TOWARDS A CONCEPTUAL FRAMEWORK FOR THE STUDY OF THE UTILIZATION OF OPERATIONS RESEARCH FINDINGS

James R. Foreit
The Population Council, FRONTIERS

M. Celeste Marin
Academy for Educational Development*

Karen G. Foreit
The Futures Group

Paper presented at Annual Meeting of Population Association of America, April 1, 2005, Philadelphia, PA

*At the time of writing this paper, Tulane University/FRONTIERS.

TOWARDS A CONCEPTUAL FRAMWORK FOR THE STUDY OF THE UTILIZATION OF OPERATIONS RESEARCH FINDINGS

Introduction

Donors, government agencies and private foundations have long invested in research in reproductive health, in the expectation that findings will be used to direct program resources to more effective interventions, thus leading to better reproductive health. As funding for program assistance has become more constrained, donors have increasingly expected research programs to demonstrate that their findings do in fact lead to policy change and service delivery improvement.

Recent examples of concern for utilization include the World Health Organization (WHO) series of regional workshops on increasing research utilization; the name change of the Research Division of the USAID Office of Population to the Research, Technology and Utilization Division; the U.K. Department for International Development (DFID) funding of the University of Southampton's *Getting Research Into Policy and Practice* (GRIPP) website, and the Family Health International (FHI) "Research to Practice" initiative.

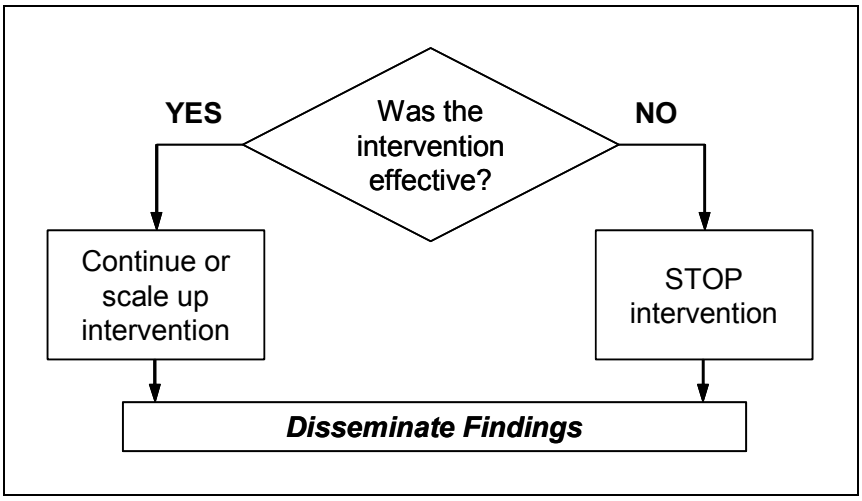
What is utilization?

In the literature, utilization of operations research (OR) findings in reproductive health has become virtually synonymous with the scaling-up and replication of effective experiments and interventions (Koenig and Whittaker 1991, Haaga and Maru 1996). For example, all utilization indicators in the 1994 *Handbook of Indicators for Family Planning Program Evaluation* refer to levels of scaling up (Bertrand et al. 1994). Equating utilization of OR with scaling up fails to recognize the value of negative results—a substantial proportion of operations research studies—and does not successfully classify cases where unsuccessful interventions are scaled-up.

In this paper we propose a broader definition of utilization of findings, to include both positive findings (the intervention produced a statistically significant and practically important

improvement over the comparison group) and negative findings (the intervention failed to produce statistically significant differences between groups, or the results were positive and statistically significant but practically unimportant.) Figure 1 depicts the full decision tree leading to correct utilization of research findings.

Figure 1.



The left branch of the decision tree dominates the utilization literature. We argue that the right branch is equally or even more important. By paying attention to negative results, we can avoid costly investments in ineffective or even harmful interventions.

Negative results can show that an intervention is not worth scaling-up, that a current practice is superior to a proposed change or that an intervention that works in some settings is not effective in others. By ignoring negative results, the conceptualizations in the literature prevent a full and accurate assessment of the effects of OR findings on programs. By focusing on positive results, the papers also fail to acknowledge that managerial decision-making is not limited to the adoption of new interventions (Foreit and Frejka 1998), or that negative results often lead to positive program changes (Browman 1999).

Measurement of Utilization

In studying utilization, the central problem is to obtain reliable and valid measurements of whether or not research findings have influenced a program decision. As reflected by the OR reproductive health literature, the most feasible methodology is probably the case study (see, for example, Henry, 1996, Solo, et al. 1998). Traditionally, the case study approach has been considered primarily as a method for generating hypotheses for later quantitative testing (Yin 1998). More recently, it has been argued that this approach is also suitable for explanatory research (Yin 1998).

For explanatory case studies to be reliable and valid they should be theoretically based, use a previously established protocol, compare alternative explanations for the results, and use the same protocol to conduct more than a single study on a given problem. Research techniques should include triangulation – the use of multiple sources of evidence that all point to the same conclusion (e.g. documents, interviews, and direct observations) – and the use of logic models (Yin 1998) that determine if events occur in the hypothesized sequence stretching from the independent to the dependent variable.

We reviewed the literature to assess utilization of OR results by reproductive health programs. None of the papers using the case study approach met all, or even most, of the criteria for explanatory research beyond reporting multiple cases. All studies have serious reliability and validity problems.

The case studies provide no corroborative documentary evidence of utilization, or the factors influencing it, and site visits are mentioned in only one set of case studies (Bertrand and Marin 2001a). Studies using interviews typically first selected the studies and then interviewed participants and other stakeholders about utilization (see, for example, Bertrand and Marin 2001, Foreit et al. 1989). This technique is subject to bias in both the selection of studies and the selection of discussants. Other common problems include selection of the studies by members of the organization that had done the research, and using interested parties – the researchers and managers who had conducted the study – as respondents**.** Results also appear to be influenced

by elicitation techniques, for example, by providing respondents a briefing package with research summaries prior to interview.

FRONTIERS:

The Frontiers in Reproductive Health Program (FRONTIERS), a global operations research program implemented by Population Council, Family Health International and Tulane University and funded by USAID, attempted to address some of the shortcomings described above. Building on previous operations research and evaluation initiatives, FRONTIERS/Tulane developed a methodology to evaluate utilization and tested a set of "impact" indicators in case studies in six countries. The resulting indicators were then applied to all intervention and evaluative studies conducted by FRONTIERS from 1998-2003, as well as all Population Council OR studies in Guatemala from 1988-2000. Unlike previous attempts to evaluate utilization, FRONTIERS selected studies prospectively and systematically applied a singe instrument to assess utilization of dozens of studies in multiple countries. (For a more detailed description of the methodology and the findings, see Bertrand and Marin 2001 and Marin et al. 2005).

Despite this systematic approach, the FRONTIERS utilization assessment suffered from some of the same limitations as previous studies: it is based primarily on key informant interviews and so is inherently subjective; it is impossible to know what would have happened in the absence of the study so attribution is presumed rather than proven; and it is difficult to quantify the impact of a study, particularly if results are negative.

Utilization of findings:

In the following section we discuss examples of the different types of utilization of positive and negative operations research findings, as well as some examples of the non-utilization of these findings.

Utilization of positive results: The Bangladesh Family Planning Program wanted to introduce emergency contraception as a back-up method for condom and oral contraceptive clients. To determine the best way to provide the method, the program compared two interventions. The

first consisted of giving users information and instructing them to return to the provider for emergency contraception when needed. The second provided both information and a sample of emergency contraceptive pills. About 43% of women who received both information and a sample used emergency contraception, compared to 13% of the comparison group (Khan and Hossain 2002). Neither intervention reduced continuation of other contraceptives. Based on these findings, the Family Planning Program scaled up the first model (but also allowed all women to return for the pills if they had not accepted them at their original program contact) in 17 districts covering about 50 million people, and began to work with the government of Nepal to implement a similar program.

In a second example, primary care clinics in Quetzaltenango, Guatemala tested a reproductive health screening tool designed to reduce missed opportunities to provide services to women, and found it increased the number of family planning appointments and referrals from 19% to 43%. Providers adopted the job aid and the study was replicated in a second province, where the number of women receiving a contraceptive method at intervention sites increased from less than one percent to about 10%, while remaining less than one percent at both baseline and endline in the comparison area (Solorzano et al. 1998, Vernon and Foreit 1999). As a result of these studies, the algorithm was adopted throughout the Guatemalan Ministry of Health system in 2001.

Utilization of negative findings: In Mali, the Ministry of Education conducted a study to determine if intervening with the women who perform Female Genital Cutting (FGC) could reduce the practice. Non-governmental organizations (NGOs) working with the Ministry tried educating excisors about the health dangers of FGC and developed income generation schemes to provide alternative sources of income. Despite the campaign, excisors continued to perform FGC, and demand for the procedure remained unaffected by the campaign (FRONTIERS 2000). Two of the NGOs abandoned projects with excisors, and the MOE dropped such projects from the national FGC plan (Diop 2004). The study is also credited with helping dissuade CARE from implementing a similar project with excisors in Sudan (Chege 2004).

What is *not* utilization?

Examples abound of effective interventions that disappeared when a study ended. In Peru, Ministry of Health (MOH) hospitals offered family planning as part of obstetrics and gynecology outpatient services. Because of staff rotation, family planning providers were present at only a third of clinic sessions. Since it was too costly to train all providers in family planning, the MOH opted to assign a single provider to family planning on a continuous basis. Because clinics were already functioning at capacity the services were provided outside regular hours. The new system increased monthly mean family planning clients from 58 to 348, with lower costs per service. The MOH issued regulations permitting expansion of the model, and the local USAID Mission promised financial support. However, USAID personnel changed, and the new staff decided not to provide funding for scaling-up the intervention (Vecinos Peru and Peru MOH 199).

The utilization outcome that is rarely discussed is when a study shows that an intervention is no more effective than the status quo, but it is continued or expanded. A Senegal study compared the cost-effectiveness of two different models for community-based distribution of contraceptives, and found that one was more cost-effective than the other. After these findings were disseminated at the district and national levels, an NGO began supporting the replication and scaling up of the less effective model (Askew 2004).

In the Philippines, researchers tested the hypothesis that women who received an improved client/provider interaction would have longer contraceptive continuation rates than women in a control group not receiving improved the improved interaction. No significant difference in between group continuation rates was found. However, provincial health officials scaled up the intervention throughout his province. As of the last quarter of 2002 the Philippine Department of Health was considering scaling-up the intervention nationally (Costello et al. 2001).

Future directions

While our framework of including both positive and negative results provides a broader base from which to study utilization, neither our work nor the previous literature provides reliable guidelines for increasing the utilization of reproductive health operations research results. In short, we still know very little about utilization. We can, however, improve the quality of utilization research by adopting more useful concepts and better techniques.

We should begin with the collection of negative results. Compared to other challenges in utilization research, soliciting and reporting negative results should be a relatively simple activity for reproductive health journals, conferences, and websites. An early benefit is that the OR literature would be less distorted and we would have a clearer picture of what works and what does not work. A necessary second step is to improve the methodologies used in the case studies, establishing criteria prospectively for the collection of data.

While essential to improving the reliability and validity of research results, improved methodologies alone will not increase the utilization of findings. The purpose of utilization studies must shift from the simple enumeration of factors to the identification of variables that discriminate between utilization categories that can be manipulated by researchers and managers.

Operations research is the study of factors under the control of program managers. The utilization of research findings is a programmatic function under the control of managers, similar to other functions such as supervision, evaluation, training, and information and education activities. As such, utilization is a legitimate but neglected OR topic.

References

Askew, Ian. May 2004. Personal communication

Askew, Ian, Zoe Matthews and Rachel Partridge. 2002. *Going beyond research. A key issues paper raising discussion points related to dissemination, utilization and impact of reproductive and sexual health research.* University of Southampton, UK.

Askew, Ian, Robert Miller and Julie Solo. 2001. *Using Operations Research for Producing and Communicating Knowledge About Reproductive Health Services In Sub-Saharan Africa.* Paper presented at the IUSSP Seminar on "The Production and Circulation of Population Knowledge", Population Studies and Training Center, Brown University, Providence R.I. March 2001.

Bertrand, Jane T. and Gabriela Escudero, 2002. *Compendium of Indicators for Evaluating Reproductive Health Programs, Volume One.* Measure Evaluation Series Number 6. Chapel Hill, NC: The Carolina Population Center.

Bertrand, Jane T. and M. Celeste Marin. 2001. *Operations Research: Measuring Its Impact on Service Delivery and Policy.* FRONTIERS/Tulane University.

Bertrand, Jane T. and M. Celeste Marin. 2001a. *Assessment of the Process and Impact of Operations Research in Guatemala: 1988-2000*. FRONTIERS/Tulane University.

Bertrand, Jane T., Robert J. Magnani, and James C. Knowles. 1994. *Handbook of Indicators for Family Planning Program Evaluation.* Chapel Hill, NC: The Carolina Population Center.

Brambila, Carlos, 2002. *Experience in Research Evaluation: Examples in the Field of Operations Research*. Workshop on Utilization of Research Results. Department of Reproductive Health and Research RHR/WHO, Population Council, FRONTIERS, Central American Population Center, University of Costa Rica, pp. 18-21.

Brownman, Howard I. 1999. *The Uncertain Position, Status and Impact of Negative Results in Marine Ecology: Philosophical and practical considerations*, Marine Ecology Progress Series. Vol. 191, pp. 301-309

Chege, Jane. May 2004. Personal Communication

Costello, Marilou et al. 2001. "A client-centered approach to family planning: The Davao Project." *Studies in Family Planning,* Vol. 32: 4 (Dec. 2001). pp. 302-313.

Diop, Nafissatou. May 2004. Personal Communication

Family Health International (FHI), 2004. *Research to Practice: Underused Research Findings.* Unpublished

Foreit, James R. 2002. *Utilization of Research by Programs*. Workshop on Utilization of

Research Results. Department of Reproductive Health and Research RHR/WHO, Population Council, FRONTIERS, Central American Population Center, University of Costa Rica, pp. 14-15.

Foreit, James R. and Tomas Frejka, Eds. 1998. *Family Planning Operations Research: A Book of Readings*. New York, Population Council, pp. 1-8

Foreit, James R. et al. 1989. *Replicating Operations Research Projects: Case Studies in Ecuador and Peru*, Paper presented at the Sixteenth Annual Conference on the National Council for International Health, Washington DC.

Fisher, Andrew, John Laing, John Stoeckel, and John Townsend. 1991. *Handbook for Family Planning Operations Research Design*. New York: Population Council.

FRONTIERS/Tulane University. 2000. *Evaluating Operations Research: Results from Six Case Studies.* Washington, DC: FRONTIERS Program.

FRONTIERS, 2002. *Service Improve Quality of Care but Fail to Increase FP Continuation*. OR Summaries, No. 30. Washington, DC: Population Council.

FRONTIERS, 2000. *FGC Excisors Persist Despite Entreaties,* OR Summaries, No. 2. Washington, DC: Population Council.

Haaga, John C. and Rushkesh M. Maru. 1996. "The Effect of Operations Research on Program Changes in Bangladesh." *Studies in Family Planning* 27:2 (March/April 1996) pp. 76-87.

Hegazi, Sahar, 1997. *Utilization of Operations Research in Egypt.* Special Report. The Population Council, Cairo.

Henry, Fitzroy. 1996. *Linking Health Research to Policy: The Researcher's Role*, Research into Action: The Newsletter of the Council on Health Research for Development (COHRED) (April-June). Vol. 5: pp 1-4.

Herrin, Alejandro N. 1995. *Operations Research for Program Planning and Management,* Final Report. The Population Council, Asia and Near East Operations Research and Technical Assistance Project

Getting Research into Policy and Practice, (GRIPP) www. jsiuk-gripp-resources.net (website)

Iskander, Meiwata B. and Subadra Indrawati. 1996. *Indonesia: Utilization of Completed Operations Research Studies*. Final Report, Population Council, Asia and Near East Operations Research and Technical Assistance Project.

Koenig, Michael A. and Maxine Whittaker. 1991. "Increasing the Application of Operations Research Findings in Public Sector Family Planning Programs: Lessons Learned From The ICDDR, B" in *Operations Research: Helping Family Planning Programs Work Better.* Myrna

Seidman and Marjorie C. Horn, Eds. Wiley-Liss pp. 451-60.

Khan, M.E. and Sharif Mohammed Ismail Hossain, 2002. *Introducing Emergency Contraception in Bangladesh: A Feasible Study*. FRONTIERS Research Update No.1, Dhaka: The Population Council.

Leon, Federico. 2001. *Utilizing operations research solutions: the case of DMPA in Peru.* The Population Council, Peru.

Marin, M. Celeste, Anastasia Gage, and Suhaila Khan. 2004. "Frontiers in Reproductive Health: Tulane University Final Report," *FRONTIERS Final Report.* Washington, DC: Population Council.

Marin, Celeste. 2002. *Evaluating Utilization of Research Results*. Workshop on Utilization of Research Results. Department of Reproductive Health and Research RHR/WHO, Population Council, FRONTIERS, Central American Population Center, Univ. of Costa Rica, pp. 22-25.

Marin, M. Celeste and Jane T. Bertrand. 2002. *Evaluating Operations Research Utilization: Guidelines for Assessing Process and Impact.* FRONTIERS Manual. Washington DC: Population Council.

Martin, Antonieta et al. 1991. In *Operations Research: Helping Family Planning Programs Work Better*. Myrna Seidman and Marjorie C. Horn, Eds. Wiley-Liss pp. 433-449.

The Michigan Team, 2001. *Family Planning and Health Literature on Scaling Up: Eight Selected Article Abstracts*, Paper prepared for Bellagio Team Residency Meeting, November 25-December 5.

Ministry of Public Health and Social Assistance (Guatemala). 1999. "Evaluation of two training programs: Training in the algorithm for integrated MCH services and training in counseling and family planning," INOPAL Final Report. New York: Population Council.

Neural Information Systems Processing Information, 2002. *NIPS 2002 Workshop on Negative Results and Open Problems*, December 13-14, Delta Whistler Resort, British Columbia, www.clopinet.com/isabelle/Projects/NIPS2002/

New York Times, June 16 2004. *A.M.A Urges Disclosure on Drug Trials,* section C p. 1

Phillips, James et al. 2003. *Evidence-Based Development of Health and Family Planning Programs in Bangladesh and Ghana.* New York: Population Council.

Phillips, James F. et al. 1991. "The Institutionalization of Operations Research" in *Operations Research: Helping Family Planning Programs Work Better*. Myrna Seidman and Marjorie C. Horn, Eds. Wiley-Liss pp. 503-529.

Popper, Karl I. 2002. *The Logic of Scientific Discovery.* Routledge, New York.

Ross, John H. et al. 1987. "Perspectives on Operations Research", *International Family Planning Perspectives* 13:4, pp.128-35.

Ruback, Barry R. and Christopher A. Innis, nd. "The Relevance and Irrelevance of Psychological Research: The Example of Prison Crowding." *American Psychologist*. Vol 43:9, pp. 683-693

Solo, Julie et al. 1998. *Strengthening the Utilization of Family Planning Operations Research: Findings from Case Studies in Africa.* Africa OR/TA Project II. Nairobi, Kenya: The Population Council.

Solorzano Benitez, Jorge A., Marianne C. Burkhart, Felipe López, and Berta Taracena. 1998. *Institutionalization of the systematic offering of integrated reproductive health services in Quetzaltenango, Guatemala.* INOPAL Final Report. New York: Population Council.

Seidman, Myrna and Marjorie Horn, Eds. 1991. *Operations Research: Helping Family Planning Programs Work Better*. New York. John Wiley-Liss.

Simmons, Ruth et al. 2002. "Facilitating Large-Scale Transitions to Quality of Care: An Idea Whose Time Has Come," *Studies in Family Planning* Vol. 33:1 (March), pp.63-75.

Trostle, James et al. 1999. "How do Researchers Influence Decision-makers? Case Studies of Mexican Policies." *Health Policy and Planning* 14:2: pp.103-114

Vernon, Ricardo. 2002. *A Posteriori Requirement for Utilization*. Workshop on Utilization of Research Results. Department of Reproductive Health and Research RHR/WHO, Population Council, FRONTIERS, Central American Population Center, University of Costa Rica, pp. 30-

Vernon, Ricardo. 2002. *The Use of Operations Research Results, a Bibliographic Review*, Workshop on Utilization of Research Results. Department of Reproductive Health and Research RHR/WHO, Population Council, FRONTIERS, Central American Population Center, University of Costa Rica, pp.10 - 13.

Vernon, Ricardo and James Foreit, 1999. How to help clients attain more preventive reproductive health care. International Family Planning Perspectives. Vol. 25: 5 (December). p. 200-202.

Vernon, Ricardo. 1996. "Operations research on promoting vasectomy in three Latin American Countries." *International Family Planning Perspectives.* 22:26-31.

Vecinos Peru and Peru Ministry of Health, nd. "Combining Forces Can Improve Family Planning Services." *Project Summaries, September 15, 1984 – September 14, 1990.* INOPAL I Final Technical Report, The Population Council pp.67-68.

Wazir, Rehka and Nico Van Oudenhoven, 1998. *Increasing the Coverage of Social Programmes*. UNESCO.

Weiss, C. 1979. "The many meanings of research utilization*." Public Administration Review.* 29: 426-431. Sep/Oct.

Weiss, C.H. and M.J. Bucuvalas. 1980. "Truth tests and utility tests: decision-makers' frames of reference for social science research." *American Sociological Review.* 45 (2): 302-313.

Yin, Robert K.1998. "The Abridged Version of Case Study Research: Design and Method" in Leonard Bickman and Debra J. Rog, Eds., *Handbook of Applied Social Research Methods.* Sage. pp. 229-261