Without a contextual understanding of all the elements involved, one may err on the side of being overly generous (e.g. attributing policy impact to research findings, when other factors may have been more influential) or overly critical (underestimating the importance of strong local management structures for ensuring policy implementation).

In addition, using such a framework encourages a “systems” approach to understanding a particular environment—one which takes important historical and political factors into account. This is particularly relevant in developing countries or those in rapid transition, where emerging government structures and evolving district health systems may be more significant limiting factors than the strength of available technologies or best practice guidelines. Indeed, if application of such tools across a variety of health sectors maps out repeating patterns of weakness in particular systems, this may be a clear indication that such systems will need to be strengthened before more effective research utilization can be realized.

This leads to three other areas, raised earlier, where this research utilization framework may be useful. Although the case-study demonstrated how such a tool can be applied retrospectively, it may also be used prospectively, to assess a particular environment and

its favourability for research utilization. Such a “situation analysis” may prove helpful for planning research proposals and designing research projects in such a way that they maximize existing strengths and minimize potential areas of weakness. Taking this a step further, if significant obstacles have been identified in advance, the framework can be used to intervene and deliberately strengthen aspects of the research-policy environment in order to raise the probability of subsequent research utilization. Applying the framework to a diversity of research initiatives, it could be used to monitor the effectiveness of research utilization, and to assess the health of the entire system over time.

This systems approach expands traditional paradigms for conceptualizing and supporting research initiatives. Instead of repeatedly dispatching teams of technical consultants to assist in-country teams with research projects, this approach might progressively focus attention on strengthening capacity and creating improved systems of accountability among local health managers. Rather than ensuring that new data collection systems are set up for the duration of a particular study, it might, in addition, work with local stakeholders to improve existing health information systems and information technology.

These approaches obviously raise important questions for donors and collaborating institutions. Investing in the strengthening of such systems is not a short-term endeavour and may not be possible or appropriate in every instance. However, in a growing number of field sites across Africa, established

research centres present an opportunity to invest more substantially in developing these critically interrelated elements. Simultaneously, funding bodies are investing resources in research. However, as this case-study has demonstrated, in the absence of a broader systems framework for assessing and understanding research utilization pathways, there is the tendency to view research in isolation from its contextual environment. It is far easier to continue to focus attention on strengthening the scientific evidence base or developing new and improved tools and technologies than it is to deliberately engage with other sectors to enhance health management and health-service delivery. In the long run, however, investing in supporting these less tangible elements may go a long way towards achieving better research utilization and more lasting benefits in health.

REFERENCES

1. *The ProTest pilot projects: review of achievements, gaps and constraints 1999–2002*. Geneva, World Health Organization, 2002.
2. Pronyk PM et al. Introduction of voluntary counselling and rapid testing for HIV in rural South Africa: from theory to practice. *AIDS Care*, 2002, 14:859–865.
3. Walt G. *Health policy: an introduction to process and power*. Johannesburg, Witwatersrand University Press, 1996:44–46.

Facilitating the uptake of research knowledge by programme managers and policy-makers: some lessons and unsolved challenges

John N. Lavis, McMaster University, Hamilton, Ontario, Canada

A pathway to promote and guide the use of sexual and reproductive health research in service programmes (i.e. by programme managers) and in public policy formulation (i.e. by public policy-makers) should address all relevant actors: researchers; donors to research; directors of applied research organizations; knowledge brokers (dedicated staff who can spend the necessary time examining both the take-home messages from the bodies of research knowledge to which their research organization contributes and the decision-making contexts within which these messages could be acted upon); and health-system managers and public policy-makers. Donors provide incentives for research organizations (and researchers) to produce research and transfer research knowledge in particular ways. Applied research organizations in the health sector produce and transfer research knowledge that can be acted upon by the general public, patients/consumers, clinicians, programme managers, and public policy-makers. Knowledge brokers work at the interface between research organizations and their target audiences.

This paper is aimed at health-system managers and public policy-makers. Both make decisions about the health system and research funding. Many of these decisions can benefit from research knowledge. The use of research knowledge in the process of decision-making is used in this paper as a framework for describing recent Canadian experiences with facilitation of the uptake of research knowledge by programme managers and public policy-makers and the ongoing challenges in this area. By sharing the lessons learnt and the challenges experienced, we can all learn about how to facilitate the uptake of research knowledge by programme managers and public policy-makers.

DONORS TO RESEARCH

The Canadian Health Services Research Foundation (<http://www.chsrf.ca>) has undertaken the following approaches to facilitate the uptake of research knowledge by programme managers and public policy-makers:

- Its funding programme requires “linkage and exchange” between researchers and decision-makers at all stages of the research process.
- Its adjudication process involves both researchers (who judge the scientific excellence of the proposed research) and decision-makers (who judge the applicability of the proposed research to health-system managers and public policy-makers).
- Its reporting requirements (a one-page summary of take-home messages, a three-page executive summary, and a 25-page final report) are geared towards putting usable information into the hands of decision-makers.
- Its capacity-building exercises aim to increase the capacity of health-system managers and public policy-makers to identify, critically appraise and use research.
- Its international networking (through the newly created International Research Funders’ Network) facilitates learning about best practices in research funding from other donors to research with similar target audiences.

The Canadian Institutes of Health Research (<http://www.cihr-irsc.gc.ca/>) was created to replace the Canadian Medical Research Council. Its governing legislation specifies both a broader mandate than its predecessor and a requirement “to excel, according to internationally accepted standards of scientific excellence, in the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian health care system.” The organization has begun to struggle with how best to undertake “knowledge translation” (1). The Canadian Population Health Initiative (<http://secure.cihi.ca/cihiweb/splash.html>) was also created with a dual objective that includes both the generation of new research knowledge and its transfer to health-system managers and public policy-makers.

Canadian donors to research are currently grappling with the following two issues.

1. What is the best way to promote the long-term development of research programmes so that the investments prove worthwhile in terms of development of partnerships between researchers and decision-makers around common issues?

2. Whether and how to move from funding the generation and transfer of research knowledge only in the context of discrete research projects to also funding the production and transfer of take-home messages from bodies of research knowledge (e.g. systematic reviews and knowledge-transfer strategies to facilitate the uptake of take-home messages from the reviews).

RESEARCH ORGANIZATIONS AND RESEARCHERS

The directors of 259 applied research organizations were recently surveyed to assess their current practices in knowledge transfer to decision-makers (2). The survey examined what is transferred (the message), to whom it is transferred and with what investments in targeting them (the target audiences), by whom it is transferred and with what investments in supporting them (the messengers), how it is transferred (interactive processes and supporting communications infrastructure), and to what effect (evaluation).

About one third of research organizations reported moving beyond transferring project-specific reports and report summaries to developing messages for their target audiences that go beyond particular research reports or that specify possible action. While almost two thirds of research organizations tailor their knowledge-transfer approach to their specific target audiences, few dedicate resources to skill-building among their target audiences. Similarly, few organizations dedicate resources to enhancing their internal capacity for knowledge transfer. Between one third and two thirds of research organizations engage their target audiences at different stages of the research process—for example, when establishing the preferred research design and methods. Almost all research organizations supplement these interactive processes with web sites, and some supplement them with other supporting communications instruments such as newsletters. Few research organizations perform any type of evaluative activities related to knowledge transfer.

If these findings reflect a social desirability bias on the part of respondents, then they suggest that the directors of applied research organizations in Canada are at least aware of what they should be doing. If these findings reflect their current practices in knowledge transfer, then opportunities for improvement appear to lie in developing actionable messages for decision-makers, developing the knowledge-uptake skills among their target audiences and knowledge-transfer skills within

their own organizations, and evaluating the impact of their knowledge-transfer activities.

Canadian research organizations are currently grappling with the following two issues.

1. What is the best way of dealing with a research funding system that does not structure the knowledge-transfer requirements for the research organizations it funds in ways conducive to these opportunities and does not provide skill-building workshops for research organizations and decision-makers?

2. What is the best way to build internal capacity for developing actionable messages for programme managers and public policy-makers and to develop evidence-based knowledge-transfer plans for these actionable messages and to evaluate them?

KNOWLEDGE BROKERS

Many Canadian research organizations invest in dedicated staff who can spend the necessary time examining both the take-home messages from the bodies of research knowledge to which their research organization contributes and the decision-making contexts within which these messages could be acted upon. These individuals, often called “knowledge brokers” in Canada, may act as the messenger for particular messages or they may design the knowledge-transfer plans that are executed by researchers. Many of these knowledge brokers recently joined together to create the Canadian Research Transfer Network (<http://www.research-transfer.org>) to enable them to learn from one another about best practices in knowledge brokering.

Canadian knowledge brokers are currently grappling with the following two issues.

1. What specific knowledge-transfer strategies are effective with programme managers and public policy-makers (beyond general “interactive engagement”)?

2. How can knowledge brokers add to the available research knowledge about what works and what does not in knowledge transfer, given that most, if not all, of their work is not conducted and evaluated as part of a formal research project.

PROGRAMME MANAGERS AND PUBLIC POLICY-MAKERS

In Canada, policy-makers outside the health sector have not made much use of research knowledge about the health effects of their policies (3). Surveys of public policy-makers regarding their use of research

knowledge to inform public-policy making have also been relatively rare in Canada, and none have been conducted to assess the uptake of health-systems research knowledge. A recent survey of civil servants in finance, labour, social services, and health departments assessed the uptake of population-health research knowledge in the formulation of policy (4). Seven in ten civil servants report that information on the determinants of health has already influenced public policy-making in their sector. However, about eight in ten report that they need more information about the health consequences of the policy alternatives their departments face.

Case-studies of public policy-making processes to identify whether, how, and under what conditions health-systems research knowledge is used in public policy-making have been undertaken more frequently. This approach was used to explore a number of conceptual, methodological, and practical issues that arise in examining the role of health-systems research in public policy-making (5). Some policies and some policy-making processes appear to lend themselves particularly well to being informed by research knowledge. Different conclusions about the extent to which policy-making is informed by research knowledge may arise from different views about what constitutes health-systems research (i.e. is it citable research or simply a professional social inquiry that can aid in problem-solving?) or different views about what constitutes research use (i.e. does it involve only explicit uses of research or does it also include tacit knowledge or the positions of stakeholders when they are informed by research and influential in the public policy-making process?). It was concluded that some patterns are beginning to emerge in the conditions that appear to favour the use of research knowledge in public policy-making, such as sustained interactions between researchers and public policy-makers.

Canadian programme managers and public policy-makers are currently grappling with the following two issues.

1. How more “conceptual uses” of research knowledge can be promoted and how one can avoid falling into the habits of only commissioning research for narrow “instrumental” purposes or of citing research “symbolically” to buttress decisions made for other reasons?

2. What is the best way of building capacity in programme managers to identify, critically appraise, and use research knowledge (i.e. how to build their “receptor capacity”)?

CONCLUSION

Rather than speaking of a single pathway that can promote and guide the use of sexual and reproductive health research in service programmes and policy formulation, it is perhaps best to speak about multiple pathways, one for each of donors to research, the directors of applied research organizations, knowledge brokers, and health-system managers and public policy-makers. Slowly but surely, we are learning—both from the available research literature on knowledge transfer and uptake and from descriptions of best practices in this area—how we can help each of these actors to improve upon current approaches. Sharing lessons learnt and the challenges ahead is a step in the right direction.

REFERENCES

1. Lomas J. Using ‘linkage and exchange’ to move research into policy at a Canadian foundation: encouraging partnerships between researchers and policymakers is the goal of a promising new Canadian initiative. *Health Affairs*, 2000, 19:236–240.
2. Lavis JN, Robertson D, Woodside JM et al. How can research organizations more effectively transfer research knowledge to decision-makers? *The Milbank Quarterly*, 2003, 81:221–248.
3. Lavis JN. Ideas at the margin or marginalized ideas? Non-medical determinants of health in Canada. *Health Affairs*, 2002, 21:107–112.
4. Lavis JN, Ross SE, Stoddart GL et al. Do Canadian civil servants care about the health of populations? *American Journal of Public Health*, 2003, 93:658–663.
5. Lavis JN, Ross SE, Hurley JE et al. Examining the role of health services research in public policymaking. *The Milbank Quarterly*, 2002, 80:125–154.

Research to practice: successes and lessons learnt

Matthew Tiedemann and Micheal Welsh, Family Health International, Arlington, VA, USA

INTRODUCTION

This paper examines in brief some recent successful examples of use, at the local level, of research conducted by Family Health International (FHI). These cases are considered successful in that they have had a relatively rapid impact on policies or programmes. Reviewing the factors that contributed to the success of the cases can help elucidate what contributes to successful use of research findings.

CHALLENGES SPECIFIC TO GLOBAL RESEARCH FINDINGS

Global research addresses issues of global relevance and seeks answers to broad questions that are of known or presumed relevance in a range of locales, but that do not directly address locally-defined service delivery issues. Such research is typically not designed or conducted in collaboration with local end users (other than the local investigators), and is often supported by international organizations. By its nature, global-level research limits the ability of researchers or sponsoring organizations to adhere to a participatory research model. Such research questions of course have local applicability, but the involvement of local stakeholders in the research process is circumscribed.

Thus, promoting the use of global-level findings is especially challenging, as several necessary and facilitating conditions for research uptake may not exist. They must be created or put in place wherever the research is to be used. These conditions include local stakeholder buy-in or ownership, involvement in formulating the research question (which helps generate the former), perceived relevance, fit with the policy cycle (in terms of timing and political sensitivities), a proactive appreciation by the end users of possible implications of the findings, and political commitment to implement recommendations. As Ellerman (1) puts it, “Many foreign experts have painfully discovered that the devil is in the (local) details”. It is the local component of knowledge that requires adaptation—which in turn requires the active participation of those who know and understand the local environment.

The distinction between global-level and operations research, which typically seeks to answer specific questions in specific settings, is highlighted in a Population Council study (2) of the extent of research utilization achieved in a variety of studies. Documented utilization is tracked in four increasingly complex and difficult-to-achieve categories: (i) information used within the implementing organization; (ii) information used by another organization within the same country; (iii) information used as a basis for a new study; and (iv) findings or methodology used elsewhere. Utilization efforts for global research essentially begin at this final, most difficult stage.

In such circumstances, organizations undertaking global research must work to identify settings for which the findings are appropriate and perceived to be useful, i.e. to create “pull” or demand for findings locally, or to identify latent demand and match the supply to it. One might expect an increased likelihood of findings being used at sites where global research is conducted. Even in these settings, however, the process is still one step removed. In addition to defining the question in advance, researchers working on global questions typically do not plan for utilization in the sites in which the research is conducted, as the site is primarily the means from which to generate evidence that will contribute to the global findings. Ethical considerations regarding informants’ right to benefit from research findings are creating pressure to rethink this approach.

CASE-STUDIES

Prevention of mother-to-child transmission of HIV

A study conducted by the HIV Network for Prevention Trials (3) demonstrated that nevirapine was 47% more effective in reducing mother-to-child transmission (MTCT) of HIV than a short, but much more expensive, course of zidovudine (AZT). At about US\$ 4, the cost of the two doses of nevirapine used in the study (one for the mother and one for the newborn) is a fraction of the cost of other antiretroviral regimens. This simple and inexpensive regimen has spared thousands of infants from HIV infection and has led to more than 70 pro-

grammes for prevention of mother-to-child transmission (PMTCT) of HIV being established within a few years. These PMTCT programmes have served as the platform for adult ARV introduction into resource-poor settings.

Key facilitating factors

The rapidity of adopting nevirapine for the prevention of MTCT is virtually unprecedented, and was possible because of a unique confluence of important factors that facilitated the use of these research findings. The key facilitating factors are highlighted below.

- *Highly significant findings.* The strength of the findings was such that there was no doubt that the nevirapine treatment to prevent mother-to-child-transmission was much better than the alternative.
- *Public health potential.* The results from this research had tremendous potential for public health impact, as it addressed the urgent need for effective PMTCT treatment, in light of increasing cases of MTCT of HIV and the concomitant social and financial burdens.
- *Cost efficiency.* The much lower cost of nevirapine compared to AZT treatment created a powerful incentive for programmes using AZT to switch to this treatment, and increased the programmes that could offer any treatment at all.
- *Private sector support.* The manufacturer of nevirapine (Boehringer Ingelheim) provided the drug free of charge for five years in resource-poor settings.
- *Publications.* The results were rapidly published in a leading peer-reviewed health journal, which lent the findings credibility and influence.
- *Widespread local and global media attention.* In light of the urgency of the situation and the dramatic results, the study generated substantial publicity. This exposed many potential users to the findings, which served as a precursor to utilization.
- *Timeliness of findings.* The study results were available just in time for a major PMTCT conference, at which participants immediately began planning for implementation.
- *Champions or advocates.* The study findings received early and strong commitment from the Elizabeth Glaser Pediatric AIDS Foundation to support implementation of nevirapine PMTCT programmes.

Implementation challenges

The dramatic results of the research and the rapidity with which they were adopted quickly shifted the utilization challenges in this case away from those that often impede adoption of findings to challenges of capacity to implement scaled-up programmes. The primary constraints now facing PMTCT programmes using nevirapine are issues of infrastructure and training to conduct voluntary counselling and testing, deliver the treatment, and other related implementation issues.

Vasectomy technique

Recent studies have shown that the use of fascial interposition (a technique in which the fascial sheath covering the vas deferens is pulled and sewn over one end of the vas after it is cut during a vasectomy) improves the effectiveness of vas closure compared to ligation with excision of a short segment of the vas, the most common method in low-resource settings. Interim analysis of a controlled trial (4) supported jointly by FHI and EngenderHealth found fascial interposition to be significantly more effective than ligation and excision alone.

In light of these findings, EngenderHealth, an international organization conducting training for vasectomy, is updating its reference and training materials for the procedure to incorporate the findings on fascial interposition, and FHI and EngenderHealth have been disseminating the findings to key international and country-level policy-makers. EngenderHealth is also updating its counselling guidelines to offer a more thorough explanation of the potential (albeit small) possibility of method failure.

In addition, the Royal College of Obstetricians and Gynaecologists cited a pilot study (5) as part of the basis of its clinical guidelines on vasectomy techniques, recommending cautery or fascial interposition rather than simple ligation and excision. The guidelines, published in 1999, presented their opinion on vas occlusion methods at that time as being at the lowest evidence level—i.e. expert opinion. Based on recent research, supported by FHI, it is likely that the College will upgrade this recommendation when the guidelines are revised. Evidence from other FHI studies has documented the persistence of numerous sperm in semen in a significant percentage of men following ligation and excision, even when fascial interposition is used. This brings into question the current recommendation that clients use back-up contraception until 20 ejaculations or 12 weeks, whichever comes first, when semen analysis is not available. A waiting period of 12 weeks is significantly more reliable than 20 ejaculations (6). This finding is also being incorporated into vasectomy counselling training and materials.

Additional research on vasectomy (7,8) and some expert opinions suggest that cautery is a more effective method of vas occlusion than ligation and excision with fascial interposition. However, a peer review of the most recent research and further study of a specific thermal cautery technique in low-resource settings should be done before promoting cautery for routine use.

Facilitating factors

- *Service delivery involvement in the research and dissemination process.* This enabled rapid incorporation of the findings into training and information materials and programmes.
- *Public health potential.* These findings have important implications for counselling clients on the method's effectiveness, as well as for training providers in vasectomy techniques.
- *Dissemination.* In addition to routine information dissemination via news releases and publications, experts' meetings were convened on vasectomy effectiveness to share findings with leading experts and normative organizations.

Challenges

The primary challenge in scaling-up the use of these findings is that a major retraining effort is required: each physician practising vasectomy using ligation and excision should receive training in the fascial interposition technique if he/she has not already received such training.

As noted above, there is emerging evidence that using cautery for vas occlusion could be more effective than even ligation and excision with fascial interposition. However, routine cautery use in low-resource settings will require additional research and training as well as supply of cautery devices. It may be prudent to await more rigorous evaluation of a specific thermal cautery technique—preferably in low-resource settings—before expending substantial resources to promote cautery. Ideally, semen analysis services should be available for men after vasectomy procedures.

Finally, regardless of the technique used, vasectomy is highly effective, and yet it is not a very widely used method of family planning. Donors, family planning programmes and researchers often perceive issues other than improvements in vasectomy as more pressing, and thus this method tends to receive limited attention.

Checklist to rule out pregnancy in non-menstruating women

FHI research has found that half or more among new family planning clients in some settings are not menstruating when they come to a family planning clinic. As in many settings pregnancy tests are often unavailable or unaffordable, menstruation is the standard used to rule out pregnancy. Therefore, these non-menstruating women are usually denied services. Good criteria, endorsed by WHO and others, exist to rule out pregnancy “with a reasonable degree of certainty” and FHI has developed a checklist using these criteria to help providers rule out pregnancy for non-menstruating clients when a pregnancy test is not available. Using this checklist, providers have increased the number of new family planning users at their clinics (9,10).

This checklist, validated in Kenya, has been widely disseminated and utilized in that country. It has also been incorporated into programmes in Burkina Faso, Cambodia, Haiti, India, Jordan, Madagascar, Mali, Nepal, Niger, Senegal, and Zimbabwe. FHI is making efforts to introduce this tool into other settings in collaboration with other service delivery agencies and local stakeholders.

Facilitating factors

- *Simplicity of the tool developed.* A tool that is easy to understand and to apply was created to address an identified barrier to contraceptive access. A simple tool facilitates its adoption, as it requires minimal training for use.
- *Inefficiencies reduced.* This tool can reduce the inefficiency of clients being sent away from a clinic without a method, saving both clients and providers time, and avoids the risk of unwanted pregnancy while a woman awaits menses. In Kenya, new family planning acceptors increased by 19% in clinics using the checklist.
- *Collaboration with service delivery agencies.* JHPIEGO and Advance Africa have incorporated the checklist into their provider training programmes in some settings.
- *Champions/donor interest.* The tool has been promoted by USAID among its service delivery agencies.
- *Local ownership of findings.* In Kenya, where the checklist was initially developed, its use is widespread, even though it has not yet been officially approved and promoted by the Ministry of Health. The fact that the data were generated in Kenya in collaboration with Kenyan investigators likely facilitated uptake of the tool.

Challenge

- *New practice contradicts status-quo provider training.* The menstrual requirement is an ingrained practice in many programmes. Any change in behaviour is difficult to achieve, and the level of difficulty increases if the new practice is contrary to long-established habits and training.
- *In-country use may require revalidation.* Stakeholders in Egypt have expressed interest in using the checklist, yet they feel that local validation of its effectiveness, to a higher clinical standard than used previously, is necessary to secure local political buy-in for adopting the tool. Such revalidation efforts demand additional resources and time. Some consider revalidating results primarily for political rather than scientific purposes a waste of scarce resources. Such local research, however, may be the cost of doing business: without revalidation, the checklist simply may not be used.

Nonoxynol-9

Several observational studies had suggested that nonoxynol-9 might reduce the risk of bacterial STIs. Two well-designed FHI randomized controlled trials (RCTs) (11,12) showed that nonoxynol-9 did not protect against HIV, gonorrhoea or chlamydia. High or frequent doses of nonoxynol-9 spermicide can cause irritation and disrupt the cell surface of the vagina, causing genital lesions; this may enhance the transmission of HIV (13,14). FHI's work has contributed to international recommendations that this product should not be used as a microbicide. In addition, FHI research has shown that nonoxynol-9 has limited effectiveness for pregnancy prevention.

Facilitating factors

- *Level of evidence and quality of research.* RCTs are the gold standard for evidence, and the demonstrable quality of the research likely facilitated acceptance of the findings.
- *Highly significant findings.* The strength of the findings contributed to their acceptance by programme managers.
- *Cost-saving implications for purchasers.* Practices that save donors or programmes money—in this case from not purchasing nonoxynol-9 products—are more likely to appeal to potential users.

Challenges

This research question is largely acknowledged to be settled and incorporated into practice.

CONCLUSION

The factors that can facilitate or impede the uptake and use of research findings are numerous and varied. Awareness of how these factors are aligned in any given setting, and an analysis of which ones can be influenced, is fundamental to research utilization efforts. These case-studies of successful and relatively rapid translation of research findings into practice serve to highlight the role that certain facilitating conditions have played in specific instances.

REFERENCES

1. Ellerman D. Knowledge-based development assistance. *Knowledge, Technology & Policy*, 2000, 12(4):17–43.
2. Solo J et al. *Strengthening utilization of family planning operations research: findings from case-studies in Africa*. New York, Population Council, 1998.
3. Guay LA et al. Intrapartum and neonatal single-dose nevirapine compared with zidovudine for prevention of mother-to-child transmission of HIV-1 in Kampala, Uganda: HIVNET 012 randomised trial. *Lancet*, 1999, 354:795–802.
4. Chen-Mok M et al. Termination of a randomized controlled trial of two vasectomy techniques. *Controlled Clinical Trials*, 2003, 24:78–84.
5. Cortes M et al. Results of a pilot study of the time to azoospermia after vasectomy in Mexico City. *Contraception*, 1999, 56:215–222.
6. Barone MA et al. A prospective study of time and number of ejaculations to azoospermia after vasectomy by ligation and excision. *Journal of Urology*, 2003, 170:892–896.
7. Labrecque M et al. Effectiveness and complications associated with 2 vasectomy occlusion techniques. *Journal of Urology*, 2002, 168:2495–2498.
8. Sokal D et al. A comparison of vas occlusion techniques: cautery more effective than ligation and excision with fascial interposition. *BioMed Central Urology*, 2004, 4:12.
9. Stanback J et al. Menstruation requirements as a barrier to contraceptive access in Kenya. *East African Medical Journal*, 1999, 76:124–126.
10. Stanback J et al. Checklist for ruling out pregnancy among family-planning clients in primary care. *Lancet*, 1999, 354:566.

11. Roddy R, Zekeng L, Ryan K. A controlled trial of nonoxynol-9 film to reduce male-to-female transmission of sexually transmitted diseases. *New England Journal of Medicine*, 1998, 339:504–510.

12. Roddy R, Zekeng L, Ryan K. The effect of nonoxynol-9 gel on urogenital gonorrhea and chlamydia infection: randomized controlled trial. *JAMA*, 2002, 287:1117–1122.

13. Niruthisard S, Roddy RE, Chutivongse S. The effects of frequent nonoxynol-9 use on the vaginal and cervical mucosa. *Sexually Transmitted Diseases*, 1991, 18:176–179.

14. Roddy RE et al. A dosing study of nonoxynol-9 and genital irritation. *International Journal of STDs & AIDS*, 1993, 4:165–170.

Integrating research into practice and promoting cervical cancer prevention: TATI project, Department of San Martín, Peru

Cristina Herdmann, Program for Appropriate Technology in Health, Seattle, WA, USA

Cervical cancer is one of the principal causes of preventable deaths among women in Peru. The Program for Appropriate Technology in Health (PATH) is collaborating with the Pan American Health Organization (PAHO) and the Peruvian Ministry of Health to implement a project aimed at reducing the incidence of, and mortality from, cervical cancer among women aged 25–49 years. Project TATI (the Spanish acronym for Tamizaje y Tratamiento Inmediato, or Screening and Immediate Treatment) is designed to implement the Peruvian National Plan for the Prevention of Gynecologic Cancer in the Department of San Martín.

The goal of the project is to improve women's health through the identification and immediate treatment of women with precancerous cervical lesions. The project is implementing screening using visual inspection with acetic acid (VIA) performed by trained midwives. If a midwife identifies a precancerous lesion, the client is referred to a doctor. The doctor then examines the cervix by means of visual inspection with acetic acid and magnification (VIAM) using an AviScope™—a 4X-magnification device. If the doctor confirms that a precancerous lesion requires immediate treatment, the client is offered treatment with cryotherapy during that visit.

PATH's role in the project is to develop community strategies for promoting the prevention of cervical cancer among women in the target age group. There are two principal components to this approach. The first is to provide women with education and information that will allow them to make an informed decision about how they can prevent cervical cancer and demand high-quality services. The second is to ensure that women who receive screening and treatment have a positive experience with their provider so that they will be satisfied with services and will encourage other women in their community to receive screening and treatment, when appropriate. Both of these strategies are examples of how PATH's research has been integrated into practice in San Martín, Peru.

COMMUNITY PROMOTION STRATEGY

The community promotion strategy is based on the involvement of community members in cervical cancer

prevention and on the shared responsibility for the health of the community between health personnel and community members. For this work, 79 promotion teams, composed of 83 Ministry of Health health-care providers and 80 community volunteers, have been formed. All team members have been trained in the skills and knowledge needed to educate and inform women about cervical cancer prevention. Promotion teams are responsible for four activities, listed below in order of implementation.

- Within the area allocated to each team, the team carries out awareness-raising activities in the communities about cervical cancer prevention, informing women of early detection and treatment of precancerous lesions.
- Once awareness is raised in the community, the promotion teams hold four educational sessions with groups of women: Knowing my body, Vaginal infections, Prevention of cervical cancer, and Self-esteem. A highly interactive adult education methodology is used in these sessions. The goal is for the women to have a better understanding of the disease and how to care for their bodies, enabling them to voluntarily seek cervical cancer prevention screening and demand quality services.
- The next step for the teams is to make home visits to follow up patients diagnosed with cervical cancer to ensure that they continue with the necessary examinations or treatments.
- Finally, the teams form a community advisory group composed of local leaders and authorities. These groups aim to strengthen community awareness and support of health promotion.

Community promotion strategy: case-study design and methods

Predictably, recruitment and screening totals differed geographically within the project's coverage area. As part of our project evaluation strategy, we were interested in monitoring the overall effect of community promotion team activities and whether or not their efforts could explain the variability. PATH designed a study to assess the overall impact of activities of the community promotion teams on screening coverage.

The specific objectives of the study were:

- to identify promotion team characteristics that may influence screening coverage;
- to understand local views on promotion team performance;
- to identify strengths and weaknesses of promotion team efforts; and
- to identify sustainable strategies for community promotion of cervical cancer prevention.

A case-study approach was selected because of its utility in addressing how and why community promotion teams succeed or do not succeed in promoting cervical cancer prevention activities in their coverage areas. Critical to this effort was identifying key performance indicators, which we developed in collaboration with project stakeholders. These indicators were used to guide the development of a qualitative self-assessment instrument. Each team assessed its own performance using this instrument. An external quantitative indicator of promotion team success was based on coverage: the percentage of women between the ages of 25 and 49 years within the promotion team's jurisdiction who received visual inspection screening during the study period. The six teams selected for in-depth study included two teams that had assessed their own performance as strong and had high coverage rates; two teams that had assessed their own performance as weak and had low coverage rates; one team that assessed its performance as weak, but had a high coverage rate; and one team that assessed its performance as strong, but had a low coverage rate.

A field investigation was carried out by a field investigator and a project intern who visited each of the six selected teams and performed in-depth interviews with promotion team members, clinical staff, and community advisory group members. Topics covered in the interview guide included a profile of the community, a description of the promotion team's work, support from health-centre authorities, coordination with the community advisory group, coordination with the intervention team, integration and quality of VIA services, and accessibility factors.

A case profile from each of the six teams studied was compiled, and results were compared across teams using a comparative matrix to analyse data characteristics.

Results of case-study evaluation

Findings from the case-study indicated that the most effective teams were those with the following charac-

teristics: easy access for women to get to the health centre; good coordination between the promotion and clinical intervention teams; no turnover of team members; working with women's organizations; support from the head of the local health centre; and good collaboration within the promotion team. The least successful teams lacked support from the head of the health centre and good collaboration within the promotion team, indicating that these may be the most important indicators for guaranteeing high performance of community promotion teams. These results will serve as key hypotheses for a comprehensive quantitative evaluation of the performance of all promotion teams. It will be important to determine whether these results hold true when applied to the remaining 73 promotion teams that did not participate in the case-study.

The following recommendations were suggested for improving the promotion activities in San Martín.

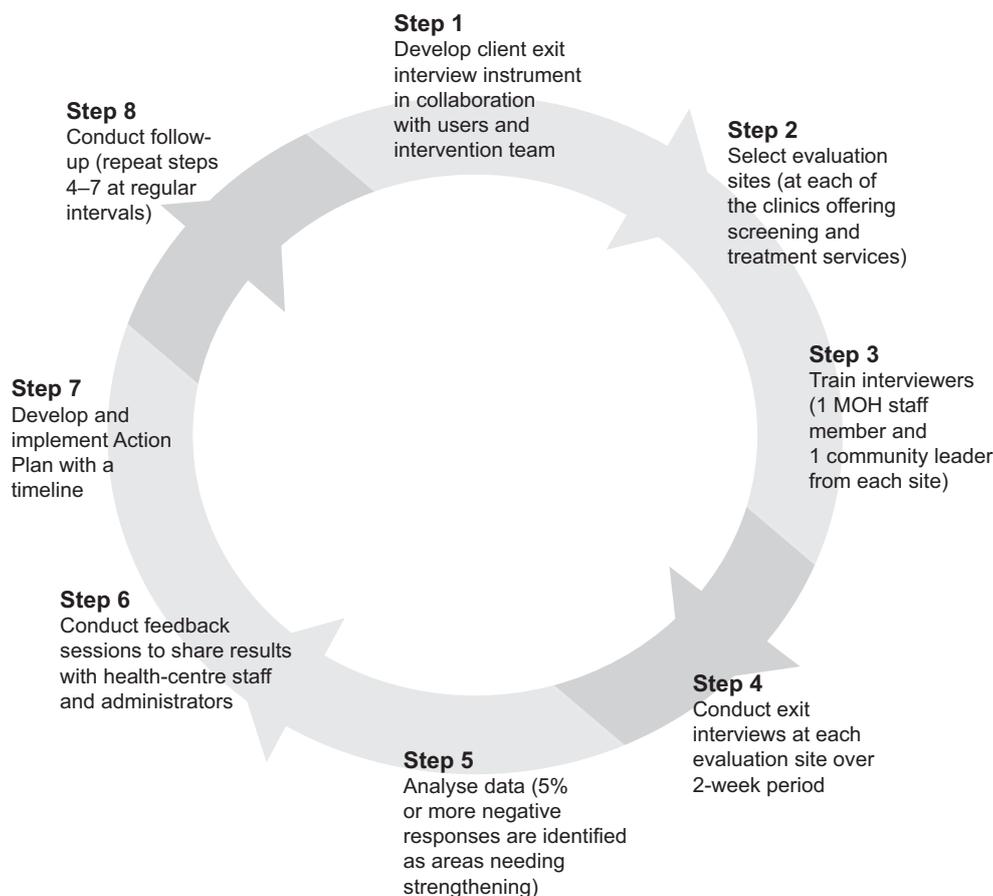
- Select leaders, taking into account previous community involvement and credibility.
- Include more than one leader per community.
- Once trained, promote stability of health personnel (and develop contingency plans to ensure that knowledge is transferred to new staff).
- Strengthen training teams in each health network within the region.
- Establish support for promotion activities from heads of health centres as well as health network and regional authorities.

Evaluating quality from the users' perspective

Quality of care is a critical component of the TATI Project. Providers involved in the project are participating in a continuous quality-improvement mechanism in order to measure systematically client satisfaction of cervical cancer services. Feedback is then provided to clinicians and clinic staff, who in turn are responsible for identifying solutions to address areas that need improvement.

About every six months, trained community interviewers conduct exit interviews among clients who have received screening services. All of the 20 clinical intervention sites in San Martín where visual inspection has been implemented are participating in this regular feedback process. At each clinic, interview results are compiled, and all health-centre clinicians, clinic administrators, and staff meet to review compiled interview data and to develop an action plan and a timeline for addressing identified client concerns. A regional team

Figure 1: Steps in the client feedback for clinic self-improvement process



entrusted with ensuring high-quality care throughout San Martín is responsible for providing follow-up to clinics to ensure that they complete the actions they proposed within the suggested time frame.

Examples of identified concerns and remedies

- Feedback from women at several intervention sites indicated that privacy during the examination was a concern. Resulting action: at these centres, locks were put on doors, and envelopes for client charts were placed on the outside of examination rooms to reduce unnecessary interruptions.
- At several sites, clients expressed lack of understanding of the informed consent process and reported having unanswered questions about the examination itself. Resulting action: several intervention sites have recommitted to the use of IEC (information, education, and communication) materials and other counselling aids during pre-examination counselling sessions; clinicians have also agreed to use additional counselling techniques to verify client understanding of the procedure and the informed consent process.

- Feedback from women indicated dissatisfaction with long waiting times. Resulting action: several intervention sites have reorganized and have adopted an appointment-based system to reduce waiting time.

This method was piloted within the project to specifically target cervical cancer prevention services, but is now being taken up by the Ministry of Health to routinely assess client satisfaction with all clinic services.

CONCLUSION

PATH’s experience with the TATI Project’s research activities is being integrated by the Ministry of Health into ongoing programming in San Martín. This indicates that interventions derived from this research can be integrated into regular programming. We attribute the successful integration of these approaches to the collaborative, participatory approach to the research design, as well as to the simple, participatory, and inexpensive nature of the methodologies themselves.

Cervical cancer screening: the Zimbabwe case-study

Mike Chirenje, University of Zimbabwe, Harare, Zimbabwe

INTRODUCTION

Cervical cancer has a devastating impact on women's health all over the world, particularly in the developing countries where it is the leading cause of death from cancer among women (1). Although cervical cancer is a preventable disease, it still constitutes a major burden on public health resources in sub-Saharan Africa, which, according to population-based data, has one of the world's highest age-standardized rates at 53.8/100 000 (2). Cervical cancer contributed 30% of all registered cancers and 80% of gynaecological cancers according to the 2000 Zimbabwean Cancer Registry.

The striking differences in cervical cancer prevalence between industrialized and developing countries are the result of non-existent or very small-scale screening programmes in the latter. Fewer than 5% of women at risk of developing cervical cancer are ever screened in their lifetime, as shown in a recent situation analysis study of cervical cancer screening in east, central and southern African countries (3).

CERVICAL CANCER SCREENING STUDY

In 1993, the University of Zimbabwe in collaboration with the Zimbabwean Ministry of Health established a cervical cancer task force to look into feasible ways of screening for cervical cancer. Through a grant from USAID, the University of Zimbabwe, the Ministry of Health, the Commonwealth Regional Health Community Secretariat and JHPIEGO, we conducted a study in which nurse-midwives screened 10 934 women between the ages of 25 and 55 years by direct visual inspection with 4% acetic acid (VIA) and cervical cytology (Papanicolaou smear). Women with abnormal results from either test underwent colposcopy and biopsy, as indicated. On the basis of this study, VIA was shown to have a sensitivity of 76.6% compared with 44.3% for cytology, and specificity of 64.1% compared with 90.6% for cytology (4).

To complement the above study, women with CIN III were randomized to either treatment with cryotherapy ($n = 200$) or loop electrosurgical excision procedure—LEEP—($n = 200$). The study demonstrated that cryo-

therapy had an 88.8% effective cure rate compared to LEEP, which had a 96.4% cure rate at 12 months follow-up (5). In addition to publication of the findings for the scientific community, strategies for utilization of the results were developed and implemented through programme managers and service providers.

Field-testing application of screening intervention

Given the above research experience, a pilot implementation study was then undertaken on cervical cancer screening by VIA using cryotherapy treatment for cases testing positive. Since July 2001, with the collaboration of the Ministry of Health, we have successfully trained 46 nurses from 14 primary health care clinics and four Government medical officers from two districts of Zimbabwe (Mutoko and Gwanda). The aim of this pilot project was to implement cervical cancer screening by VIA and to evaluate its outcome after three years. The project commenced in May 2000.

Training

Training comprised both theoretical and practical aspects. The theoretical sessions covered the epidemiology and etiology of cervical cancer, pre-cancerous lesions, the anatomy of the cervix, screening methods, VIA, treatment of pre-cancerous lesions, surgical treatment of cervical cancer, radiotherapy, colposcopy and data management.

The practical sessions involved:

- live demonstrations of patient interviews;
- standardization of speculum examination in a clinical set-up;
- VIA by each participant under supervision, including how to diagnose a normal cervix and how to detect pre-cancerous lesions after painting the cervix with 4% acetic acid;
- (for doctors) training in cryotherapy treatment on women found to have positive pre-cancerous lesions after VIA.

Field activities

At the end of the training workshops, mapping of field activities was done. All trained nurses were to go back and perform VIA at their health centres. All abnormal cases were to be referred to the doctor at the district hospital for repeat VIA confirmation, followed by a biopsy or cryotherapy as indicated. The doctor was also assigned the responsibility to supervise the nurses and monitor their progress.

With regard to education, health promotion campaigns were carried out prior to launching the programme.

Surveillance system

Between May 2001 and April 2002 a surveillance study was carried out in the Mutoko District. The research nurse made field visits to the 15 primary health clinics and the district hospital. The aim of each visit was to assess the implementation of VIA operations in the district as a routine surveillance system. Each member of health personnel at the clinic was administered a pre-structured questionnaire after six months to assess the difficulties encountered during implementation of VIA. At the sixth-monthly visit a cross-check of VIA equipment was also instituted at each clinic.

Throughout the study period, each participating clinic submitted all questionnaires administered to women accepting cervical cancer screening.

RESULTS

In summary, nine of the 15 clinics successfully instituted VIA. Despite the gains that have been made, barriers hindering the expansion of the programme were also identified. The main barrier was the movement of nursing staff through transfers, departures to the private sector, or departures for further training. Thus, some clinics ended up having no trained nurse to perform VIA. Training of more staff has been recommended in order to improve access to and quality of the programme.

Operational difficulties at primary health-care clinics include departures of trained staff due to resignations and financial constraints where referrals to the district

hospital for cryotherapy treatment are concerned. However, with adequately trained staff and their retention, it is feasible to scale up the intervention and ensure programmes implement the research recommendations on a wider scale. Multimedia approaches are found to help in mobilizing the communities about the need for intervention.

CONCLUSION

Cervical cancer is a perfectly preventable disease and countries like Zimbabwe, where infrastructure for mass screening programmes with cytology is largely non-existent, should seriously consider providing adequate training in direct VIA and treatment with cryotherapy as an alternative. Such a strategy should be implemented in phases, preferably through pilot operational work in one or two districts per country, as in the case of the successful "Mutoko District Model", and performance measured after one or two years prior to deciding on the scaling-up of activities.

REFERENCES

1. Parkin DM. Cancer in developing countries. In: Doll R, Fraumeni JF, Muir CS, eds. Trends in cancer incidence and mortality. *Cancer Surveys*, 1994, 19/20:519–561.
2. Chokunonga E et al. Cancer incidence in the African population of Harare, Zimbabwe: second results from cancer registry 1993–1995. *International Journal of Cancer*, 2000, 85:54–59.
3. Chirenje ZM et al. Situation analysis for cervical cancer diagnosis and treatment in east, central and southern African countries. *Bulletin of the World Health Organization*, 2001, 79:127–132.
4. Chirenje ZM et al. Visual inspection with acetic acid for cervical-cancer screening: test qualities in a primary-care setting. *Lancet*, 1999, 353:869–873.
5. Chirenje ZM et al. A randomised clinical trial of loop electrosurgical excision procedure (LEEP) versus cryotherapy in the treatment of cervical intraepithelial neoplasia. *Journal of Obstetrics and Gynaecology*, 2001, 21:617–621.

Use of the WHO Reproductive tract infection programme guidance tool in Cambodia

Nathalie Broutet, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

WHO's *Reproductive tract infection programme guidance tool* (PGT) identifies and addresses a range of contextual issues that influence the ability of a health-care system to deliver effective interventions for the prevention and care of reproductive tract infections (RTIs). The PGT is based on the experiences of countries implementing the Strategic Approach to Improving the Quality of Care in Sexual and reproductive health Services.¹ This approach promotes the concept that appropriate decisions concerning policy and programme development should be based on an understanding of the relationships between those infected with RTIs or at risk of RTI infection, the service delivery system, and the mix of services and interventions being provided, while taking into account how these interactions are influenced by the broader sociocultural and political context. The PGT is a locally-led, 10-step process which encourages collaboration and building of partnerships between a broad range of stakeholders for the development of strategies to improve sexual and reproductive health.

Cambodia has been implementing the PGT since 1999 in collaboration with both WHO and the Population Council's Horizons programme. Ten main strategic recommendations in the areas of policy change, service delivery changes and action for small-scale operations research were identified during the first steps of the PGT process. The National Centre for HIV, AIDS, Dermatology and STIs (NCHADS) has taken the lead in implementing these strategic recommendations in collaboration with partner agencies in Cambodia.

A recent evaluation of the utility and impact of implementing the PGT highlighted the following achievements made during the two-and-a-half years since the recommendations were formulated.

- *Success in policy change.* Little progress has been made in implementing the recommendations.
- *Success in service delivery changes.* A policy for surveillance of sexually transmitted infections (STIs)

now exists and data are collected regularly from public sector health-care services. RTI case management guidelines have been disseminated to most levels of the public health system. Information materials to promote seeking of health care have been made available to target groups. Finally, training of midwives in abortion services has started.

- *Success in operations research.* Protocols have been developed in five areas of health-care services. A proposal to evaluate RTI case management has been funded and research is under way.

The evaluation concluded that most success in this process was achieved in the areas of service delivery changes in the services most directly influenced by NCHADS and where specific funding existed to implement the changes. Despite the strong advocacy role of NCHADS lobbying for policy change, there was little evidence of progress towards implementing the strategic policy recommendations in the two years of the process. This finding carries important implications for others involved in lobbying for policy change. The main conclusion is that stakeholder involvement needs to be strengthened, both within and beyond the health sector—for example, to include key actors who have political support and can exercise sufficient leverage to influence the policy process.

In addition to the findings in the three main areas of strategic recommendations, the review found that an important outcome of the PGT in Cambodia was improved collaboration between various stakeholders involved in sexual and reproductive health programmes—in this case, better collaboration between NCHADS and their counterparts in the National Centre for Maternal and Child Health (NCMCH). In addition, NCMCH felt that the PGT had contributed to improved management of RTIs in the maternal and child health settings. This positive finding is encouraging for all those concerned with broadening the focus of sexual and reproductive health programmes away from vertical approaches towards integrated comprehensive care for all.

¹The Strategic Approach to Improving Quality of Care in Reproductive Health Services is an interdisciplinary methodology for national policy and programme development that addresses the issue of improving health-care quality from the perspective of technology introduction. It views technology introduction broadly as the overall process of managing, implementing and evaluating activities related to improving access and the quality of care in a given service delivery setting or policy context.

Emergency contraception

Lena Marions, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

BACKGROUND

An emergency contraception (EC) method is any drug or device used after an episode of unprotected intercourse to prevent an unwanted pregnancy. Unprotected intercourse may result from non-use of a contraceptive method, including cases of sexual assault or contraceptive failure (both user failure and method failure).

The UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP) has played a crucial role in the development of effective and safe methods of emergency contraception. Initially, in the late 1970s, the research was focused on the post-coital use of progestogens for regular contraception, and it is only in the last decade that the use of progestogens and antiprogestogens for emergency contraception has been part of HRP's agenda.

HRP RESEARCH TO DEVELOP EFFECTIVE EMERGENCY CONTRACEPTION METHODS

Until 1998, there were only two methods of emergency contraception available—the so-called Yuzpe method and insertion of a copper-bearing IUD. The former consists of two high doses of ethinyl estradiol combined with levonorgestrel, which are administered 12 hours apart, with the first dose to be given within 72 hours of unprotected intercourse. This method prevents about 74% of expected pregnancies, but is associated with a high incidence of side-effects, reducing compliance with the regimen.

Inserting an IUD is still the most effective emergency contraception method, and can be used up to 120 hours after unprotected intercourse. However, its use is limited since it requires trained providers to deliver the method and the method is not recommended if there is genital infection.

The use of levonorgestrel alone for postcoital contraception was first evaluated in a multicentre trial in 1987. The results of this trial showed that levonorgestrel was highly effective, but its frequent use caused a high incidence of menstrual cycle disturbances. It was deemed

not suitable as a regular contraceptive method, but as a method of emergency contraception it held promise.

A WHO-supported study in Hong Kong in 1993 found that 0.75 mg levonorgestrel administered twice, 12 hours apart was not only as effective as the Yuzpe regimen, but the proportion of women reporting side-effects was far lower. In this trial, treatment was started within 48 hours after unprotected intercourse. A multi-centre randomized controlled trial was then designed to confirm these findings. This trial showed that levonorgestrel was more effective and better tolerated than the Yuzpe method. However, the efficacy of both treatments declined as time since unprotected intercourse increased.

The antiprogestogen mifepristone had earlier been shown to be effective as an emergency contraception method when a single dose of 600 mg was administered within 72 hours of unprotected intercourse. Two United Kingdom randomized controlled trials sponsored by WHO compared this regimen with the standard Yuzpe regimen (1,2). There were no significant differences in efficacy between the groups; however, women treated with mifepristone reported less nausea and vomiting, which are the major drawbacks of the Yuzpe regimen. A disadvantage with the mifepristone treatment was the frequent delay in the onset of the next menses, which might worry women already concerned about an unintended pregnancy.

In order to test the hypothesis that mifepristone might be equally effective even in lower doses, a WHO multicentre trial was conducted. Three different doses of mifepristone—600 mg, 50 mg and 10 mg—were compared, and the postcoital treatment period was extended to 120 hours. The results from this trial showed that lowering the dose 60-fold did not decrease its effectiveness as emergency contraception and the disturbance of the menstrual cycle was less.

These findings inspired the next trial comparing 10 mg of mifepristone as a single dose versus 1.5 mg levonorgestrel, either divided into two doses 12 hours apart or as a single dose. All the three regimens studied proved to be highly effective when taken within 120 hours and no differences were found between them. Furthermore, the study confirmed that a single dose

of 1.5 mg levonorgestrel could be used as effectively as two 0.75 mg doses 12 hours apart, facilitating the treatment.

The impact of HRP's research in emergency contraception

- The success of HRP's research led to the establishment in 1996 of an International Consortium of Emergency Contraception and to a collaborative agreement with the pharmaceutical industry to put on the market a dedicated emergency contraception product.
- The levonorgestrel-only regimen was added to the WHO Model List of Essential Drugs in 1997. No country had this regimen registered prior to this.
- In 1998, when the HRP study on the efficacy of levonorgestrel for emergency contraception was published, only a few countries had a dedicated registered product for emergency contraception. In 2002, the registration was increased to 96 countries covering some 80% of the world's population.
- The results from the large HRP studies have stimulated further research in this area such as experimental studies on the mechanism of action of emergency contraception.
- Centres participating in HRP's trials have contributed to the implementation of the method in their countries.
- The funding to the field of emergency contraception has been enhanced.

NEXT STEPS FOR HRP

- HRP is working towards updating the existing health-care practice guidelines on emergency contraception. HRP is also disseminating evidence-based information regarding best practices related to emergency contraception.
- HRP is continuing to support its partners in the strategic introduction of emergency contraception in countries.
- HRP is continuing research to improve further the efficacy of emergency contraception technologies.

LESSONS LEARNT

- Good research targeted at finding answers to priority research questions can yield highly utilizable results. Once success is demonstrated, groups with interest in the topic become motivated to form alliances (such as the International Consortium of Emergency Contraception) and this facilitates utilization of research.
- The inclusion of developing countries in the multicentre research facilitated the registration of the method in those countries and helped to reach women that needed it the most.

REFERENCES

1. Glasier A et al. Mifepristone compared with high-dose estrogen and progestogen for emergency post-coital contraception. *New England Journal of Medicine*, 1992, 327:1041–1044.
2. Webb AMC, Russell J, Elstein M. Comparison of Yuzpe regimen, danazol and mifepristone (RU 486) in oral postcoital contraception. *British Medical Journal*, 1992, 305:927–931.

Insertion of IUDs by nurse-midwives in Turkey

Iqbal H. Shah, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland; Kerry L. Wright, Family Health International, Research Triangle Park, NC, USA

Over a 15-year period, use of the intrauterine device (IUD) more than doubled in Turkey after recommendations from a collaborative operations research effort led to ratification in 1983 of the national family planning law that, among other changes, allowed trained non-physicians to provide IUD services.

Prior to that, in the 1970s, only physicians could insert IUDs, and most physicians were male. However, many women were uncomfortable with being examined or having an IUD inserted by a male physician, limiting acceptance and use of the device.

Together, the Ministry of Health (MOH) and researchers in the Public Health Department of Hacettepe University in Ankara, Turkey, recognized this problem. Supported by the UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP), the researchers began studying whether non-physicians—particularly nurse-midwives—could adequately provide IUD services.

The lead investigator (Dr Ayse Akin) from Hacettepe University had the foresight to involve the Ministry of Health in the project from the outset. The then Director-General (Dr Tandogan Tokgöz) of Family Planning and Maternal and Child Health was a co-investigator in the project, and this action was key to getting the results widely disseminated and to mobilization of support for research utilization.

Between 1976 and 1979, 13 female nurse-midwives from a district near Ankara were trained to provide IUD services using a training programme designed specifically for this research. The programme involved the use of a specially developed WHO manual for providing IUD services. Nurse-midwives in training used pelvic models, performed real pelvic examinations, and, under supervision, performed IUD insertions (1). Researchers then determined how well the trained nurse-midwives provided IUD services, compared with six male and two female physicians. After 238 IUD insertions by physicians and 257 by nurse-midwives, no significant differences were found in terms of IUD expulsions, IUD removals, pregnancies, losses to follow-up, and referrals to obstetrician-gynaecologists (2).

The study findings were published in February 1983 and disseminated to the Ministry of Health, policy-makers, and the medical community in Turkey, with a recommendation that legislation be changed to allow non-physicians to provide IUD services. Policy-makers and the medical community showed some resistance, but the Ministry of Health and Hacettepe University organized several advocacy meetings to inform and convince the two groups of the proposal's merit. The resistance eventually weakened and, on 24 May 1983, the second antinatalist planning law, which included a provision allowing non-physicians to provide IUD services, went into effect. Training of nurse-midwives to provide IUD services was added to regular national training programmes, and in the 15 years since the law was ratified, IUD prevalence among contracepting women has increased steadily from 9% to 20%.

The following factors were found to influence research utilization.

- The problem was identified jointly with the Turkish Ministry of Health.
- The Director-General of Family Planning and Maternal and Child Health services in Turkey was a co-investigator.
- The findings of the research were widely and actively disseminated.
- The timing of the research was perfect. The Turkish Parliament was reviewing the Population Law and the political environment was favourable to improving the use of modern contraceptive methods.

References

1. Akin A, Gray RH, Ramos R. Training auxiliary nurse-midwives to provide IUD services in Turkey and the Philippines. *Studies in Family Planning*, 1980, 11(5):178–187.
2. Eren N, Ramos R, Gray RH. Physicians vs. auxiliary nurse-midwives as providers of IUD services: a study in Turkey and the Philippines. *Studies in Family Planning*, 1983, 14(2):43–47.

Guidelines to guidance: WHO's evidence-based and consensus-driven recommendations for family planning

Sarah Johnson, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

BACKGROUND

Research and the development of evidence-based guidelines are the main areas of work of the WHO Department of Reproductive Health and Research. The Promoting Family Planning (PFP) team sponsors and supports research in the areas of new and improved methods of contraception, the safety and effectiveness of existing methods, and the sociocultural and behavioural determinants of successful family planning. Findings from this research are translated into guidelines for use at the country level. However, the creation of evidence-based guidelines, while important, is insufficient to assure the delivery of high-quality services. The ultimate impact of guidelines depends upon successful strategies for their implementation. Part of WHO's new guidelines development process requires a plan for implementation and evaluation, thus creating a new emphasis for the work of the Department and a need to draw on lessons learnt from countries where successful implementation has taken place.

WHO'S EVIDENCE-BASED GUIDANCE FOR FAMILY PLANNING

The books *Medical eligibility criteria for contraceptive use* and *Selected practice recommendations for contraceptive use* are the first two cornerstones of WHO's evidence-based consensus guidance. These guidelines promote the safe and effective use of contraceptive methods. They are intended for policy-makers, family planning programme managers and the scientific community, and are designed to assist policy-makers and family planning programme managers in the preparation of national and programme guidelines for service delivery. *Medical eligibility criteria for contraceptive use* provides guidance regarding who can safely use contraceptive methods and *Selected practice recommendations for contraceptive use* provides guidance regarding how contraceptive methods can be used safely and effectively. With the goal of improving the quality of sexual and reproductive health services, WHO is also developing tools to be used during the clinical encounter. The *Decision-making tool for family planning clients and providers* and the *Handbook for family planning providers* are the third and fourth cornerstones of WHO's family planning guidance. These

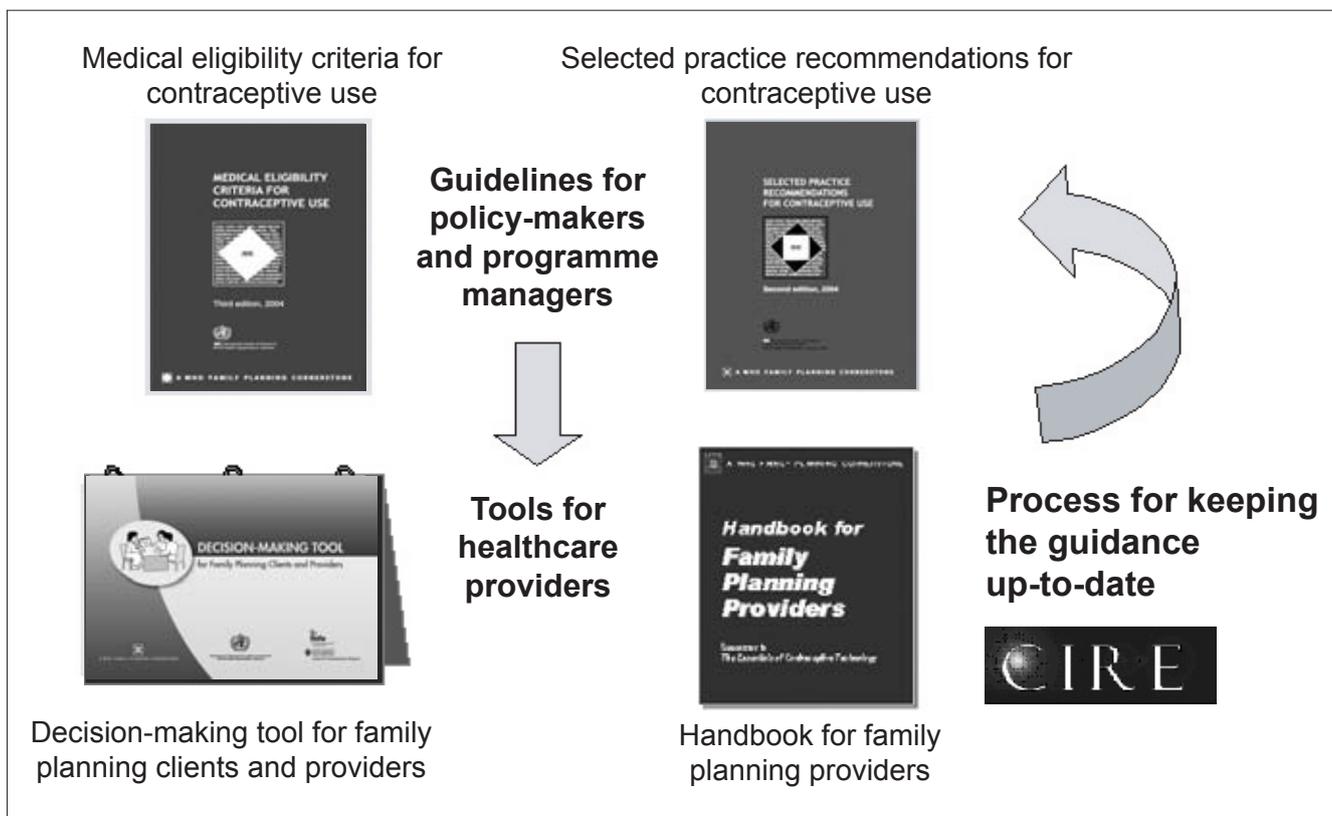
tools draw heavily on *Medical eligibility criteria for contraceptive use* and *Selected practice recommendations for contraceptive use*, as well as on evidence from social science research on how to meet the needs of the family planning client. The aim of these tools is to facilitate the client's decision-making process to ensure informed choice, to enable providers to apply evidence-based best practices in client-provider interaction during the delivery of family planning services, and to provide the technical information necessary for optimal delivery and use of contraceptive methods (Figure 1).

Romania: implementation of *Medical eligibility criteria for contraceptive use*

WHO's experience in Romania is an excellent example of the implementation of WHO guidance in a broad programme to improve sexual and reproductive health. In 2000, a dramatic change in policy allowed family physicians to provide family planning services in Romania. Prior to 1990, family planning itself was illegal under the pronatalist regime, and after the fall of the communist government family planning was provided only by obstetrician-gynaecologists. With the policy change in 2000, which opened the opportunity for provision of contraception at the primary care level, there was a critical need for standards, guidelines and training for approximately 17 000 family physicians. The scope of this effort was formidable, but through the implementation of WHO's guidelines, the Ministry of Health was able to accelerate implementation plans. With the establishment of a very collaborative partnership between WHO, Romanian nongovernmental organizations, donors (especially the United Nations Population Fund and the United States Agency for International Development) and implementing agencies (including John Snow Inc.), the many pieces of the scale-up process came together. The Romanian national family planning programme has three fundamental components: the training of health-care providers, communication campaigns, and the logistics of contraceptive service delivery.

Medical eligibility criteria for contraceptive use was translated into Romanian in 2001, as soon as the English version was available, and the Ministry of Health used it to develop national family planning technical

Figure 1. The four cornerstones of WHO's evidence-based guidance for family planning



norms. It was also presented at several professional meetings to obtain the national practitioners' agreement with the guidance and the new technical norms, and it was sent to practising private physicians and libraries. The final national family planning technical norms were formally presented at a national meeting organized by the Ministry of Health in March 2003, although they had already been in use by physicians in the field. At that meeting, the translated version of the latest WHO guideline, *Selected practice recommendations for contraceptive use*, was also presented and distributed to participants. Following is a discussion of the key elements of the programme relating to the use of the WHO guidance.

Training

Medical eligibility criteria for contraceptive use was incorporated into the family planning manual developed by the Romanian Society for Contraception and Sexuality (SECS) and the East European Institute of Reproductive Health and used to train practising family planning providers through a training of trainers programme. *Medical eligibility criteria for contraceptive use* has been endorsed by all major universities, and family medicine schools are using it in pre-service training.

Communication campaign

Wallcharts highlighting contraceptive methods and their medical eligibility criteria were disseminated to all family planning clinics in order to give information to clients about contraceptive options available to them; leaflets for clients were also developed. In addition, the East European Institute for Reproductive Health established a very successful telephone information line for clients, covering sexual and reproductive health issues, including contraception and the medical eligibility criteria for contraceptive methods. And finally, the Ministry of Health initiated a news media contest to encourage journalists to write scientifically sound articles on contraception.

Logistics

To improve service delivery, John Snow International led the effort to develop a new reporting and record-keeping system. Patient records were redesigned to include the medical eligibility criteria, and new logistics records and programme report forms were developed.

As part of the sexual and reproductive health campaign, the Ministry of Health established an endorsement system for family planning clinics by posting a logo at

the entrance of clinics where contraceptive services are provided. The logo signifies the quality of services and has helped to increase their use. Another important aspect of the overall national sexual and reproductive health strategy was the development of local sexual and reproductive health task forces. These task forces engaged local nongovernmental organizations, government officials, media, and health officials to formulate plans for the implementation of a local sexual and reproductive health strategy, and this proved to be an important exercise in community development.

The results of the national family planning programme are compelling: the use of modern contraceptive methods doubled and the number of abortions was reduced to one quarter of the 1990 figures. Clearly, a multifaceted approach—involving the implementation of evidence-based guidelines, training, logistical systems development and communications campaigns—is necessary to build a successful sexual and reproductive health programme that has an impact on contraceptive use and service delivery. The use of evidence-based guidelines helped to standardize care and provide family planning physicians with up-to-date and scientifically sound information on contraception. The success in Romania is a model that can be used for the implementation of family planning guidelines in other countries.

OTHER COUNTRY EXAMPLES

Many other countries have also implemented WHO's evidence-based guidance. In Indonesia and South Africa, for example, national guidelines have been developed that incorporate the recommendations of *Medical eligibility criteria for contraceptive use* and *Selected practice recommendations for contraceptive use*. The WHO *Decision-making tool for family planning clients and providers* will be the basis for a training of trainers in client-provider communication that the International Planned Parenthood Federation plans to conduct in the Caribbean and Latin American region as part of their Quality of Care initiative. In China, *Medical eligibility criteria for contraceptive use* has been translated into Chinese and used to develop national guidelines supporting their informed choice policy. Also, the United States Agency for International Development, through the Maximizing Access and Quality (MAQ) initiative, has encouraged and supported many countries in the development of national service delivery guidelines based on the latest WHO guidance.

FACTORS INFLUENCING IMPLEMENTATION

Many factors influence the implementation of WHO's evidence-based guidelines—from national priorities to

the political will of leaders involved in national sexual and reproductive health programmes. A hallmark of successful implementation in the examples described above has been the participatory nature of the development process and the engagement of partners in countries. These guidelines are developed through a consensus-building process during meetings of international experts convened by WHO. Participation of the experts in this process has been a key factor in the implementation of guidance at the country level. Individual participation and the building of consensus on the recommendations creates “buy-in” from the participants and a sense of ownership of the guidance, creating champions for the guidance. Participants of the guidelines development process have initiated successful implementation activities in several countries. These successful implementation strategies also drew heavily on the strength of partnerships between governmental and nongovernmental organizations, bringing together those who can make the decisions with those who can carry out the work of implementation. In addition, partnerships and collaboration among organizations can create common goals, and mobilize the financial and human resources necessary to achieve those goals. Finally, advocacy for national priority-setting is an important means of including sexual and reproductive health initiatives in country planning, thus creating an opportunity for the implementation of global guidance.

ISSUES AND CHALLENGES FOR WHO IN THE IMPLEMENTATION OF GUIDELINES

WHO has historically played a leading role in the development of guidelines, but less of a role in their implementation. Now, requiring both an implementation plan and an evaluation plan, WHO's new process for developing guidelines challenges the Organization to take a share of the responsibility for their in-country application. There is much to be learnt from successful programmes, such as the one in Romania, and WHO seeks to document these experiences. Along with the evaluation of the guidelines themselves, evaluation of the implementation process will yield valuable insights into best practices for implementation. To mobilize the resources necessary, WHO can draw on one of its organizational strengths, that of “convening power” to bring together partners internationally not only to develop, but also to implement, evidence-based guidance.

Research into practice in Kenya: process of an IUD reintroduction initiative

Ezra Teri, Family Health International, Nairobi, Kenya

INTRODUCTION

The sexual and reproductive health/family planning programme in Kenya is a well-known success story. The use of modern contraceptives rose from 4% to 32% among married women between 1978 and 1998. During this same time period, the total fertility rate decreased from 8.1 to 4.7 (1).

The sexual and reproductive health/family planning programme, however, faces many challenges in meeting the needs of a growing population. These include the large cohort of young people reaching reproductive age, the unmet need for family planning, the costs of the programme, and the recent trends towards increased use of modern methods. The Kenyan Ministry of Health (MOH) is concerned that, over the last two decades, there has been a gradual shift towards the use of short-term methods. For example, the proportion of married women using depot-medroxyprogesterone acetate (DMPA) increased from 5% (1984) to 38% (1998) and that of pill-users has remained stable at 30% on average over the years.

On the other hand, the proportion of IUD users has declined from 31% (1984) to 9% (1998); and sterilization has also dropped from 27% to 19% during the same period. If this trend continues, by 2005 long-term methods will account for 23% of all methods, with injectables alone accounting for 45%. Studies have shown that when used over long periods, short-term methods are more costly than long-term and permanent methods. Preference and use of short-term methods at the expense of long-term and permanent methods therefore make the cost of the national family planning programme high and limit client choice. This is of concern to the national family planning programme managers and the MOH is determined to reverse this trend.

The MOH in collaboration with Family Health International (FHI) and other partners is leading a comprehensive campaign to reintroduce the IUD into the national family planning programme using the research-to-practice philosophy, with the objective of making programmatic use of the best available research evidence on the IUD. It was because of the need to provide a cost-effective and balanced method mix and to increase client choice that the MOH decided to reintroduce the

IUD. Furthermore, research done in Kenya has shown that the IUD is safe, effective, and convenient, and that compared with short-term methods, it is also cost-effective over time.

WHY IUD USE HAS DECLINED IN KENYA?

A study commissioned by the MOH in 1995 (2) identified the following reasons for the decline in IUD use in Kenya:

- poor quality of care
- fear of HIV transmission
- poor product image
- provider bias against IUD or preference for other methods
- shifting client preferences
- lack of expendable commodities
- new methods on the market such as Norplant and DMPA.

THE IUD REINTRODUCTION INITIATIVE

The initiative aims to create a cost-effective and sustainable national family planning programme and expand the choice of methods available to clients. It is not intended to promote one method versus another. Rather, it is intended to promote the IUD in the context of a balanced national family planning method mix and to increase client choice. This initiative is led by the MOH, which is working closely with a task force comprising a range of local partners (public sector agencies, nongovernmental organizations and the private health-care sector). FHI functions as a secretariat to the task force. This initiative is to be implemented on a national scale through the MOH District Reproductive Health Training and Supervision System (DRHTSS). This system constitutes experienced obstetricians/gynaecologists, district public health nurses, 3–4 specialized reproductive health trainers and the district

health information officers. A strategy has been formulated to guide the MOH in the process of improving access to, and provision of, IUDs, increasing capacity for IUD provision and ensuring sustainability. District reproductive training and supervision teams will implement the different components of the strategy with technical assistance from other programmes being undertaken by various collaborating agencies.

The objectives of the initiative are:

- to increase support for IUDs among policy-makers, health-care professionals and clients;
- to increase provision of high-quality IUD services;
- to enhance demand for IUDs; and
- to collect data to monitor and evaluate programme performance.

The main activities planned include:

- advocacy to establish policy support and increased demand for IUDs;
- training service providers to improve capacity and capability of facilities to provide IUD services;
- the development and provision of educational materials to increase awareness and correct user perceptions of the IUD; and
- monitoring and evaluation and operations research activities.

The reintroduction process model

The process of IUD reintroduction will include building consensus among health professionals in the country to identify possible options (in both research and policy) that might strengthen IUD use, the development of a reintroduction strategy, the development and implementation of reintroduction interventions, the monitoring and evaluation of interventions as well as documentation and dissemination of the findings. The reintroduction process model above outlines the steps taken in the development of the programme and implementation of the reintroduction process. This initiative will be implemented in a spiral manner, whereby the lessons learnt from the first round of activities will be incorporated as refinements into the second round.

Key components of the initiative

Partnerships and consensus building

In order to cultivate ownership and enhance the implementation of the IUD reintroduction activities the MOH

is involving researchers, trainers, programme managers, service providers, professional associations, funding agencies and clients. Following are some of the activities that have been undertaken to build consensus:

- IUD panel discussion (February 2001)
- first stakeholders meeting (October 2001)
- establishment of a task force to guide the process (February 2002)
- establishment of an advocacy partners group (August 2002)
- second stakeholders meeting and launch of initiative (February 2003).

Policy review

A review of existing MOH policies has been undertaken to ensure that the IUD is not disadvantaged in relation to other methods. The review sought to identify any policies or practices that could have contributed to the decline in IUD use, understand the views of policy-makers and stakeholders, and recommend solutions to problems revealed. In this process policy documents were examined and policy-makers, donors and stakeholders interviewed. In general, the review findings did not show that the IUD was disadvantaged compared with other methods.

Advocacy strategy development

Advocacy activities in this initiative have focused on providing adequate and appropriate research-based information and education to all interested parties and building and mobilizing partnerships and coalitions. IEC (information, education, communication) activities will also be undertaken to change the knowledge base, attitudes, beliefs, values, behaviour or norms of individuals or groups regarding the IUD. The initiative has undertaken and continues to ensure that the following activities take place:

- engagement of professional associations and other stakeholders to form advocacy partnerships;
- work with champions to advocate for IUD provision among service providers;
- development and distribution of advocacy materials (IUD information briefs) based on research done in Kenya and addressing specific concerns raised by policy-makers and providers;

- development of a communication strategy—including meetings, workshops, seminars, symposia, radio programmes, newspaper articles, and professional association newsletter articles—to raise awareness among providers, clients, and the general public; and
- launching of the initiative and sensitizing district and clinic-level providers.

Capacity building for service delivery

The initiative intends to improve the provision of high-quality IUD services through capacity building and ensuring that commodities, supplies and equipment are available to support IUD service provision.

Capacity building will be implemented through the MOH's District Reproductive Health Training and Supervision teams. These teams will:

- review and adapt training curricula and training materials for both pre- and in-service training in IUD provision;
- establish a system for IUD skills training, conduct training needs assessment and training courses for pre- and in-service training for nurses in both the public and private sectors;
- conduct training of the trainers to create a critical mass of IUD providers in both public and private sectors; and
- build partnerships in training and facilitate a strong supervision mechanism.

Service delivery issues will be addressed through the same teams to ensure:

- increased access to high-quality IUD services nationally;
- availability of equipment and expendable supplies to clinics;
- improvement of facilities infrastructure; and
- improvement of infection-prevention techniques.

Demand creation

Clients' awareness of the existence and advantages of the IUD are major determinants of demand. To create awareness the district health information officers will:

- foster partnerships and develop IEC materials using existing MOH channels;

- initiate public education (once required quantities of IUDs, other materials and training have been achieved) through radio information shows, newspapers, IUD messages incorporated into community-based and peer education programmes and IUD information pamphlets for clients.

Monitoring and evaluation of the initiative

The initiative intends to ensure that monitoring, evaluation and documentation of all inputs, processes, outputs and outcomes will be carried out. This will serve as a basis for replication of the initiative. The monitoring and evaluation system will use data already gathered by partners and other groups to measure change in the proportion of users who accept an IUD at the end of the project. A baseline survey will be conducted to collect data on clinical service delivery in Kenya to examine the readiness of services for IUD rehabilitation.

Indicators will be designated at the output level for the activities—at the outcome level for the achievement of objectives, and at the impact level to measure the overall success of the IUD initiative.

LESSONS LEARNT

Even though the IUD team has accomplished a lot in terms of the advocacy component, it is still not known what kind of impact advocacy will have on the outcome of interest, i.e. increased IUD use in both the public and private sectors. Already, at this early stage of project development, some lessons have been learnt. These include the following.

- *Science helps.* Synthesis and dissemination of research findings are useful in changing policy and getting commitments from policy-makers and service providers. The reintroduction programme is based on solid research which shows that the IUD is safe and cost-effective.
- *Partnership is critical.* Key partnerships in the initiative have generated enough momentum and the initiative hopes to create change within a shorter time frame. Creating partnerships with all key stakeholders through consensus building leads to ownership of the process and more effective project implementation.
- *Review of existing policy and guidelines is necessary.* The policy review and the recommendations made were a positive way of influencing change in this initiative.

- *Political commitment is essential.* The continued leadership of the MOH has been critical in moving the initiative forward.
- *The use of champions has proved to be helpful.* The media campaign included radio and television broadcasts in which experts responded to questions asked by people about the IUD. The experts ensured that all questions were answered to the satisfaction of those asking the questions. This greatly helped to allay people's fears about the device and quash rumours and myths.
- *Collaboration and leveraging of resources is feasible.* The reintroduction programme relies heavily on resources and synergies available through existing programmes. There is no separate budget allocation for the initiative but partners leveraged human, financial and material resources to move the initiative forward.

CHALLENGES

- *Limited additional funding.* IUD activities have been integrated into existing work plans and budgets. However, collaboration and leveraging of resources for a common goal is feasible.
- *Coalition-building takes time and can contribute to delay.* In spite of this, the consensus and momentum it generates are invaluable.

CONCLUSION

This initiative to reintroduce the IUD was started as a pilot project only, but once barriers to IUD use are addressed there will be a need to scale up activities nationally. Some evidence of success has been obtained for this research-to-practise model in terms of the commitments made by the MOH, changes achieved in policies and guidelines, partnerships and joint plans fostered between various stakeholders, and the advocacy activities undertaken. The approach and process used can be replicated to introduce other methods in Kenya and/or in other countries in the region.

REFERENCES

1. *Kenya Demographic and Health Survey 2003. Preliminary report.* Calverton, MD, ORC Macro, 2003.
2. Stanback J, Omondi-Odhiambo, Omuodo D. *Why has IUD use slowed in Kenya? Part A. Qualitative assessment of IUD service delivery in Kenya. Final Report.* Research Triangle Park, NC, Family Health International, 1995.

Developing national guidelines for maternal and perinatal care, Ministry of Health, Kenya

Elizabeth Bukusi, University of Nairobi, Kenya

The following steps were undertaken to establish national guidelines for maternal and perinatal care in Kenya. The Department of Reproductive Health, in the Division of Preventive and Promotive Health Services of the Ministry of Health spearheaded the process and involved relevant partners and stakeholders. The process, described below, was initiated in the year 2000 and is ongoing.

- The Department of Reproductive Health in reviewing the high maternal and neonatal mortality and morbidity rates determined that there was a need to develop guidelines for use by health-care service providers in order to standardize care.

- A team was appointed at the Department of Reproductive Health to initiate the process. This team in turn identified individuals from the Department of Obstetrics and Gynaecology, and Department of Paediatrics from the University of Nairobi as well as other key individuals involved in relevant research and invited them to participate.

- This team reviewed the relevant policy and research documents on the subject and appointed a smaller subcommittee to draft the guidelines.

- The first draft was shared with stakeholders drawn from a wide base during a series of workshops, and the comments received were incorporated into a second draft.

- The second draft of the guidelines is due for circulation.

The process is still under way and to implement the guidelines, supportive policy and infrastructure and resources will be necessary. Community and provider ownership will also be important.

CONCERNS/GAPS

The following concerns and gaps in knowledge were noted.

- Most research carried out in Kenya is not primarily focused on what a Ministry of Health or health-care institution may deem as priority.

- There is often no clear set of mechanisms for regular review and update of current policy or programmes.

- Research tends to emanate from research-oriented organizations or universities, while the programmes and policy units tend to be at the Ministry of Health and health-care institutions.

- Consensus-building in formulating policy is key to implementation.

- Implementation of policy requires infrastructure and support.

ACTION POINTS

The following action points were noted.

- Set up a specific working group—composed of policy-makers, researchers and health-care providers—to review regularly current policy and programmes and identify the priorities for sexual and reproductive health research.

- Identify key areas which impact negatively on sexual and reproductive health (but for which there is no clear policy) and seek to fill those gaps.

- Identify funding for specific research that is determined to be important.

- Identify and/or set up a mechanism for developing policy documents with evidence-based decisions for change for sexual and reproductive health programmes, and in parallel develop guidelines for implementation.

- Build consensus for new or revised policy ensuring that both service providers and grass-root communities feel a sense of ownership of policy. Develop a clear pathway for achieving this aim.

- Develop and maintain a decentralized training mechanism for implementing changes once the policy comes into effect. This training should be able to facilitate the interpretation of the guidelines to health-care workers.

- Consistently garner a trail of support from development partners and mobilize resources to enable the implementation process. This should include an assessment of the available facilities and resources for implementing change.

Adaptation and implementation of WHO's *Pregnancy, childbirth, postpartum and newborn care: a guide for essential practice*

Rita Kabra, Ornella Lincetto, Olive Sentumbwe-Mugisa, Luc de Bernis, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

BACKGROUND

With a view to reducing maternal and perinatal mortality and morbidity and improving maternal and newborn health, WHO's Making Pregnancy Safer (MPR) initiative has, in recent years, published a number of guides under its Integrated Management of Pregnancy and Childbirth (IMPAC) series. The aim of this series is to help strengthen national health systems and increase equitable access to high-quality pregnancy, childbirth and postpartum care. The IMPAC series includes clinical, managerial, advocacy and policy-related manuals and documents. The three clinical guidelines that have been published recently in the IMPAC series are:

1. *Pregnancy, childbirth, postpartum and newborn care: a guide for essential practice* (PCPNC). This guide is aimed at skilled attendants working at the primary health-care level in settings with limited resources. The guide addresses clinical issues as a decision-making tool as well as health system requirements.
2. *Managing complications in pregnancy and childbirth: a guide for midwives and doctors* (MCPC). This guide provides recommendations for management, at the referral level, of complications during pregnancy, childbirth and the postpartum period, as well as the immediate care of newborns with problems.
3. *Managing newborn problems: a guide for doctors, nurses and midwives* (MNP). This guide provides recommendations for the management of complications in the newborn, such as preterm birth, asphyxia, sepsis, and low birth weight.

These three guidelines are endorsed by UNICEF, UNFPA, the World Bank, the International Confederation of Midwives, the International Federation of Gynaecology and Obstetrics, and the International Pediatric Association.

These evidence-based guidelines were developed through a review of the evidence followed by a consensus-building process via various meetings of international experts convened by WHO, country reviews and field-testing with the aim of converting research findings into practice. The guidelines provide integrated

guidance on how to deliver essential care to women (and their newborns) during pregnancy, childbirth and postnatal period (up to six weeks after delivery), including instructions on the prevention and management of the diseases that affect the great majority of newborns and women, and important endemic conditions that affect women during pregnancy (such as malaria, sexually transmitted infections, HIV, tuberculosis and anaemia).

Evidence suggests that there is a huge gap between availability of knowledge (the guidelines, for example) and its actual use at the health-care practice level. There are many reasons for this. One common reason is that there are inadequate linkages between the various players in the process of guideline development (researchers, the scientific community, those developing guidelines, programme managers and service providers). Moreover, often health-care staff receive inadequate technical orientation, which may result in new or updated guidance not being systematically introduced and promoted to improve health-service delivery or to advocate for the application of models of best practices.

Following the publication of a Cochrane review (1) which highlighted that passive dissemination of guidelines is ineffective and often results in guidelines lying on shelves and not being used, WHO developed a new guideline development process, which includes a plan for implementation and evaluation. To this end, for the current IMPAC series, WHO proposes that MCPC and MNP be disseminated largely among professional organizations, teachers, schools and policy-makers. Considering the format of PCPNC, it is proposed that PCPNC be disseminated in countries with the active participation of national and international stakeholders in its adaptation and implementation process.

PCPNC is a generic guide based on certain epidemiological and health system assumptions. Accompanying PCPNC are adaptation tools that describe these assumptions and provide a process by which the generic PCPNC can be adapted to specific country situations, needs and available resources. The combination of the generic guide and adaptation tools increases the feasibility of implementing the PCPNC guide throughout the health system, while ensuring

that the adaptation does not compromise essential evidence-based interventions. This adaptation process also assists reviewing country policies as well as clinical practice regarding essential health services at primary health-care level.

ADAPTATION OF PCPNC IN UGANDA

In Uganda, many guidelines are in use on different aspects of maternal and newborn health in different health-care programmes. However, there is no single guideline that describes in an integrated manner how to provide care during pregnancy, childbirth, and the postpartum period and how to care for the newborn. The Ministry of Health recognized the need and value of an integrated guideline as well as the importance of focusing on all the needs of a pregnant women and her newborn. To this end, it was decided to review the PCPNC and prepare an adapted version of the guide, taking into account the local needs and resources.

Experts from WHO and officials from the Ministry of Health participated in a five-day workshop held in Kampala, Uganda, from 28 October to 1 November 2002 as part of the process of adapting the guide for use in Uganda. Two local consultants were identified to serve as lead facilitators during the workshop. A multidisciplinary IMPAC working group was established in Uganda comprising 26 members from a varied range of backgrounds including: educators; gender specialists; gynaecologists; nurse-midwives; experts from pre-service training institutions; paediatricians; and policy-makers. The group also included representatives from various programmes and bodies: national agencies dealing with sexually transmitted infections; Integrated Management of Adult Illness (IMAI); Integrated Management of Childhood Illness (IMCI); HIV; essential drugs; Ministry of Health; UNFPA; UNICEF; other United Nations agencies; and nongovernmental organizations.

This working group was responsible for the adaptation and implementation of PCPNC. Establishing such a group was considered essential to gain commitment and local ownership among the various stakeholders from the outset. The involvement of policy-makers, programme implementers and end users promoted effective discussion and networking among the participants. An interesting comment received from the participants was that this was the first time that the various programme managers and policy-makers had had the opportunity to sit together and exchange information.

The materials for the workshop, including the PCPNC guide and the draft adaptation tools, were distributed to participants in advance so that they could prepare for the workshop. Contextual information including epi-

demological data, national policy, national guidelines on relevant topics (malaria, HIV, safe motherhood, etc.) and health-system data (capacity of first-level and referral-level services) was shared with the participants during the workshop.

Principles of adaptation

- Evidence-based approach
- Build on existing tools and data
- End-users' participation, ownership
- Consistent with principles of the guideline
- Flexibility

The workshop began with the Ministry of Health giving a brief overview of the health scenario in Uganda, the Making Pregnancy Safer activities in the country, and the concept of the IMPAC guidelines. This was followed by an introduction of the PCPNC, its principles, content, and structure, and an introduction to the adaptation process and the principles of adaptation.

It was essential that the adaptation group understood the generic PCPNC guide well enough to assess whether an adaptation was needed and what would be the implications of a change. The participants were informed about the following three kinds of adaptation.

- *Essential*. These are obligatory adaptations and must be made in each country (e.g. first-line antibiotics, essential medicines at the first level of care, local address of HIV voluntary counselling and testing centres).
- *Recommended*. These adaptations are made only if new evidence or information becomes available on management or diagnostics necessitating the need for updates (e.g. treatment of HIV, preventive treatment for mother-to-child transmission of HIV infection, treatment of malaria in women infected with HIV).
- *Possible*. These adaptations may be considered if the country's policy and epidemiology differ from those assumed in the guide (e.g. removal of treatment for falciparum malaria, addition of treatments such as iodine/calcium, addition of management of obstetric fistula).

The participants were then divided into four groups; each group reviewed one section of the guide, identified adaptation issues, reviewed the evidence on these issues, reached a consensus and presented it to the plenary. Each group had a facilitator (familiar with the guide) whose main task was to provide evidence, clarifications, and justification for recommendations in the PCPNC. The facilitator allowed the discussion to proceed for as long as required, and encouraged the participants to take a decision based on evidence, judgement and consensus. If any principles of the guide were overlooked, he/she intervened and informed the group about this.

Evidence from the *WHO Reproductive Health Library*, the *Cochrane Library*, and technical basis papers prepared for the guide were used during discussions. Reference and cross-checking with guidelines from various departments of the Ministry of Health (family planning, HIV, IMCI, IMAI, Malaria) was essential to ensure that the guide was in line with the recommendations of these other departments. The national list of essential medicines was also discussed.

Examples of technical discussion/adaptation

Use of magnesium sulfate versus diazepam

Preliminary discussion identified that in Uganda the commonly used treatment for eclampsia and severe pre-eclampsia was diazepam, while the PCPNC recommended magnesium sulfate. The group reviewed the scientific evidence behind the new recommendation and concluded that magnesium sulfate was the appropriate and most effective treatment. However, the adaptation committee felt that since magnesium sulfate was not available in the country, it could not be recommended to replace diazepam.

The representatives of the Ugandan Essential Drugs programme and of the Ministry of Health turned the discussion towards availability, cost, and cost-effectiveness of the two options. The Ministry of Health recognized the importance of including magnesium sulfate in the national essential drugs list and having it available in health centres. It was concluded that, as this is the most appropriate treatment, attempts would be made to make the drug available. Thus, no adaptation was required. The medicine should be made available and there is a need to revise the training curriculum for midwives and the policy regarding its implementation.

Suturing of all vaginal tears

In line with available evidence, the PCPNC recommends suturing of only those vaginal tears which are bleeding and not suturing all tears. However, the group overruled this, stating that culturally it will not be

acceptable to the people that all tears are not sutured. As the guide needs to be culturally sensitive, and this was a view shared by all participants, this adaptation was made.

Breastfeeding for 3–6 months

The adaptation group was of the opinion that in Uganda breastfeeding is recommended for 3–6 months and not exclusively for six months and therefore suggested a change. But when the group reviewed the national guidelines, which in fact do recommend exclusive breastfeeding for six months, they agreed that no change was needed.

Obstetric fistula

The PCPNC does not include recommendations for the management of obstetric fistula. The group suggested the inclusion of the diagnosis and management of obstetric fistula, considering the high prevalence of the condition in Uganda. It was agreed that recommendations for obstetric fistula would be included.

These examples reveal the need for a multidisciplinary team during the adaptation process and a balance being made between evidence, local context and culture when adapting the guidelines to local needs.

The IMPAC working group reached a final consensus on the adaptations made and draft guidelines were produced during the workshop and later finalized by the IMPAC-PCPNC adaptation working group. Implementation in selected districts has begun with the support of donors and nongovernmental organizations.

DISCUSSION

The challenges that must be overcome in a country before evidence-based practices can be implemented include, among others: achieving consensus on health priorities, effective modes of treatment, strengthening health systems, and commitment and coordination among different partners and programmes. Donors or nongovernmental institutions should be involved from the outset and at every stage of the development of the guidelines.

Introducing and adapting generic guidelines must be done with sensitivity, taking into account the unique needs of each country's culture and health system, building on existing data and tools, and promoting local participation, rather than importing successful models from outside. Providing published evidence used in developing the generic guideline helps in consensus-building and adapting the evidence-based practices. It also promotes capacity-building and sensitizes the

national stakeholders to evidence-based practice versus ritualistic practice.

In many respects the participation of different programmes and initiatives created new and direct links for future implementation. It was increasingly recognized that a participatory process must be emphasized during the adaptation of generic guidelines to ensure involvement and sustainability.

CONCLUSION

The work in Uganda shows that adaptation of guidelines through a participatory approach is feasible and desirable, but requires time and skill. It is critical to share the knowledge in the guidelines across institutional, national, and medical boundaries and to help build local capacity for adaptation.

There is also a need to collate the evidence base and disseminate it to country participants before the adaptation work begins. In the case of Uganda, not many adaptations were made to the generic guideline, and the few made were mainly related to the national list

of essential drugs. Nonetheless, the adaptation process leads to local ownership. At the end of the workshop, the participants were all well versed with the recommendations in the guide and were committed to implementing them. The next step is to monitor the implementation process carefully.

The adaptation process helps to review and analyse the country policies regarding maternal and newborn health. It is a delicate process of negotiation, bargaining and mutual adjustments, and requires balancing of evidence against local context and culture. WHO hopes that such a participatory process will help to sensitize and equip national programme managers to convert evidence into practice without outside assistance, keeping in mind the realities of their environment.

REFERENCE

1. Grimshaw JM et al. Interventions to improve out-patient referrals from primary care to secondary care. *The Cochrane Library*, Issue 2, 2005.

Using operations research to introduce postabortive care services in Burkina Faso and Senegal

Ian Askew, FRONTIERS in Reproductive Health Program, Population Council, Nairobi, Kenya

BACKGROUND

In 1997–1998, the Population Council's Africa Operations Research and Technical Assistance Project and the Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO) collaborated with two national research organizations, namely the Centre de Formation et de Recherche en Santé de la Reproduction (CEFOREP) in Senegal, and the Cellule de Recherche en Santé de la Reproduction (CRESAR in Burkina Faso) and the Ministries of Health in Burkina Faso and Senegal to introduce and test, through operations research, a model for improving postabortion care (PAC). After five years, the Council's FRONTIERS programme revisited these two projects to document the changes that had taken place, and to explore the factors that contributed to the utilization of their results and recommendations.

The PAC model generally promoted, and that used by the interventions discussed in this paper, consists of three main elements:

- provision of emergency treatment for complications of spontaneous or unsafely induced abortion using manual vacuum aspiration (MVA);
- provision of postabortion family planning counselling and services;
- establishment of links between these services and other elements of comprehensive sexual and reproductive health care.

Improved client–provider communication was central to all three interventions.

Both operations research studies were small-scale pilot projects in referral-level teaching hospitals—three in Senegal and two in Burkina Faso—which used a quasi-experimental pre-test/post-test design without a control group. Their objectives were to: improve the necessary skills and knowledge of clinical staff; measure the feasibility, acceptability and effectiveness of the new model of postabortion care; and establish training centres for expanding services nationally and regionally. Their long-term goal was to decrease the risk of mortality and morbidity associated with incomplete abortions.

The interventions consisted primarily of training providers in the following topics:

- infection prevention
- contraceptive update
- use of MVA
- counselling, in particular regarding family planning, sexually transmitted infections (STIs) and HIV/AIDS.

The maternity ward in each hospital was also reorganized so that all services were provided at the same location, and each hospital received the necessary equipment and supplies. The hospitals then began implementing the package of services under carefully monitored conditions. To evaluate the interventions, researchers interviewed maternity-ward staff and patients who received services for complications of spontaneous or induced abortion, and collected service statistics and data on treatment-related costs to the patient and the hospital.

Although the results and recommendations were not identical, both countries reached approximately the same conclusions. The new PAC service model was found to be acceptable, feasible and effective. Both studies found room for further improvement, but the researchers concluded that the new PAC model:

- improved the quality of client–provider interactions
- enhanced systematic family planning counselling
- increased adoption of contraceptive methods prior to discharge
- improved pain control procedures
- increased use of MVA
- reduced length of hospital stay
- reduced cost to patients.

Counselling on the procedure itself and what to expect afterwards, improved patient–clinician interaction and communication, and systematic family planning counselling led to higher and sustained rates of family planning use. Providers estimate that 80% or more of PAC clients still take home a family planning method, which shows a sustained impact from the original research studies.

UTILIZATION OF RESULTS

The purpose of this case-study was: (i) to understand the changes made in each country as a result of the two PAC projects; (ii) to document the factors that promoted or impeded the utilization of the results; and (iii) to evaluate how the process could be improved if it was repeated elsewhere. The review team consisted of two FRONTIERS staff and two participants in the operations research studies. The team interviewed 30 researchers, advisers and staff of the Ministries of Health, hospital administrators, doctors, midwives, and nurses. Some of the key informants participated in the 1997–1998 studies, but others only became involved in the PAC services later. The team used a structured interview guide with open-ended questions that varied slightly between researchers, policy-makers and hospital staff. Data collection took place in January and February 2002.

What contextual factors facilitated or hindered the development of the intervention?

International meetings and conferences and some small-scale descriptive research activities on PAC were cited. Key informants frequently mentioned a Population Council staff member, who had worked with key decision-makers in the region for many years on a variety of sexual and reproductive health issues as the major impetus behind both studies. The President of CEFORP, who had been instrumental in increasing access to, and acceptance of, family planning in Senegal had spent several years trying to convince authorities of the merits of this PAC model. CRESAR's leadership had also devoted a great deal of energy to promoting PAC in Burkina Faso. It was not until 1996, however, that the authorities in Burkina Faso, and later in Senegal, allowed the introduction of PAC, but only as a small-scale pilot project. The operations research studies were then able to start. While health-care practitioners recognized the benefits of introducing MVA, family planning counselling and other PAC elements, those in political positions feared that there might be problems in being associated in any way with abortion care services. Many feared that doctors would use the MVA equipment to provide abortions, or that abortion rates would increase if women knew that life-saving

treatment was available when necessary. Although the PAC model was already being successfully implemented in east and southern Africa, and elsewhere around the world, the national sexual and reproductive health programmes in both countries were sceptical of its feasibility.

Within this context, authorities in Burkina Faso agreed to an operations research study, but only under certain conditions. The study would take place in teaching hospitals under the direction of both the Ministry of Health and the Ministry of Education, which allowed both ministries to distance themselves publicly from the issue if necessary. It would also not be considered a government project, as it was funded and implemented by international and nongovernmental organizations. It would be introduced in a few sites and for a limited time, after which the authorities had the option of discontinuing it if they were not satisfied. Finally, training in general infection-prevention procedures—increasingly important with the onset of the HIV/AIDS epidemic—would be provided to all hospital units as part of the intervention. Approximately six months later, Senegal followed with a proposal for a similar study.

This process was more time-consuming than those involved had expected. At one point the possibility of starting the project without the collaboration of the Ministry of Health was considered, but everyone involved agreed to wait, which eventually led to a much greater 'buy-in' by the Ministry of Health. Obtaining this commitment from the two ministries right from the start of the projects proved crucial, because as soon as they began seeing the success of the interventions, the officials in both countries began to consider the project as their own and became eager to share and utilize the results.

Who participated in the study implementation, and how?

The organizations and most individuals participating in the two studies were involved in all phases of the projects, with distinct roles. CRESAR and CEFORP were each responsible for implementing the research component in their respective countries, and were both involved in the study design. Hospital staff at each site took charge of on-site coordination and implementation of the interventions with technical assistance from JHPIEGO, which also developed and provided the content of the training. The Population Council provided overall guidance and technical assistance, particularly with the research activities and in liaison with the governmental authorities. Ministry of Health officials were kept informed as the study progressed and, in turn, they gave the project feedback, but otherwise they did not actively participate in the projects.

What dissemination activities were carried out?

Following completion of the studies, both CEFORP and CRESAR (with technical assistance from JHPIEGO) continued to advocate for policy and programmatic changes, from local to national levels, using the study results to argue their case. Each organization (with support from the Population Council) held a national dissemination seminar as well as a number of regional meetings to share the results. Some health facility staff attended the dissemination seminars on their own initiative and discussed the results at their staff meetings, but this was not systematically promoted. Results have also been presented at several international conferences in Africa and elsewhere and reports and summaries in both English and French continue to be widely distributed.

In both projects, information on the practical implementation of the interventions was disseminated in the form of periodic updates to relevant officials before the research results were available. This continuous feedback allowed these officials to make suggestions or ask questions throughout the introductory process. Most importantly, some doctors and midwives directly involved in the interventions (including those participating in a subsequent operations research study on decentralizing PAC in Senegal) came to regard these activities as normal policy and procedures, rather than as part of a research study.

Consequently, when interviewed by the review team, few clinical staff could recall any results or recommendations from the study itself. Few also had ever seen a report of the study. However, when asked what they had learnt after the new PAC model had been introduced, they virtually paraphrased the study's main findings and recommendations.

How were the study results and recommendations utilized?

Institutionalization of the introduced procedures

On conclusion of the formal research projects, the study sites tended to make or maintain the changes necessary to continue the new model independently. As one maternity chief said, "I saw that this system was much more effective and cost-effective. It is my job to make the maternity unit run better, so I reorganized the services. If I waited for someone from the Ministry to tell me to change, I could be waiting forever."

Most hospitals that adopted the PAC model continued or expanded the training, reassigned staff responsibilities, reorganized services, modified the maternity infrastructure, and reduced patient costs. The use of MVA with some pain control procedure for uterine evacu-

ation has become routine in all study sites, although some providers continue to use digital curette or sharp curettage in cases that might have been appropriate for MVA.

One challenge is ensuring a reliable supply of materials and equipment. MVA equipment is not produced in the region, and most hospitals had difficulty procuring new supplies. Contraceptives and other supplies are more routinely available, but shortages still occur in resource-poor settings, which will increasingly be a problem as PAC is introduced in more rural areas.

Replication and decentralization

The team from Burkina Faso trained the first Senegalese doctors in PAC as part of the operations research study. In the years that followed, a team of trainers from Burkina Faso and Senegal has trained staff from Benin, Côte d'Ivoire, Guinea, Haiti, Madagascar and Mali. In both Burkina Faso and Senegal, pre-service training in PAC is now provided to all doctors, and there are plans to introduce pre-service training for midwives. In addition, doctors, midwives, nurses and clinic officers at many national and regional hospitals, and some district health centres, receive in-service training.

The Senegal team has been particularly active in replicating the model in other sites, again using an operations research approach. In 1998, CEFORP and JHPIEGO (with support from UNFPA) conducted an operations research study to introduce PAC in selected regional hospitals in Senegal. A third operations research study to decentralize the model is currently under way; with support from the FRONTIERS Small Grants Program, EngenderHealth and CEFORP are testing the provision of PAC in selected district hospitals and health centres. The Senegalese Ministry of Health is eager to expand the model but has agreed to wait until the results from the operations research study become available.

In Burkina Faso, CRESAR and the Ministry of Health have recently developed a plan to expand PAC services to all twelve regions in the country, which will require reinforcing the training capacity of the two national hospitals that participated in the original study. Thirty-six midwives and physicians from twelve district medical hospitals will attend training at one of the hospitals. With JHPIEGO's assistance, CRESAR and the Ministry of Health will introduce the PAC model in two maternity hospitals in the Koupela district.

Although replication of the model in other sites is well on its way in both Burkina Faso and Senegal, several steps could facilitate the process. A clear Ministry of Health mandate is necessary for attaining widespread change. Expansion should take place slowly enough

to monitor progress and avoid a reduction in quality, equipment shortages or, as many policy-makers still fear, misuse of MVA equipment. Paramedical staff need to be trained to provide services at lower levels of the health system, if PAC is to be available in rural and remote areas.

An important suggestion made is that replicating the model after the pilot project must be planned from the beginning to avoid haphazard expansion. This is not always possible, and was not the case in these two studies, but it is important that other countries adopting the PAC model develop a comprehensive plan before beginning large-scale expansion. Sites should be chosen in careful progression, so that facilities with established PAC services can help those starting the service that are likely to encounter problems.

Developing a national policy

Prior to the operations research studies, neither country had any explicit service protocols or policy regarding services for women coming with complications of an incomplete abortion. One of the key outcomes from these research studies was that each ministry took ownership of the model and incorporated PAC into their larger Safe Motherhood strategy. The Ministry of Health in Burkina Faso collaborated with CRESAR to develop national norms and standards regarding PAC, and the Senegalese Ministry of Health has developed national service delivery protocols with the help of CEFORP and JHPIEGO. Both countries now include PAC supplies and commodities in their annual budgets and are seeking a sustainable source for MVA equipment, most of which has been donated until now.

What were the main reasons for utilization?

One of the fundamental determinants of successful utilization of study results was the formation of strategic partnerships which ensured that service providers and researchers had the skills required: (i) to introduce the interventions; (ii) to document and evaluate their feasibility, acceptability and effectiveness; and (iii) to communicate the findings. In addition, utilization was facilitated by the fact that the support of key policy-makers in both countries was obtained before beginning the planned activities. In this regard, inputs from key policy-makers were solicited during the development of the studies and timely feedback on the study's progress was provided. The partnerships with key policy-makers ensured that the model tested was appropriate for the local context and that the interest of the Ministry of Health and other key stakeholders in the study was raised even before activities began.

The leadership and commitment of the heads of maternity wards and the various sexual and reproductive

health divisions of the Ministries of Health during and after the studies also contributed to utilization of the findings. Each country formed a national PAC steering committee to oversee the studies and to guide the development of policy recommendations. These steering committees had members from various divisions of the Ministry of Health, universities, donors, technical assistance organizations and women's associations.

The projects also broadened the cadre of clinical staff who could provide PAC services by training nurses and midwives as well as doctors. MVA is much simpler to use than dilation and curettage, so that after training midwives could manage most cases, calling the doctors only when complications arose. This arrangement satisfied the midwives, because they now had more responsibility and independence and experienced greater job satisfaction. Doctors, in turn, were quite content to turn over this service to the nurses.

How could utilization have been improved?

Although the results from these studies have clearly been heavily utilized, certain factors reduced the level of utilization that could have been achieved. Some people with anti-abortion views insisted that taking care of women who had undergone unsafe abortions was condoning the practice. Also, while most providers were excited about the new services, they were still uncertain if general attitudes towards women receiving PAC services had changed.

Because this PAC model is only available in a few sites in each country, the study results are still relevant and should continue to be disseminated. One programme manager said, "This information is magical". He was of the opinion that managers needed to be told about the success of introducing the model and "they themselves (would) make changes and share the information with others".

Responsibility for further dissemination was considered the responsibility of the Ministries of Health in the two countries, but the need for some technical assistance was noted. In both countries, but in Burkina Faso in particular, most dissemination took place in the urban areas. Hence it was suggested that provincial meetings should be planned with the active participation of the providers.

Although it is necessary to reach wider audiences, interpersonal communication was preferred over the mass media, as the issue of abortion is still very controversial and messages could easily be misinterpreted. It was recommended that messages be targeted to specific audiences and communicated through channels such as women's groups, medical associations, staff meetings and discussions with religious leaders. Communi-

ties that need to know that these services are available so that they can access them comprise one audience that has not received much information about the new model. Politicians were also among those named as being insufficiently informed.

Policy-makers in the ministries stated that research findings were most likely to influence their decisions if someone they knew personally, and whom they considered a credible source, presented the findings to them. They also emphasized that recommendations from research should: (i) address existing Ministry of Health priorities; (ii) be presented clearly so that they could be understood by non-researchers; and (iii) be timed to coincide with planning and budgeting cycles.

CONCLUSIONS

An operations research study is a low-risk, acceptable way to introduce PAC in the face of possible opposition, and provides decision-makers with empirical evidence of feasibility, acceptability and effectiveness of this type of intervention. This review of the experiences of Burkina Faso and Senegal contains lessons that neighbouring countries and others can benefit from in addressing this public health challenge. The review

also points to some strategies for researchers seeking to improve utilization of their research results.

Getting support from all stakeholders at the outset is crucial for maximizing the effect of research on changes in policy and programmes. The heads of maternity units and Ministry of Health sexual and reproductive health divisions, who were initially opposed to the study, later came to demonstrate leadership and commitment, which ensured that the studies were carried out and results incorporated into practice.

Dissemination of results should be guided by the planning and budgeting cycles of policy-makers and programme managers. To make evidence-based decisions, leaders must not only have relevant information but should also have it at the right time.

No matter how successful an operations research study is in demonstrating the feasibility of an intervention, going from implementing a small-scale, intensively monitored pilot project to introducing the service as standard practice across a country is a complicated process. Continuing technical assistance that draws from the lessons learnt and documented through the study, while new policies and service procedures are institutionalized, is essential for the changes to be maintained.

Case-studies on preventing unsafe abortion in Mauritius, Nepal, Romania and Viet Nam

Iqbal H. Shah, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

WHO's work on preventing unsafe abortion dates back to the inception of the Special Programme of Research, Development and Research Training in Human Reproduction (HRP) in 1972 and covers biomedical, epidemiological and social science research as well as conversion of research into guidelines on best practices. This work has had impact on the prevention of unsafe abortion through the development of improved methods of medical abortion as well on programmes and policies. Four case-studies included here illustrate the impact.

IMPACT ON LEGISLATIVE PROCESSES: MAURITIUS

With 75% of married women using a contraceptive method, Mauritius has one of the highest contraceptive prevalence rates in the world. The national family planning programme prided itself on achieving exceptionally high contraceptive prevalence, especially in the context of Africa. However, a study supported by HRP revealed that each year 20 000 women undergo abortion, i.e. seven among every 100 women of reproductive age. Nearly 40% of users rely on withdrawal or periodic abstinence, but use these methods incorrectly and inconsistently. A high degree of switching from one contraceptive method to another without protection during the transitional periods was also found. Furthermore, 25% of women reported having had more than one abortion and this was considered alarming in a context where the provision of abortion is restricted by law.

These findings came as a shock to policy-makers and programme managers and all those concerned with women's health. A national symposium to discuss findings was attended by government ministers, members of parliament, and others. Discussions were held at the national legislative body, where a motion to decriminalize abortion was tabled. The bill did not pass but resulted in a greater awareness of the issues related to unsafe abortion and the need to improve family planning services. The findings were incorporated into the National Maternal and Child Health Plans and facilitated the approval of introduction of Norplant.

The factors which contributed to the efforts for a greater utilization of research results were: (i) strong commitment on the part of the investigator to share results and to mobilize relevant constituencies to address issues in the light of findings; (ii) effective dissemination strategies; and (iii) strong media interest.

ROAD TO LIBERALIZING ABORTION LAW: NEPAL

In March 2002, Nepal revised its abortion law to make abortion accessible on demand for a period of up to 12 weeks of gestation. In 1994, when abortion was a criminal offence regardless of the circumstances, a clinic-based study was launched with the support of HRP to document the extent and nature of the problem. The study provided for follow-up visits for women who had attended clinics with complications related to an abortion, and included focus group discussions and in-depth interviews. In addition to many other important findings, the study showed that among women with no education, 51% of abortions were performed by untrained providers. One in five women had had an abortion before the present one. As a follow-up to the study, results were circulated (repeatedly) to the Ministry of Health, professional associations and among nongovernmental organizations. Media interest was generated by the publication of the results of public opinion polls linked to the study findings. In addition, women's health advocates, legal experts and medical associations took up the results to campaign for reform in the abortion law, which was eventually passed in March 2002. The reform in abortion law in Nepal cannot be entirely attributed to the findings from this (or any other) study. However, results from the study provided a strong impetus to the movement to reform the abortion law.

As in the case of Mauritius, the commitment of the investigator, together with the use of effective dissemination strategies, assisted the reform process. In addition, a more favourable political environment and sympathetic government officials played a key role in making abortion legally available in Nepal.

PROGRAMMATIC CHANGES: ROMANIA AND VIET NAM

Using WHO's Strategic Approach¹, assessments of abortion services were made in Romania and Viet Nam, with the support of HRP. The assessments resulted in a number of recommendations to improve the quality of care of abortion services and care for postabortion contraceptive use. Comprehensive abortion care programmes were initiated in the two countries and standards and guidelines were established for providing abortion services, which included information, education, and communication strategies.

The involvement of stakeholders in the process of assessment, together with a committed team of inves-

tigators, facilitated the utilization of recommendations emerging from these assessments. In the case of Romania, the principal investigator was also a key policy-maker, which greatly facilitated the implementation of recommendations.

In summary, the case-studies suggest the following main facilitating factors: (i) effective dissemination strategies; (ii) commitment of the investigator(s) to converting the research results into actions and changes that would improve sexual and reproductive health outcomes; and (3) involvement of stakeholders and receptive government officials.

¹ The Strategic Approach is a three-stage process to assist countries to assess reproductive health needs and priorities, test interventions to increase access to and the quality of reproductive health services, and then scale up successful models for wider implementation.

Utilization of research results: case-studies in adolescent sexual and reproductive health

Iqbal H. Shah, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

A number of research studies promoting adolescent sexual and reproductive health have had a significant impact on policies and programmes in several countries. Two studies are presented here with a view to illustrating the utilization of research results in contrasting populations.

ADOLESCENT SEXUAL AND REPRODUCTIVE HEALTH IN PANAMA

A survey of adolescent girls studying in secondary schools and colleges as well as of their teachers was undertaken in Panama City by investigators from a WHO Collaborating Centre in Panama. Among other things, the survey showed that: (i) a significant percentage of girls were sexually active; (ii) many had to curtail their studies due to unintended pregnancies; and (iii) teachers were unprepared to discuss issues related to adolescent sexual and reproductive health. The study was the first of its kind to highlight the predicament of young sexually active girls, the impact of unintended pregnancy on their educational prospects, and the gaps in training and skills of teachers in being able to discuss with students issues related to sexuality. The findings were widely disseminated and their policy implications were discussed.

As a result of the study, the national education policy was changed to allow pregnant students to continue their studies and a training programme was initiated to train teachers in issues related to adolescent sexual and reproductive health. The research institution was asked by the Government of Panama to establish the teaching programme and to train teachers.

The factors that contributed in the main to the impact of this study were: (i) the research findings were new and provided sound evidence of the high level of sexual activity among adolescents and the lack of training in sexuality and sexual and reproductive health among teachers; (ii) the research institution was a WHO Collaborating Centre; and (iii) the research institution and its director had close links with the Ministry of Health and the Ministry of Education. All these factors worked in a synergistic manner to account for the impact.

ADOLESCENT SEXUAL AND REPRODUCTIVE HEALTH IN CHINA

A project in Shanghai Municipality compared an intervention area with a control area to examine the impact of providing information on safe sex and contraceptive services to prevent unintended pregnancies and abortions. The comparison of the baseline information with follow-up information after one year of intervention showed that, in the intervention area, adolescents and young men and women reported higher use of contraceptives and fewer unintended pregnancies and abortions.

The interventions, introduced as part of the research project, have been taken over by the regular family planning programme in Shanghai, which has also developed plans to extend these interventions in other areas. Two main reasons contributed to the impact of this research: (i) there was a close working relationship between the research team and the local family planning officials; and (ii) the local family planning officials were keenly interested in the research findings and in the use of these findings to improve the programme for adolescent sexual and reproductive health in Shanghai Municipality.

Operations research on improving sexual and reproductive health services for adolescents in French-speaking African countries south of the Sahara: lessons learnt

Heli Bathija, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

In 1994, in a meeting organized by UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP), representatives of 13 French-speaking African countries reflected on the research needs and priorities for the region and identified research on adolescent health as a priority. This led HRP to launch the project Operations Research on Improving Reproductive Health of Adolescents in Francophone African Countries in collaboration with the WHO Department of Child and Adolescent Health and Development and the WHO Regional Office for Africa. Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Guinea, Madagascar and Senegal were selected in 1996 through a process that attempted to estimate the feasibility of the study. Later, Burkina Faso and Madagascar left the project, leaving five countries participating in it.

This ongoing project has three phases: (i) a baseline survey of adolescents who are using health services, and of the quality of services offered; (ii) an intervention to address the information needs of adolescents, to train service providers, or to modify existing services to enhance their youth-friendliness; and (iii) a post-intervention survey to evaluate the effectiveness of the intervention. Other objectives include:

- building local capacity
- setting up information, education and communication activities and training programmes
- integrating programmes into the work of existing organizations to ensure sustainability
- influencing government policies
- increasing utilization of sexual and reproductive health services by adolescents
- increasing knowledge of all participating groups and sharing of knowledge
- reorganizing the participating health-care facilities
- involving community groups and schools

- involving health-care staff
- developing special curricula for schools and community education
- disseminating results and project documents.

In order to maximize the impact of the project and to ensure the best utilization of results, the ministries of health, youth and education of the participating countries were involved from the outset. Similarly, youth groups and nongovernmental organizations working with adolescents have been involved throughout the project.

The project demonstrates how baseline research can be turned effectively into health-care practice interventions. Once they are implemented, the interventions are then analysed and evaluated and used as a basis for creating sustainable strategies and policies for the long term. The project also examines the possibilities for replicating the interventions so that they could be applied nationwide.

The research is carried out in both urban and rural areas, in communities as well as health-care facilities. Both quantitative and qualitative methods are used. These include in-depth interviews with “gatekeepers”, focus group discussions with adolescents and parents, interviews using standardized questionnaires with adolescents in health centres and communities as well as with health-care personnel. In addition, the baseline study includes monitoring of registers at health centres to determine the number of visits by adolescent clients.

Interventions are defined in each country based on the situational analysis of the baseline survey. Possible interventions include providing adolescent-related training to health-care personnel, modifying existing services to make them youth-friendly, and providing information on sexual and reproductive health and the related services to adolescents and parents.

The current situation in the participating countries is as follows.

- The Guinea and Senegal projects are complete and final reports are available.
- The Côte d'Ivoire project has been halted due to political instability in the country.
- The Benin project continues to seek funds to implement the intervention activities.
- The Cameroon project is entering the intervention stage.

As Senegal has successfully realized all the stages of the project, its case will be examined below as an example of the process of turning research into practice within the framework of the current project.

THE CASE OF SENEGAL

Senegal was included in the overall operations research project from the outset. However, as WHO was unable to raise funds for the main study, it sought partnership with the Population Council's FRONTIERS in Reproductive Health Program to carry out the project. This led to changes in the original protocol in order to align the project with other projects being undertaken by FRONTIERS in the country.

A key change related to the coordination of the project. Instead of proceeding with a diverse base of representatives of different organizations without central coordination, the Reproductive Health Training and Research Centre (CEFOREP) was chosen to act as the coordinating organization in charge of the administrative and financial management of the project. CEFORP then proceeded to form partnerships with various stakeholders. Hence, even though the project was centrally coordinated by CEFORP, it was based from the outset on strong partnerships between many agencies, including two divisions of the Ministry of Health—Division of Reproductive Health and the Division of Studies and Research—the Ministries of Education, Youth, and Family, as well as the Population Training Group (GEEP) and youth representatives. The strong involvement of the different ministries helped to strengthen impact of the project.

At the present time, it is difficult to predict the long-term impact of the project. An analysis of the short-term impacts of the interventions has been made and is presented below. However, no comparisons with populations not exposed to the interventions have been made. Furthermore, there is difficulty in defining the real impact, as it can be assumed that some level of self-selection has taken place—i.e. those involved in the project were already interested or involved in the topics with a possibly higher than average proportion of sexually active adolescents.

Overall, the project in Senegal achieved its objectives successfully and received positive and encouraging responses from various parties. A central impact of the project that can already be seen is the promotion of open communication on issues of adolescent sexual and reproductive health. Breaking the silence surrounding this crucial area is the key to improving services and creating an enabling environment for serving adolescents. The current project has made a significant contribution to these goals.

Baseline study

The first stage of the operations research project was a baseline study of the situation. It yielded guidelines for future interventions.

The results of the baseline study indicated that adolescents in Senegal have insufficient knowledge about their bodies and human reproduction in general. At the same time, the majority viewed family planning negatively. It was noted in the study that adolescents had no communication on sexual and reproductive matters with any adults. Both parents and adolescents voiced a desire for improving communication between adults and adolescents.

Sexual and reproductive health care is perceived with strong suspicion by adolescents. They worry about the lack of discretion at clinics and about being identified when visiting such facilities. Adolescents stated that in cases of sexual and reproductive health problems, they often turned to traditional practitioners, friends or other informal sources. Health-care facilities were mostly approached only in cases of serious complications.

Sexual and reproductive health topics were found to be poorly covered in school curricula. A greater coverage of these topics in schools was encouraged by local political authorities.

Interventions

The results obtained from the baseline study were analysed and used as a basis for defining appropriate local interventions. The interventions were implemented in two of the study zones; a third zone served as a control area.

The interventions were applied in communities, health services and schools. In all three, the focus was on providing information on a variety of sexual and reproductive health issues appropriate to the cultural context of Senegalese adolescents. Activities within the interventions included, among others, identification of important stakeholders, holding of preparatory meetings, modification of school curricula, development of information materials and messages, preparations for

service delivery, and activities involving adolescents and parents. A peer education approach was used in both communities and schools.

Community interventions

The aim of community-level interventions was to create an enabling environment that encouraged the participation of the whole community. The interventions also sought to enhance communication between adolescents, parents, teachers and health-service providers. Furthermore, emphasis was placed on reaching out to uneducated adolescents in order to increase their knowledge and competencies in the field of sexual and reproductive health.

Two main routes were used to reach out to adolescents in communities: through the establishment of neighbourhood youth associations and community youth centres; and through young people visiting other young people in their neighbourhoods. Services were provided by information coordinators based in community youth centres and by peer educators who were members of youth associations. Adolescents in need of sexual and reproductive health services were referred to health care facilities.

Health service interventions

The main goal of interventions within the health services was to make public health centres more approachable for adolescents. A central incentive for the interventions was the lack of use of public health services by adolescents for their sexual and reproductive health needs. Consequently, there was a need to redefine the service environment so that adolescents would perceive the health centres as sources of care. In a bid to provide better service and reduce stigma and discrimination, health-service personnel were trained in and informed about the particularities of working with adolescents. Attention was also paid to the physical environment by restructuring and refurbishing general waiting areas and creating special waiting areas for adolescents. Furthermore, adolescent helpers were trained and placed within health centres to receive and discuss with other adolescents arriving at the facilities. Again, emphasis was placed on the provision of information, with a focus on increasing adolescents' awareness of sexual and reproductive health issues and directing them to other sources of care and further information.

Interventions in schools

The goal of interventions carried out in schools was to examine the additional effect that education in schools could bring to improving adolescents' knowledge of sexual and reproductive health and to changes in behaviour and attitudes in relation to health services.

A special curriculum on sexual and reproductive health issues was created for use at the primary, secondary and high-school levels. The curriculum was tested and modified based on practical experiences and through workshops for teachers. In schools, the topics were integrated into the lessons on different subjects.

However, none of the classes was able to cover the curriculum completely as all teachers were not involved in the project and others had problems with being able to fit the curriculum into their regular teaching. Because of this, events outside of school hours were organized to complement the learning. These events were usually school functions attended by students and their families.

Although involving peer educators in schools was not planned in advance, interest in this was shown both by teachers as well as peer educators themselves. Hence, peer educators began organizing sessions at schools using the same curriculum and methods used in the sessions in communities. The involvement of peer educators was highly appreciated by both teachers and students.

In the framework of the interventions in schools, teachers still found the sensitive topics of sexuality and condom use difficult to approach. Some teachers were also worried about the reactions of parents, especially when teaching younger students.

NOTABLE ACHIEVEMENTS

Results of the research and lessons learnt from the interventions have been disseminated through reports and other documents. The Population Council has been central in this, providing both funding and technical support. It remains to be seen how the published documents will be used by the different stakeholders.

A notable achievement of the study is the strong collaboration created with local offices of the Ministry of Health, Ministry of Youth, Ministry of Education, Ministry of Family, local nongovernmental organizations and various structures working with adolescents and youth, which confirms the need for, and the effectiveness of, a multisectoral approach in dealing with adolescent issues.

In both intervention areas the number of adolescents who received sexual and reproductive health education increased considerably. Increases were also seen in the knowledge and use of health facilities. At the same time, adolescents reported having fewer sexual partners. However, condom use also declined during the intervention phase.

The project team in Senegal is currently looking into how the interventions, especially regarding the involvement of youth and use of peer educators, could be integrated into existing programmes of the organizations from which the project participants came. This would help ensure that the interventions remain sustainable.

Although further analysis is still required, it has been determined that in terms of costs and the interest expressed by various stakeholders, the process is replicable in other parts of the country. However, a more detailed evaluation is needed to determine fully the effectiveness and impact of each type of intervention.

UTILIZATION OF RESULTS

Since the project took place in various stages, the utilization of results also occurred in stages. Because they constitute a central part of the project, the results of the baseline study were used to define and implement the intervention, which in turn produced more results and experiences that could be further utilized.

Implementation of the interventions in Senegal coincided with the founding of the Office of Adolescent Health at the Ministry of Health. This Office used the experience gained in the two intervention sites to develop their first priority-action plan.

The curricula developed in the course of the project have been used by other organizations and projects in training peer educators and professional staff. Furthermore, the research methods employed in the project have been replicated and used by UNICEF and UNFPA in their research project on “Empowering poor adolescents”. In addition, the printed material developed in the process has been used in other projects—for instance, an information booklet produced by the Senegalese team has been used by UNFPA in Mauritania.

Elements of the clinic- and community-based interventions will be used as a basis for scaling up the process in other districts of Senegal. This will be done with the support of the Ministry of Health, WHO and two non-governmental organizations.

It is clear that the experiences and resources produced by the project in Senegal have a great potential for use outside the project. However, at this early stage, it is difficult to foresee all the potential uses of the results of the study. This is a long process and at the present time there is no system for obtaining information about it.

DISCUSSION

It has to be acknowledged that countries and institutions behind this project have faced many difficulties, notably funding. Each country team is responsible for finding funds independently, with WHO providing some funding in addition to technical assistance and support. Thus, even if the political environment and state-level support have been encouraging, the financial situation has often complicated the process. Apart from funding, organizational difficulties have been a major obstacle to carrying out the project in time. Activities in some countries have suffered from a lack of central organization and loose institutional structures. The project has shown that a strong central coordinating and implementing agency is crucial to effective project management.

Despite these problems, one of the main factors contributing to its success is expected to be the inclusion of various actors from different levels. It is hoped that the central role occupied by ministries and other state-level actors will allow the results and experiences of the programme to have an impact on policies and politics. However, at the moment it is impossible to say what the scope of such impacts will be. It will be important that an evaluation of impacts be undertaken after a period of time has passed since the completion of the project in the participating countries.

The success of the project in Senegal is an encouraging example to the other participating countries. Efforts have been made to allow for the experiences of Senegal to be used in other participating countries. In this way, the utilization of research results and experiences will not be limited to one country at a time, but can be shared among a number of countries. Recently, a member of the Senegalese project team visited Cameroon to support the implementation of the baseline stage of the project. Furthermore, an electronic discussion group has been established to allow for experience-sharing and mutual learning.

All in all, ongoing support is now needed to ensure that the results obtained from baseline studies will be used to implement interventions and formulate further policies and programmes. It is important that the valuable research that has already been carried out is turned into practice.

ANNEX 1—TASK FORCE MEMBERS AND CONTRIBUTORS

Michael Mbizvo, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland (*Coordinator, co-editor*)

Juliet McEachran, John Snow International, London, United Kingdom (*Rapporteur, co-editor*)

Matthew Tiedeman, Family Health International, Research Triangle Park, NC, USA (*Rapporteur*)

Ian Askew, FRONTIERS in Reproductive Health Program, Population Council, Nairobi, Kenya

Elizabeth Bukusi, Kenya Medical Research Institute, University of Nairobi and Consultant, Medical Assistance Program International, Nairobi, Kenya

Inés Escandón, ACQUIRE, EngenderHealth, New York, NY, USA

James Foreit, FRONTIERS in Reproductive Health Program, Population Council, Washington, DC, USA

Monique Hennink, University of Southampton, Southampton, United Kingdom

Cristina Herdman, Program for Appropriate Technology in Health, Seattle, WA, USA

Julia Kim, Rural AIDS and Development Action Research Program (RADAR), University of the Witwatersrand, Johannesburg, South Africa

Eddie Mhlanga, University of KwaZulu Natal, Durban, South Africa

Doyin Oluwole, WHO Regional Office for Africa, Brazzaville, Congo

Iqbal Shah, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

John Townsend, FRONTIERS in Reproductive Health Program, Population Council, Washington, DC, USA

Michael Welsh, Family Health International, Arlington, VA, USA

OTHER PARTICIPANTS IN GUIDELINE DEVELOPMENT WORKSHOPS

Heli Bathija, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

Nathalie Broutet, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

Miriam Chipimo, Central Board of Health, Lusaka, Zambia

Inam Chitsike, Division of Reproductive Health, WHO Regional Office for Africa, Brazzaville, Congo

Rasha Dabash, EngenderHealth, New York, NY, USA

Wilma Doedens, United Nations Population Fund, Geneva, Switzerland

Enrique Ezcurra, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

Helga Fogstad, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

Sarah Harbison, United States Agency for International Development, Washington, DC, USA

Martha Jacob, EngenderHealth, New York, NY, USA

Sarah Johnson, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

Rita Kabra, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

Mihira Karra, United States Agency for International Development, Washington, DC, USA

Mary Kawonga, Women's Health Project, University of the Witwatersrand, Johannesburg, South Africa

Joshua Kimani, Family Health International Regional Office for Population Activities, Nairobi, Kenya

John Lavis, McMaster University, Hamilton, Canada

Jennifer Moodley, University of Cape Town, Cape Town, South Africa

Katy Pepper, Female Health Foundation, Durban, South Africa

Helen Rees, Reproductive Health Research Unit, Chris Hani Baragwanath Hospital, Soweto, Johannesburg, South Africa

Ezra Teri, Family Health International, Nairobi, Kenya

James Trostle, Trinity College, Hartford, CT, USA, and National Institute of Public Health, Mexico City, Mexico

Helena von Hertzen, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland

John Williams, Navrongo Health Research Centre, Ghana Health Service, Navrongo, Ghana



For further information contact:

UNDP/UNFPA/WHO/World Bank Special Programme of Research,
Development and Research Training in Human Reproduction (HRP)
World Health Organization
Avenue Appia 20, CH-1211 Geneva 27, Switzerland

Fax: +41 22 791 4171

www.who.int/reproductive-health

E-mail: reproductivehealth@who.int

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right (left to right) WHO/M. Edwards, WHO/P. Virot and WHO/H.Faird.