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Challenges in Program Evaluation of Health Interventions in Developing Countries

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Summary

A recent editorial in the *Journal of the American Medical Association* noted that the effectiveness of many health interventions in developing countries has not been proven. The editorial called for increased international support and collaboration to provide the infrastructure to evaluate global health interventions and move toward evidence-based global health (Buekens, 2004). Interventions that are effective in developed countries may not be effective in developing countries that have differing social, economic, cultural, and infrastructure factors that may affect how a project is implemented and the project's outcomes. Rigorous program evaluation of interventions in various resource-limited settings is needed to determine which interventions will work most effectively and to spend scarce resources wisely.

In a well-designed evaluative strategy, evaluation at each phase of a project informs the phases that follow and generally involves

- a formative evaluation during the project's developmental phase to clarify objectives and to refine the project design (including the evaluation strategy and data requirements), while taking into account the cultural environment and other local factors that influence how a project is implemented
- process evaluations throughout the project implementation phase to provide timely feedback on how the intervention has been implemented and what might be done to improve it operationally to achieve desired outcomes

- an impact evaluation to assess the net effects of the intervention and whether the intervention's goals were reached.

When supported by strong process evaluations, an impact evaluation provides information that can be used to design interventions in new sites that take advantage of the knowledge, experience, and “lessons learned” in similar cultural environments. To inform decisions on future program design, an evaluation model should provide for wide dissemination of findings from rigorous impact evaluation. Impact evaluations establish whether there is a causal chain of events (or “causal chain”) between an intervention and observed outcomes. In order to attribute observed changes to an intervention, one must understand what changes would have occurred in the absence of the intervention, all else being equal. The challenge here is to control for any other factors that might explain the observed changes and to identify and measure the indirect effects of the intervention. Because one cannot directly measure what would have occurred without the intervention, a comparison must be made to a control group, or the program evaluation model must incorporate statistical controls. Statistical techniques that are commonly used to control for other factors include the following:

- Randomized control trials that compare at an intervention site those who were part of the intervention and those who were not
- Randomized cluster trials that compare populations at the intervention site with populations at a control site
- Quasi-experimental designs that use non-random means to construct experimental and control groups
- Pre- and post-regression comparisons.

Within the general model for program evaluation, various methodologies must be utilized selectively to develop and convey the information that is most pertinent to the goals and objectives of the particular project being evaluated. The challenge in this case is to develop an evaluative strategy that is most suitable to (1) the interven-

tion's scope, design, and purpose; (2) its potential for being scaled up or replicated elsewhere; and (3) the potential value of the information that will be generated from the evaluation. This challenge is greatest when assessing health outcomes and other impacts of health interventions in developing countries, for which the assumed benefits of many interventions remain unproven, and for which methodological issues, evaluative capacity, data limitations, and resource constraints make impact evaluations difficult to accomplish.

Despite the acknowledged benefits of randomized studies, the great majority of outcome evaluations continue to use standard regression-analysis methodologies. Some high-quality evaluations have demonstrated the value of rigorous impact assessments using randomized clinical trials or cluster analysis, but they are noteworthy exceptions. Our review of the literature and selected evaluations indicates that for the most part there is a considerable gap between "best practices" in program evaluation and the evaluative strategies actually being used.

Actions that might promote impact assessments of large-scale interventions fall into three broad interrelated categories: increasing support for impact evaluations, enhancing evaluative capacity, and improving evaluation methodologies.

Actions to Increase Support for Impact Evaluations

Developing Priorities for Impact Evaluation

A formal framework for deciding when an impact assessment would be appropriate could help funding agencies to think more systematically about their evaluative strategies. Typically, the size and complexity of an evaluation matches the size of a project and is proportional to the amount of resources invested in the project. However, evaluation should not be proportioned according to project size, but instead, more importantly, to the pre-existing amount of evidence that is predictive of the project's effect, the significance of the *disease burden* (the contribution of a disease to premature death and disability), and the policy relevance of the intervention. *Ex ante* evaluation

designs are likely to be less time- and resource-intensive and more rigorous than post-implementation designs. Moreover, decisionmaking on an evaluation strategy during the formative evaluation stage may counteract some of the selection biases that are likely to occur with *ex post* selection of comparison groups and the bias against evaluating unsuccessful programs.

Building a Case for Impact Evaluation

The case for impact evaluation rests on two premises: (1) Knowing what works is important to wise investment of scarce resources for health projects and (2) knowing the impacts of successful, cost-effective interventions will generate additional investments in health. Funding organizations should think of impact evaluations as providing an “international public good” with benefits extending far beyond the benefits that accrue from decisions being made within individual organizations (Duflo, 2003). Case studies illustrating how impact evaluations have made a difference in funding priorities and program design are needed. These case studies should not only provide examples of where and how impact evaluations have led to decisions to scale up or replicate programs, but also where they have led to design modifications or to curtailing projects and reallocating funds to more effective interventions.

Encourage Multidisciplinary Evaluation Designs

Public health has shifted away from a purely medical approach to providing services toward a more fully integrated, multidimensional view of public health as being inextricably connected to larger social, behavioral, psychological, and economic factors. As public health programs collaborate with programs in other disciplines such as education and economic development, the evaluation methods typically used in the health, education, and economic fields also must undergo a type of integrative mixing. The strongest impact assessments harmoniously blend process evaluations and other non-quantitative assessments with quantitative analysis.

Funding Incentives

Funding organizations could create financial incentives, such as the following, to encourage more-rigorous impact evaluations.

- Conditional or staged funding could be used to encourage formative evaluations and prospective evaluation designs, so that the required data and evaluation metrics are established at the outset of the intervention.
- Most projects have specific funds intended for use in program monitoring and evaluation activities. An explicit dollar set-aside for an impact evaluation would safeguard funds for this purpose and assure that those funds are not diverted to ongoing monitoring activities.
- Grants for evaluation activities would be more attractive to government administrators than would loans for this purpose (Duflo, 2003).
- Matching grants, or outright grants, from international funding organizations could be a way to encourage both nongovernmental organizations and government programs to undertake evaluations.

Actions to Improve Evaluative Capacity

This section briefly discusses a number of steps that could be taken to increase the resources available for evaluation and the technical expertise of evaluators of health interventions in developing countries.

Facilitate Use of Evaluation Methodologies

Researchers are developing standards for reporting of methods, data, and outcomes to facilitate interpretation of program evaluations (Campbell et. al, 2004; Kirkwood, 2004). Funding organizations might consider establishing a “warehouse” for evaluations of health interventions and making this warehouse of information readily available to researchers via the Internet.

Increase Technical Capacity of Independent Evaluators

To build program evaluators' expertise, funding agencies should consider collaboratively sponsoring one or more independent multidisciplinary evaluation organizations. These organizations could

- serve as a resource for researchers on evaluation methodologies and issues
- conduct high-priority, randomized impact evaluations that could be used as “best practices” models for evaluation
- provide training and technical assistance for health-services research in developing countries
- maintain an easily accessible repository and/or gateway for evaluations of public-health interventions in developing countries and literature on evaluation methodologies and issues
- foster testing of new evaluation methodologies
- establish partnerships between local projects and researchers
- encourage further standardization of reporting of evaluation findings and of indicators.

Increase Local Evaluation Capacity

A delicate balance exists between involving local participants in an evaluation process and maintaining the rigor—such as standardized indicators, survey methods, and statistical techniques—needed for credible impact evaluations. Collaborative models that strive for this balance need to be developed and tested, so that evaluation activities can both build local evaluation capacity and contribute to evidence-based health interventions.

Disseminate Research Findings

Knowing what works and what does not work, with respect to both an entire project and individual components of the intervention, requires having results from both successful and unsuccessful projects being made available. This initiative requires not only stepping up the intensity of impact evaluation efforts but also widely disseminating the findings from those efforts.

Actions to Improve Evaluation Methodologies

Although statistical techniques to support impact evaluations have been developed, additional research in several areas would improve evaluations in terms of increasing the quality of the evaluations and making them less costly and time-consuming, which in turn would make them more attractive to funding organizations. Some areas that warrant additional consideration include the following:

- Conducting baseline and trend surveys during the program-design stage.
- Using a logical framework model to evaluate programs when randomized controlled trials are not possible.
- Developing rapid measurement techniques to secure the quick-snapshot data that are needed to gain at least a basic sense of trends and real-world program impact.
- Confirming that a strong link exists between the surrogate markers (proxy measures for a desired outcome measure that are used when directly measuring outcomes is not feasible) and the desired outcomes.
- Assessing the efficacy of evaluating “tracer” interventions, which reflect the key components of the entire intervention, to judge the overall true effectiveness of the entire program.
- Developing better indicators to measure contextual factors—such as organizational capacity and leadership commitment—which may affect the likelihood of an intervention’s success and/or be indirectly affected by the intervention.
- Standardizing indicators to measure the nonbiological effects of health interventions on individuals, their families, and their communities.
- Strengthening ongoing data-collection systems and standardizing measures to reduce the costs of data collection for evaluations and to facilitate cross-site comparisons.

Increasing global support for program-impact evaluations, enhancing evaluative capacity, and improving evaluation methodologies

should help to close the gap between “best practices” in program evaluation and evaluative strategies actually in use. There is general agreement among the public-health community that rigorous program evaluation of interventions in various resource-limited settings is needed to determine which interventions will work most effectively and to spend scarce resources wisely. What is not clear, however, is the extent to which incremental improvements in program-evaluation rigor produce information of sufficient strength to guide evidence-based, global-health policymaking.

Current evaluation levels clearly are insufficient. However, the scope of future evaluations must be carefully calibrated to match the significance of the intervention, and evaluation techniques must be carefully selected so that they achieve the desired level of precision in the information being sought. Researchers must be upfront about any limitations in the ability of their research methods to capture a range of effects, and they must explore new methods for capturing larger effects. This work may require greater amounts of qualitative reasoning, because the need for greater statistical rigor may exclude important broad insights. Indeed, as the evidence-based public-health movement presses for more-rigorous evaluation of intervention programs, the evaluations themselves must be continuously scrutinized for appropriateness.