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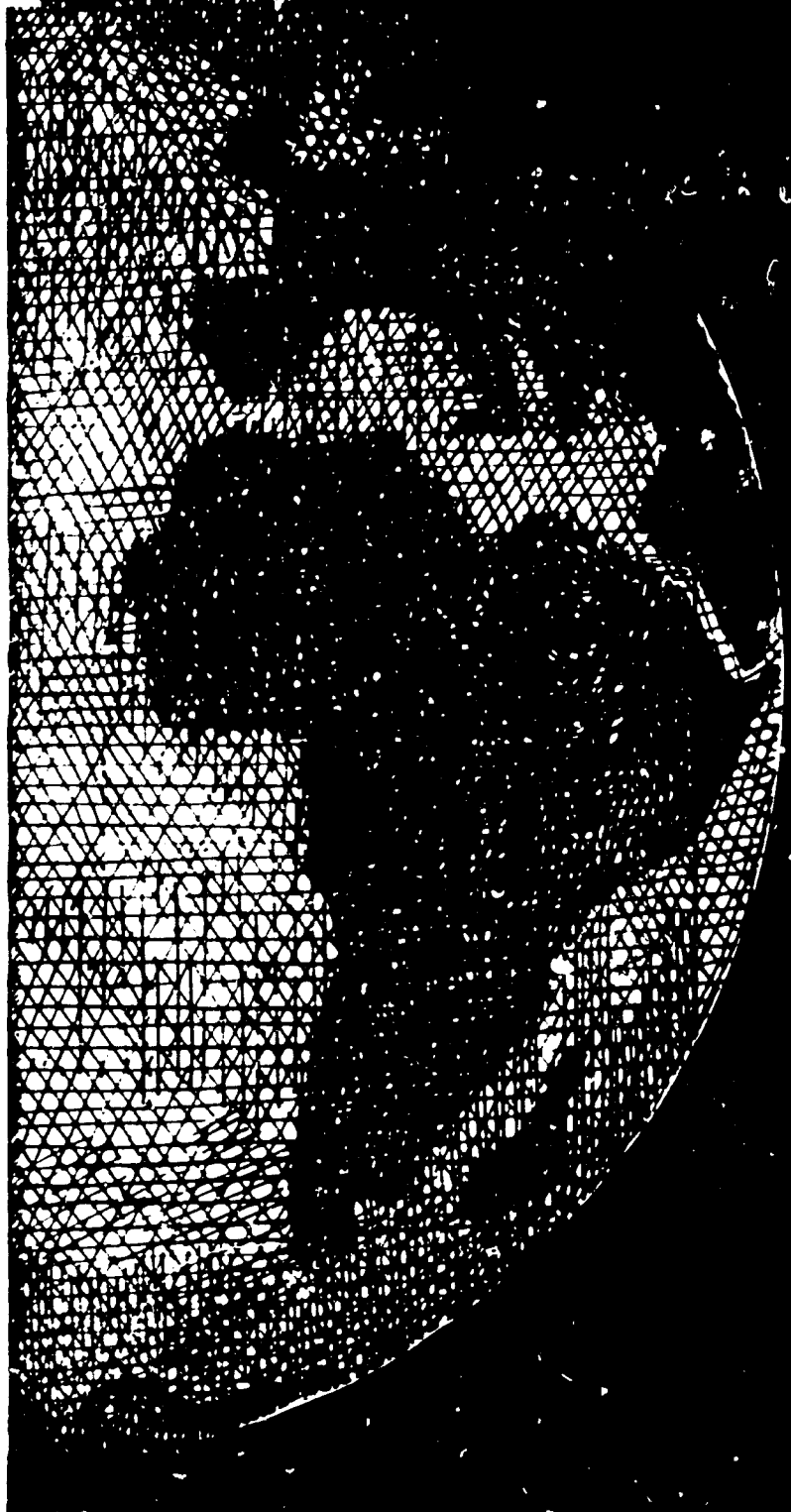
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CONFERENCE TOPICS

- What type of "outcome" indicators are useful for measuring the effectiveness of international health projects?
- How can "process" be measured using indicators of coverage, equity and community participation?
- Should "benefit-cost" concepts be used in evaluating health programs in developing nations?
- How can the management of health services be adequately evaluated?



INTERNATIONAL HEALTH: MEASURING PROGRESS

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INTRODUCTION

Since 1973, the National Council for International Health (NCIH) has sponsored several conferences to address the major issues in improving worldwide health conditions, especially for the developing nations. Past conferences have concentrated on such topics as "The Health of the Family," "Child Health in a Changing World," "Health and International Development," and "The Private Sector in Primary Health Care." The topic of the 1980 Conference was "Measuring Progress," with a primary focus on the international health efforts of the private sector.

Private sector organizations, especially the private and voluntary organizations (PVOs), play an important role in funding and/or managing health projects in the developing world. Yet most of these organizations are managed on tight budgets, with often insufficient funding for achieving their goals. The economic impact of recession and inflation has further limited financial contributions by a generous public. Thus these organizations must demonstrate efficient program operation to maintain public donor support. At the same time, they must ensure host-country government input and self-reliance to advance the concept of Primary Health Care, the World Health Organization strategy for achieving "Health for All by the Year 2000." In addition, the impact of their projects must be assessed by the beneficiaries of health projects, in order to assure two-way responsibility for health improvement.

Private sector health projects represent a wide diversity of management styles, program operations, staff capabilities and geographic-cultural locales. This heterogeneous quality of the private sector results in a diversity of evaluation strategies ranging from the impressionistic to the highly quantitative. Measurement strategies often differ depending upon whether the evaluation is for the funding agencies, management, field workers or the beneficiaries. In addition, concern for the social and political consequences of evaluation often influences evaluation design. This variety of evaluation purposes and methodologies requires a thorough examination not only by each private sector organization, but by the international health community at large, because reliable measurements of progress are crucial and integral elements of program design.

In general, evaluation procedures serve to monitor ongoing program operation, measure the actual impact of a program on local health conditions and provide management with information for policymaking. These purposes raise questions of both process and outcome measurements, as well as the use of such measures by those at all levels of decision-making. Thus the 1980 NCIH Conference participants focused their attention on the forum topics: "Outcomes -- What is Useful?" "Process Indicators: Coverage, Equity and Community Participation," "Cost/Benefit Concepts," and "Management and Services." As the following proceedings demonstrate, these topics provoke many diverse opinions. Yet they also demonstrate the critical and complex thinking required in developing adequate and appropriate measures of progress.

The NCIH hopes that the publication of these conference proceedings will stimulate further action to improve international health efforts and increase mutual trust among donors, participating nations, project staff and, most importantly, the communities served.

I. KEYNOTE ADDRESS'S

The measurement of progress is an indicator of commitment to achieving "Health for All." If evaluation is excluded from the program plan, then the commitment must be questioned. At the technical level, evaluation is essentially a management tool for planning and adaptation, revealing programme failures and solutions. It can also lead to a clearer understanding of problems and perhaps a redefinition of objectives and target groups. Thus evaluation is crucial to progress in health and development.

Susan Cole-King

Those associated with any review or evaluation process often make an overarching assumption that the performance of a project can be enhanced ad infinitum. This stems from belief in the credo that "there is always room for improvement." On the other hand proponents of the status quo are not blind obstructionists when they state, "If it works, don't fix it." Change is not synonymous with advancement and measurements of change, no matter how accurate, are not necessarily indices of progress.

Calvin H. Sinnette

**HEALTH AND DEVELOPMENT
ANATOMY OF DECISION-MAKING**

Susan Cole-King

Keynote Speaker

In 1910 one of the most historically significant evaluation reports was published in this country, changing the whole basis of medical education and placing it on a sound scientific footing. The Flexner Report ¹ was a major contribution to the development of more effective scientific clinical medicine both in the United States and in Europe. Yet today, the system of medical education itself is increasingly recognized as a serious constraint to the development of relevant health care for the world's people. One is reminded of a line from an English hymn, "Time makes ancient good uncouth."

Real progress can be made only if accepted practices are critically examined and fundamental questions asked about even the most "sacred cows." Evaluation is not a technique, but an attitude--a willingness to be open-minded and critical. In the health field one must constantly ask whether policies and procedures are relevant to the health problems of today.

During the past year, the international health community, through the World Health Assembly, has established a staggeringly courageous target of achieving "Health for All by the Year 2000." It could be said that this is either another example of World Health Organization "globaloney," or a serious and exciting challenge to mankind. Without going into the complex and perhaps contentious issues implied by the goal "health for all," in a general way one knows what that means and that it is technically possible. The real problem is whether "Health for All" is socially and politically possible. The solution requires profound changes in attitudes and behaviour at all levels of society and within the health sector itself, in both rich and poor countries.

Evaluation greatly contributes to attitude change and should be regarded as part of the change process, as part of programme development itself. Evaluators, like planners, should be change agents. Measurement of progress toward "Health for All" is actually a tool for achieving it. Such measurement can be a motivating influence to generate new ideas and sharpen objectives. Evaluation of Primary Health Care can clarify the meaning and practical content of that concept.

Evaluation can also serve as a political lever to illustrate inequity and injustice. For instance, demonstrating regional and socio-economic differences in Infant Mortality Rates or reasons for programme failures can force national decision-makers to take action. Evaluation results can be used as weapons by those without power, such as minority groups and poor women, to achieve social justice. This is one reason why evaluation is so threatening for those hoping to maintain the status quo. At the international level, if the politicians of a country find it has an average Infant Mortality Rate two-thirds higher than another country with a similar per capita income, they may be moved to take action. Also health indicators are increasingly recognized as indicators of overall development and measures of quality of life, social progress and the extent to which basic needs are being met. Evaluation of health progress, then, can be a powerful political weapon for achieving social justice.

The measurement of progress is also an indicator of commitment to achieving "Health for All." If evaluation is excluded from the program plan, then the commitment must be questioned. At the technical level, evaluation is essentially a management tool for planning and adaptation, revealing programme failures and solutions. It can also lead to a clearer understanding of problems and perhaps a redefinition of objectives and target groups. Thus evaluation is crucial to progress in health and development.

What exactly is meant by "evaluation"? At its simplest level, evaluation involves value judgements -- asking whether collected information is any "good." The crucial issue, of course, is what is meant by "good." There are essentially two main approaches to health programme evaluation. The first approach is "achievement" oriented, the second is "process" oriented. These have been aptly characterized as autopsy and check-up. Autopsy is used, for example, to test an approach or strategy and to generate theories, while check-up is used primarily as an ongoing managerial tool for adaptive control. They are not, however, mutually exclusive: both are appropriate and relevant, depending upon the evaluation questions and the reason for the evaluation. The autopsy approach is related to larger policy issues and questions of useful planning alternatives and appropriate interventions. The check-up approach is related more to day-to-day decision-making, but there really is no clear-cut borderline. It is probably a false dichotomy. Both are needed.

Decision-making

Central to the concept of evaluation is the notion of feedback. "Our purpose is not merely to understand the world but to change it." Evaluation in isolation from decision-making is meaningless. The title of this address refers, somewhat obscurely perhaps, to the anatomy of decision-making. Perhaps it would be more accurate to refer to the "pathology" of decision-making.

Decision-making for health development is rarely based on rational criteria or information feedback. It is governed by vested interests, prejudice, outcomes of power struggles, culture of bureaucracies and preconceived assumptions about interventions, particularly of the technico-medical kind. One of the most critical problems is the lack of communication between individuals and groups within a bureaucracy, between the periphery and the technical managerial functions at different levels, and between all these and the policy decision-makers at the top. Many of the problems in health services planning resulting in inappropriate, unutilized services are derived from the lack of communication about needs and demands at the periphery. In some cases no decision-making occurs at all -- merely a blind momentum. The real challenge for evaluation experts today is to use evaluation to improve decision-making.

Evaluation for Whom?

In considering an evaluation, crucial questions are: Who is the evaluation for? Whose questions will be answered? Are they those of the external funding agency? The programme managers or top level planners? The health workers involved at the intermediate and field levels? The beneficiaries themselves? Which beneficiaries? The poor? The women? All these groups have a legitimate right to ask questions. There may be overlapping interests, but the questions each group deems important are likely to differ. The emphasis today on a participatory approach to evaluation recognizes that investigators and their subjects perceive different realities. There are different views of public good,

social reality and even definitions of health. It is arrogant, exploitative and counter-productive for researchers, funding agencies or health planners alone to determine what should be investigated. All have their biases and value systems. Some would argue that if different groups have such conflicting interests, then consensus among professionals, managers and consumers is unlikely in the real world. In an evaluation concerning the allocation of a scarce and highly valued good, there is likely to be considerable conflict in objectives. Much depends on who defined the health needs in the first place. There are many groups in society who have major health needs, but no voice, such as women. This conflict is one reason why objectives and targets are so often ill-defined: hidden conflicts are manageable if they remain vague, incoherent and mystified. To sharpen them would be to expose these conflicting interests. While consensus is a goal, let it be recognized that different actors have different preconceptions of need and objectives. Those concerned about evaluation must be sensitive to different groups, particularly those who have few means to articulate their needs.

Evaluation is a learning process and learning takes place through involvement, which influences attitudes. Which of the various interest groups has a prior claim for learning? Which changes in attitudes must precede programme changes? International and/or funding agencies must learn the answers to determine how and where to spend their money more effectively. Planners and programme managers need to know whether objectives are being reached and, in the light of experience, if the objectives are right. They need to know what strategies to adopt; for example, whether innovative health worker training programmes are appropriate and effective. The health workers themselves also need to get feedback: Are they reaching the mothers at risk for antenatal care? How many of the children have been vaccinated? Most importantly, who has not been vaccinated? Is malnutrition decreasing? If not, why not? What are the underlying causes? What can health workers do to change the situation?

The people themselves will want to ask a range of similar questions from which to learn. Are they getting what they think they need from this health programme? What do they really need? Has anything improved for them? Do less children die each year? Are there less poor people in their community? How is sickness contributing to their poverty? What can they themselves do to change the situation? How can they get more power to influence decisions about access to public resources? Priorities regarding the various interests served by the evaluation must be known at the outset. Evaluation for whom? Whose indicators? Whose objectives?

Objectivity

There is an assumption that evaluation must be scientifically objective. Such an assumption implies a lack of involvement in and commitment to a programme. But identification with a programme is not only compatible with objectivity but is essential for a sympathetic grasp of the intentions and problems posed by the programme. A critical perspective is required, but the physician is not necessarily less objective in his diagnosis because he has made a positive commitment to his patient's health.

Furthermore, it is increasingly clear that there is no such thing as objective evaluation. Objectivity tends to be defined within the limits of the priorities and perceptions of the evaluators. Decisions about the information to be collected, choice of samples, selection of criteria, relative weighting, methods of statistical treatment and presentation of results all involve value judgments which need to be made explicit.

There is another trend in evaluation in the health field: a tendency to reject information which is not in the form of hard statistical data. Some of the most important aspects of a programme may not be measurable. In the words of one social scientist, "Truth in the field of human affairs is better approximated by statements that are rich with a sense of human encounter."^{2/} This may be particularly important in the communication of evaluation results where graphs and tables are meaningless to many people.

Too rigid an evaluation framework may turn out to be erroneous. Evaluation can yield new questions during the course of the inquiry, provided investigators have an open mind. A sense of open inquiry and a willingness to learn must be fostered.

Evaluation as Management Tool

Over the past few years the health sector has suffered from a divisive process separating different management functions into isolated compartmentalized systems. Independent disciplines with their own specialists have proliferated in the area of health planning, health management, evaluation and communications. This has been disastrous and has led to overly theoretical and elaborate concepts divorced from reality and practice, and often counter-productive. Particularly disastrous for primary health care is the divorce of health planning from implementation experience and early, continuous feed-back. Primary health care is relatively uncharted. It is a process that must be adapted to experience over time, particularly as new actors (such as peripheral health workers, communities and other sector agencies at the local level) become more involved in decision-making. The United States, especially its academic institutions, is the main contributor to this over-specialization and complexity. There is urgent need to integrate these managerial functions to simplify and demystify them, making health planning, health management and evaluation a single process of health development which everyone can use and understand.

Health development requires less narrow specialization of health planners and health planning units, evaluation experts and evaluation units, and health management experts. More generalists are needed.

Approaches to Evaluation of Primary Health Care -- Criteria and Questions

The systems approach is often utilized as a framework for evaluation. This includes classifying and selecting indicators in the form of inputs, process, outputs and outcomes or impact. While this is conceptually useful, a more practical approach for the evaluation of primary health care would be first to define the criteria for assessing the value of the programme and then to ask specific questions.

What is meant by the term "good programme"? The judgment is made by applying a number of criteria. These include: perceptions of what is desirable in a health programme, value systems and biases; definitions of health; and assumptions about the process for achieving it. Programme objectives are obviously an important starting point. Yet there is nothing sacred about objectives. Evaluation should also be structured so as to challenge the stated or implied programme objectives.

It is important to distinguish between objectives and targets. The latter are milestones which are assumed to lead toward objectives. It is "assumed" because targets can also be inappropriate or misleading. While targets can serve as a valuable motivating function, there are dangers in basing evaluation solely on them. For example, many countries have set

targets for achieving specific levels of health manpower in terms of health workers to population ratios. A recently visited African country has virtually achieved the doctor/population ratio target it set for itself ten years ago, that is one doctor to 12,000 persons. However, because the doctors are so grossly maldistributed there are many administrative districts of 150,000 population or more where there are no doctors at all. Thus, evaluation must not be solely based on the achievement of stated targets.

The Primary Health Care concept, as outlined at Alma-Ata, offers criteria for determining the value of a programme, although different groups would give them a different priority. A list may include: (1) relevance to priority health problems; (2) effectiveness; (3) technical efficacy (whether current scientific knowledge is being applied correctly); (4) efficiency and cost-effectiveness; (5) acceptability and accessibility, socio-economic as well as physical; (6) non-dependent community development enhancement; (7) flexibility (the capacity to respond to dynamic changes such as new technology and increasing community involvement in management); (8) contribution to community economic development; and (9) attitude changes and development of collective spirit. Everyone could list such a series of criteria by which to judge a good health programme. Are these universal? Or are some culturally determined? Where is there consensus and conflict?

Knowing these criteria, the next step is to define the questions for evaluation. Because there are an almost infinite number of questions, priority questions must be identified. "Whose priorities" and "how priorities are determined" are issues in planning evaluation. One of the most important questions to be asked is the question of equity. Indicators must be selective. Equity should be a primary focus of all health programme evaluation. "Health for All" is particularly concerned with those who do not at present have "health." So the question is not merely has health improved, but has it improved for the poorest section of the community? How many members of the most disadvantaged groups are covered by the programme? How many of their children have been immunized? Are women's health problems being properly addressed?

The approach is then to define the evaluation questions. Main questions will need to be subdivided into further questions. It is relatively easy to see what information needs to be collected and the alternative ways of obtaining it. For example, in relation to community involvement, one main question might be: "What is the nature and extent of community participation?" Sub-questions would be: "Is the community involved in planning, management and control of the health programme at both peripheral and central level? Are local resources used? What kinds of resources? (Labour, cash, buildings, mass activities?) Is there a community health worker? How are these workers selected? What proportion of the community participates in health activities and from which socio-economic groups do they belong? Do women participate? Have any community projects been initiated?"

These kinds of questions can become indicators. It is possible to perform this exercise for other areas of primary health care, such as: the assessment of coverage and accessibility of primary health care components, intersectoral coordination, integration and support by the health system, cost-effectiveness, resource allocation and quality of health care services. There is also a need to ask other types of questions about the processes affecting health: food supply and distribution; purchasing power; income and wages in relation to prices; means to earn incomes; and land distribution. Are health programmes influencing any of these, and vice versa? If one is really interested in evaluation of health development,

evaluation questions must go beyond the health sector and the specifics of health programmes. More generalizable truths can be used at a higher level of decision-making than those which describe merely the health sector. The entire hierarchy of management must be influenced to achieve "Health for All by the Year 2000." Evaluation information about health programmes should be combined with other sources of information for broader decision-making about development policy.

In determining questions for evaluation, clearly the practicability of obtaining answers must be considered. Feasibility and cost will determine what information can be collected and, perhaps more importantly, what can be analyzed and interpreted. More information can be collected than can be digested and presented in a timely manner. Evaluation results are too often available only years after the optimal time for decision-making has passed.

Simpler, more manageable evaluation can be performed by those actually involved in the programmes, and thus preferable to the rigorous and more technically sound studies which have to be carried out by academic researchers. Like primary health care and health planning, evaluation is best conceived as a process. Evaluation should be built into ongoing management, rather than used as a time-limited exercise carried out by outside experts. The latter is a particularly threatening situation and explains much of the resistance to evaluation. The word "evaluation" itself has come to have emotive overtones for many people, synonymous with words like "police." But if it becomes a management tool controlled by those involved, this threat is removed.

However, this does not mean that there is no role for external evaluation. Evaluators must be sensitive to and feed into the political process. They must recognize the forces opposing change and not merely serve the needs of those wishing to maintain the status quo. This may prove a difficult role for those involved. Fresh and, possibly, more objective insights, brought in by external evaluators, can be useful, provided there is a viable mechanism for feedback into the decision-making process. Lack of such feedback is usually the main problem in external evaluations.

Evaluation is often misused by decision-makers. Further research and evaluation is often called for as an alternative to action or a postponement of a difficult decision. Suchman ^{3/} has outlined various forms of evaluation abuse: "eyewash" (an attempt to justify a bad programme by selecting only those aspects that "look good"); "whitewash" (an attempt to cover up programme failure by avoiding objective appraisal and soliciting testimonials); and "submarine" (the attempt to torpedo a programme regardless of its worth).

Summary

In summary, while everyone recognizes the need, evaluation is rarely done. Evaluation does not require sophisticated techniques, but an attitude. All organizations, be they international agencies, governments or private voluntary agencies, need to develop a critical perspective. Only in this way can change take place. Learning can be a painful and humiliating experience for individuals. This applies to organizations too.

Experiences need to be communicated. Communication is the essence of evaluation. Voluntary agencies have a special responsibility to communicate. They have been pioneers in developing new and alternative low-cost health programmes. Because of their flexibility, they have been able to experiment and develop innovative approaches which could not be done by governments or international agencies. But results need to be evaluated

using the kind of criteria indicated above. Reasons for success or failure need to be better understood before these approaches can be replicated on a wide scale.

Health professionals must stimulate each other to be more open and critical, more successful in evaluating their efforts. They must discuss how they can stimulate others to adopt these kinds of attitudes whether they be village health workers or government planners. They can demonstrate the contribution of evaluation to more effective day-to-day work and to job satisfaction. These ideas should be applied to the tremendous challenge of "Health for All by the Year 2000."

NOTES

1/ In his 1910 report entitled, "Medical Education in the United States and Canada," Dr. Abraham Flexner presented data from a survey on the academic rigor and medico-technical viability of medical schools in North America. He concluded that the quality of the North American medical education was being sacrificed to produce a large quantity of physicians.

2/ Stake, R., "The Case Study Method in Social Enquiry," The Occasional Researcher, American Education Research Association, (February 1978).

3/ Suchman, E.A., Evaluative Research, New York: Russell Sage Foundation, (1967).

EVALUATION: A MEASUREMENT DILEMMA

Calvin H. Sinnette

Reactor to Keynote Speaker

Few of those seeking to improve the health status of communities can be labelled as being either so anti-intellectual or so self-satisfied that they fail to grasp the value of critical analysis and review. If for no other reason than narrow self-interest, they should welcome opportunities to participate in the scrutiny of our programs and to engage in a collegial exchange of views with experienced and informed analysts. A concern, however, arises from a perception that evaluation now has the trappings of dogma and is being promoted as an instrument beyond its intended purpose or potential. From both the perspective of the evaluator and the "evaluatee" (if that is the proper term), certain impressions lead to the opinion that evaluation poses a measurement dilemma.

Those associated with any review or evaluation process often make an overarching assumption that the performance of a project can be enhanced ad infinitum. This stems from belief in the credo that "there is always room for improvement." On the other hand proponents of the status quo are not kind obstructionists when they state, "If it works, don't fix it." Change is not synonymous with advancement and measurements of change, no matter how accurate, are not necessarily indices of progress.

Problems of Terminology

Contemporary literature on the subject refers to planning, process and impact evaluation. These terms are meant to identify the particular time within the span of a given project during which evaluation takes place. The literature also mentions formative and summative evaluation. The former refers to evaluation directed at program or project improvement while the latter focuses on cumulative assessment. But these terms present problems. How does one differentiate formative evaluation from planning evaluation or summative evaluation from impact evaluation? Rather than a scrutiny of the somewhat contrived components of the system, evaluation must be examined from a broad, generic perspective.

The Realpolitik of Evaluation

Robert C. Hornik, of the School of Communications, the University of Pennsylvania, states that it is wishful thinking to believe that evaluation is an objective, apolitical activity providing unbiased information to decision makers as they strive to optimize their decisions.^{1/} Although referring specifically to the conduct of evaluations of educational broadcasting projects in developing countries, his arguments are relevant to health program evaluations. Professor Hornik points out that program implementation depends on the outcome of negotiations among competing constituencies. Unless these competing and often conflicting forces are understood and taken into account as an integral part of the evaluation process, the evaluation conclusions will be at variance with reality. As the remarkable African leader, Amilcar Cabral, said to members of his political organization, "Do not confuse the reality you live with the ideas you have in your mind." When the dynamic interplay of powerful political, societal and cultural forces are disregarded or inadequately considered, evaluation distorts reality. Such distortion renders evaluation meaningless.

In a similar vein, evaluation serves a variety of constituencies. Most often evaluation is required or requested by the funding agency especially the fiscal administrators who are interested in cost-effectiveness and cost benefits. Evaluation should also serve the project staff, the population the project is designed to assist and finally, the community of scholars whose research contribute to the body of evaluation literature. Within each of these constituencies, however, exist often dramatically opposite vested interests. For instance, the policy interests of the funding agency may have maternal and child health as a principal focus whereas the population perceives improved grain storage as the paramount concern. In theory, at least, these divergent interests are reconciled during the period of program planning. In reality, while the local population may not oppose the health project, its interest in the evaluation results will often be minimal. Due to such varying needs and concerns, an evaluation report cannot satisfy each constituent, and hence its usefulness may be considerably less than desired.

Elusive Evaluation Objectives

A troublesome feature of evaluation is its failure to identify the factors which made or are making a project succeed. Adequate funding and good planning, in and of themselves, should not be presumed the sole determinants of success. The enormous importance of managerial leadership is often expressed. But how does one measure the level of supervisory efficiency, team resourcefulness, staff adaptability or program flexibility? When the vocabulary of contemporary evaluations research is replete with such terms as quantification and replicability and verifiability, is it not reasonable to expect that the process would provide measurable characteristics of these important outcome elements? The ability of present instruments to measure them with precision is doubtful.

The Dilemma of Timing

Quite frequently project staff have complained that evaluation occurred too early in the life of the project to detect important favorable or adverse trends. This argument might be advanced as a defense against negative criticism. Nevertheless, the first two or three years of a five-year health project may be spent in developing operational cohesion, building community cooperation or coping with the aftermath of a totally unexpected local, national or even international event. An Overseas Development Council report alludes to this problem as follows:

The experience of these projects suggests that developing country villages more often than not differ from one another in ways that are potentially important for infant and child mortality, but which are often not obvious to even the most astute observers until they've actually been on the scene for a year, two years, or more. Some of these differences can be partly controlled for by statistical means. But the application of such controls requires considerably larger samples than has hitherto been the norm; and, ... even then their use only rarely leads to fully persuasive results.^{2/}

Additionally, many months may lapse after project inception before many of the assumptions made during the stages of project design are judged untrue or that baseline data are found to be incorrect.

Evaluation Cost

Evaluation of international health programs can be a costly affair, especially if the programs are complex in design. In order to satisfy an important evaluation requirement, namely acceptable statistical methodology, the project designers will include or may be obliged to include a number of procedures. For instance if the numbers in collected baseline data are to have statistical significance, the sample population(s) will have to be sufficiently large. If interviews are to be conducted, then adequate staff will have to be selected and trained. A pilot study may be required following which a certain amount of staff retraining may be necessary. Finally, the data may have to be sent abroad, prepared and analyzed before it is useable. These expenditures can be referred to as indirect evaluation costs.

Inclusion of a control population adds another layer of costs beyond those previously mentioned. It is politically difficult and morally unconscionable not to provide a measure of health services for the control population. Expenditures for these services are further indirect evaluation costs. Provision of even the most basic health services to the control population introduces new variables for which due correction must be made in the statistical analyses. Direct evaluation costs are those expenditures for conduct of the actual evaluation and include such items as consultant travel, per diem expenses, visas. In most, but not all instances, these costs are borne by the sponsoring agency. Aggregate evaluation costs therefore, are not inconsequential and these costs may assume a significant proportion of the overall budget.

The Ultimate Dilemma

Perhaps most troublesome is Professor Hornik's implicit contention that evaluation is a questionable instrument of analysis. He states, "... the recent history of evaluation tells us the inferences from most evaluations are open to methodological challenge. A determined critic (even the most self-critical evaluator) can develop alternative interpretations of data that open any conclusion to doubt... whether the critique is substantive, methodological or statistical it will create doubt about the evaluator's conclusion." Evaluation lacking procedural credibility is very suspect as an instrument of measurement. However, its value should be regarded as one of many techniques to improve project performance.

Discard the Bath Water but Not the Baby

An evaluation team consisting of individuals with extensive first-hand experience in international health can provide valuable assistance to a project staff. This "formative evaluation" should highlight measures to strengthen management performance. In such instances, the evaluation will be based more on individual and collective inferences than on a set of complex statistical analyses. Policymakers and their advisors should recognize the need for striking a balance between the conclusions drawn in an evaluation report and the contextual factors which influence project outcomes. This, of course, presupposes that policymakers will have intimate familiarity with the contextual milieu of any given project. If policymakers lack this familiarity and accept an evaluation report at face value, errors may be compounded and attempts at replication have disastrous results.

NOTES

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**WORLD BANK LENDING FOR HEALTH
AND THE QUESTION OF EVALUATION**

John Evans

Speaker for Closing Session

In 1979 a formal decision was made by the World Bank to lend for specific health activities. Until that time its activities in health had been components of other projects in population, urban and rural development, water supply and sanitation. When the Bank decided to lend directly for health projects, it established a new Department of Population, Health and Nutrition, including the staff from the Population Department and those who had been working in nutrition. The initiative in health does not mean that the Bank has in any way reduced the priority which it attaches to population and nutrition.

The Bank is not a granting agency; it lends money on favorable terms. It can only deal with governments; it cannot deal directly with non-governmental organizations or private institutions, although it may act as advocate with governments for such groups. The Bank sets aside a very small share of its profits in order to subsidize agricultural research activities and certain collaborative projects such as the onchocerciasis control program in West Africa. The amount of money used for such purposes is very small, since the prime use of Bank profits is to reduce interest payments on loans to the poorest countries.

The Bank's objective in international health is to provide basic health services to the poorest populations, rural and semi-urban. It will support the concept of primary health care, namely, simple methods of diagnosis and treatment managed within the limited resources which developing countries can devote to health. To operate on a recurrent cost of four or five dollars per capita per annum imposes severe constraints. The emphasis will be on building simple facilities, training middle-level and community health workers, and improving support services, including dependable supplies of essential drugs and vaccines, supervision, referral, evaluation and management at all levels.

What does primary health care mean? If primary health care concentrates exclusively on the peripheral aspects of health care, at the community level, without at the same time strengthening the back-up resources and support services, it would be difficult to maintain the credibility of health personnel, the supply of essential materials and the quality of services. The goal of primary health care of the World Health Organization (WHO), "Health for All by the Year 2000," may be taken to mean a balanced health care system. At the present time, this system is sadly out of balance with neglect of its peripheral parts, but will only function effectively if the entire system is strengthened.

The Bank is not under the illusion that primary health care can be pre-packaged for export. It has to be developed on site. It depends on the development of human resources to a very large extent. Health projects can be expected to have heavy local costs rather than foreign exchange, and they may include subsidy of recurrent costs, but with a provision for phasing out. The experience of the Bank in other sectors of development is that strengthening of institutions is a slow, but essential element of development and that care must be taken to avoid unreasonable expectations of early results from the investments.

One of the most important challenges is to raise the priorities attached to health by the government, their economic planning departments and key decision-makers in donor agencies. Ministries of Health in many developing countries may not be effective in presenting their case to the central planning agency. Their case is handicapped by the long time intervals between investment and impact. Furthermore, the value of health, often taken for granted, can have quantitatively expected social and economic benefits. Health has a direct impact on productivity and educability as well as on the quality of life of individuals. There is a special argument for the health of women because of the secondary benefits to their children. It is important, therefore, to marshal the evidence which will legitimately raise the priority given to health by planning ministries in the developing countries and by the donor agencies that deal with them.

A secondary category of evidence is of importance to the Bank and other donor agencies: the relative cost-effectiveness of various approaches and health interventions. Uncertainty exists about how to implement primary health care and the cost implications of alternate strategies are highly significant due to the multiplier-factor.

Community mobilization is obviously a key issue in view of the limited resources that these countries are likely to devote to health through the public sector. In addition, there is evidence that some of the most successful primary health care projects have been executed by non-governmental organizations. These observations underline the need to understand the process of mobilization of community resources and community participation and to determine how to scale-up this process from demonstration projects to programs for a population of 5 to 10 million. Extensive experience with small pilot projects has taught a great deal about the way to deliver primary health inexpensively and effectively. But pilot projects exist in a political vacuum. The challenge is to translate the results of this experience into large-scale implementation with the attendant political, administrative and financial realities. India, with its rich intellectual resources and generous supply of health professionals, still had an infant mortality rate of 124 in the 1970s; the large number of pilot projects have only had a marginal influence on the health status of the population of 650 million.

A third important question is the interface between government-operated services and the community. Community movements may be feared by governments in some of these countries; in others, success leads to takeover. The same characteristics that account for the strength of non-governmental organizations and community movements may not survive the centralizing processes of coordination and regulation. There is a tendency in most developing countries to socialize the supply-side of the health system (i.e., the delivery of health services). Recognizing the difficulties that these governments have in management of public services, it may be more logical for governments to focus their attention on socializing the demand-side, namely by assisting the poorest of the community to purchase necessary health services and facilitate access to services.

Several observations on evaluation of health services arise, based largely on the experience of the submission of WHO Advisory Committee on Medical Research. First, the issues for evaluation really need to be chosen on the basis of their importance to policy questions or program decisions in the developing countries themselves. Secondly, the time schedule for evaluation should coincide with the time schedule of the decision-makers in those settings.

Most evaluations will have to occur in a time schedule of weeks; we are not accustomed to thinking of evaluation in that brief time frame, but that is the most common type of evaluation needed by decision-makers. The questions are: Can a critical review of evidence be done quickly and in a systematic way? Are there people available who could perform the task?

Evaluations that provide timely information will serve to build the interest and confidence of decision-makers in more detailed aspects of evaluation that, with time, can be executed in greater detail. There will be little interest, however, in the results of protracted evaluation, because the intervening march of events will render the exercise obsolete. The object of evaluation is to influence important decisions, not to produce publications.

During recent discussions in one developing country, senior representatives of the Ministry of Health expressed little interest in health services research since it was all retrospective, focusing on what had been done, and it often proved to be more embarrassing than constructive. On the other hand, they expressed considerable interest in prospective health services research concerned with evidence bearing on important decisions to be taken in the coming months.

In meeting the needs for evaluation and health services research, the shortage of trained personnel in developing countries is a critical limitation. If this need is met by formal training to meet academic standards, five or six years will lapse before personnel are finally educated. Therefore, other approaches are necessary, with more immediate results such as short, intensive retraining courses for established health professionals, economists and planners. Individuals with credibility in their professional field often can be "re-treated" quickly for new careers in a matter of months.

For coordination of evaluation efforts, one must search for mechanisms to increase the sharing of resources for, and results of, evaluation. Widely diverse evaluation approaches within a country permit few comparisons of results and no mechanism for dissemination or retention of results in the "institutional memory" of the country. Different centers in these countries necessitate a network or linkage of evaluation activities. Donor agencies, including the Bank, should reinforce this network, strengthen the evaluation capability in the institutions, link the evaluation of their activities with those in the country and move away from exclusive investment in project-specific evaluation. Non-governmental organizations should also join this network for the evaluation of their projects in order that the valuable results of these pilot projects will serve a broader purpose.

This country has an unusually rich resource to participate in evaluation in international health. If this resource can be made available in partnership with counterparts in developing countries, with the evaluation done on site and the data retained in the developing country, and with techniques of evaluation which are appropriate to the circumstances and resources of the country concerned, then a serious deficiency will be rectified in meeting health needs with such limited resources.

A sense of renewed commitment to improve health exists in many developing countries. Much of the credit for mobilizing the political will of governments should be given to WHO for focusing the attention of developed and developing countries on primary health care and the goal of "Health for All by the Year 2000." Now the challenge of delivering the results must be faced. The members of the National Council for International Health have an important role in meeting the challenge, raising in this country the

priorities attached to this goal and promoting the greater utilization of this country's unique resources and personnel in partnership with the developing world.

UNITED STATES INTERNATIONAL HEALTH INITIATIVES:
A VIEW FROM CONGRESS

Congressman Andrew Maguire*

Speaker for Closing Session

It is a pleasure to participate in this panel during this 1980 International Health Conference and provide some insight into the Congressional perspective on international health issues. The World Health Organization (WHO) goal of assuring health for all by the year 2000 is clearly an important and significant one. Achieving that goal will require effective planning and cooperation across the public and private sector.

This conference attempts to look at the problems in international health from multiple perspectives including that of the workers in the field, the program managers, the policymakers and probably most important, the recipients. The following observations are from the perspective of a member of Congress who has to make decisions on international health legislation interspersed with decisions about labor, insurance, taxes, petroleum and the multitude of other issues which come before the Congress every year. Most of these other issues are supported by very effective lobbyists who purport to represent a large group of citizens who vote regularly. Unfortunately, international health, which is equally important, does not enjoy that kind of constituent support so it is difficult to maintain the Congress' interest in this crucial area.

Too frequently in this country, international health initiatives are presented to the Congress either as a portion of the overall foreign aid package or as a form of charity. Viewed as a part of foreign aid, the primary objective is to reward those whom we see as real or potential allies. When making decisions on allocation of foreign aid resources, the major factor is the potential for influencing the recipient's foreign policy. Unfortunately, in this scenario, need is relegated to a minor role.

Other than foreign aid expenditures, United States international health initiatives are all too frequently made in response to major disasters such as epidemics, floods or famines. While these efforts are laudable, they also constitute locking the barn after the horse is stolen. The interest generated usually wanes as the event fades from the front pages. This is not the way to deal with something so important as international health. A carefully planned, well-coordinated approach will reap greater benefits from the resources expended and in the final balance will do more to favorably influence foreign policy decisions than the carrot-and-stick approach which is so favored in Congress now.

While a more orderly and humane approach to this important area is needed, the Congress does not have the technical expertise to devise a proper program of its own. This is where the members of the National Council for International Health become important. They can help establish a reasonable set of priorities in order to attack the areas of greatest need first. They can provide the technical advice the government requires to design and evaluate federal assistance programs in international health. Members of the NCIH are among those actually working in the field carrying out the programs the Congress mandates, so they can help by supplying the first-hand information required to make the on-line adjustments which are always necessary when new programs are developing.

* Presented by Dr. Martin G. Dillard, Robert Wood Johnson Health Policy Fellow.

It is very difficult for members of Congress or their staffs to develop legislation designed to aid developing and unfamiliar nations with multiple problems. In many of these countries the annual health expenditure is \$2-\$3 per capita rising to \$10 per capita in some of the more affluent ones. How can efforts be targeted so as not to flood the recipient with resources which he is not in any way prepared to use? In this country people have been accustomed to thinking big (and expensive) when thinking of health care. Only recently has the view emerged that this may not be the appropriate way to approach health problems even in this country, but difficulty apparently exists in scaling down plans to make them appropriate to nations whose resources are presently very limited.

This country's planning resources for international health are unfortunately small and scattered. The government does not have a large cadre of persons trained in this area. When compared with the mass of experts who constantly tell how to run the domestic health programs, the numbers with interest and training in international health is pitifully small. To compound the problem, this small number of persons is scattered throughout several agencies in the Departments of State, Defense, Agriculture, Health and Human Services, and other agencies. There is currently no effective organizational structure to bring these persons together to coordinate their efforts and share their resources. Considering the magnitude of the job to be done, there is no excuse for the duplication of effort and expenditure which frequently happens under today's fragmented administrative system. Such an organizational restructuring has been proposed as part of a bill introduced by Senator Javits. It can be achieved at little or no cost and represents the kind of thing this country should be doing if it is serious about making a real impact on this world's health problems.

The pool of people with training and experience in international health needs to be increased. In today's climate of fiscal restraint, any direct new governmental expenditure for this would, of necessity, have to be small. However, it should be possible to find some funds for this purpose by redirecting money from other programs which are funded beyond their needs or by providing some incentives to attract private money for this purpose. This area deserves further study as creative planning should at least allow for a modest increase in the support for training in international health.

Probably the best way to attract new resources into the international health arena is to be able to clearly demonstrate the effectiveness of the programs currently in place. Therefore, evaluation tools must continue to be developed and refined. Certainly it is politically advantageous to be able to show legislators that they are getting something for their investment, but that should not become the primary reason for emphasizing evaluation tools. Far more important is the ability to direct limited resources wisely to avoid the pitfall of wasting time and efforts on ineffective projects. Certainly there are many federal programs that could have profitted from proper evaluation tools built into their development phase. International health efforts should profit from that experience.

II. OUTCOMES -- WHAT IS USEFUL?

[Outcomes claimed by three of six evaluated nutrition studies] could either not be verified or the magnitude of those effects were less than those indicated by the principal investigators. The major reasons for the conflicting interpretations of data are that: (1) . . . too little attention was paid. . . to selection of valid controls. . . and (2) the method of analysis. . . stopped short of sophisticated analysis.

Clayton A. Ajello

Traditionally, nutrition evaluation has been carried out in a complex way, with sophisticated instruments. It is then urgent to find acceptance and understanding of simple techniques at the community level. . .

Maria C. Bustillo

Indicator selection is an evolutionary process which will change as needs and methods are better understood. It is doubtful that the indicators selected today will be used in the year 2000.

Stanley O. Foster

OUTCOME EVALUATION OF THE UNDER FIVES CLINIC

Nicholas Cunningham

Plenary Speaker

Three out of four deaths in the developing world are preventable. Half of the deaths are in young children and most of the children live in rural areas.^{1/} Of the surviving children, 2/3 are significantly un-nourished.^{2/} Their subsequent growth and development are likely to be permanently stunted.^{3/} For example, in one of the richest parts of India, 3/4 of rural children were found to be below the United States 3rd percentile in height by age three, while 84 percent were below in weight.^{4/} What does this mean? The Director of the World Health Organization (WHO) has answered this question:

The send-off in life-pregnancy, birth, and baby's first years-equiips the individual both physically and psychologically for the rest of his existence. At this period, nutritional shortcomings are so common in many countries as to affect, in my opinion, the entire life of the nation. There are not only many cases of acute deficiency in infants who mostly, even if they were given optimal medical care -- and only a small proportion are so treated -- would not be saved, but also, of course, the far more numerous cases of 'hidden hunger', children whose growth is hampered, who, if they ever do get to school, would not be expected to do well, and whose working capacity in adulthood, if they become adults, is no doubt also diminished.^{5/}

What, if anything, can be done? Delivering primary health services to young children and their mothers on a target population basis is increasingly recognized as perhaps the most effective health program for the rural developing world.^{6/1/} The most widespread model for delivery of such services is the Under Fives Clinic.

Under Fives Clinics (UFCs) were developed in Nigeria in 1956-57 by Morley and Woodland^{8/} to do three things:

1. Supervise the health of all children up to age five;
2. Prevent malnutrition, malaria, measles, whooping cough, tuberculosis, and smallpox; and
3. Provide simple treatment for diarrhea, pneumonia, and the common skin conditions.

The overall goal was to promote children's health by a combination of treatment, prevention and education and thereby to prevent all the childhood diseases that can be prevented at reasonable cost and with available personnel. Eight such clinics were organized to meet the needs of children living in and around Ilesha in Western Nigeria. Policies directed that the clinics: (1) Offer services daily and encourage attendance both of sick and well children and siblings. (2) Reduce waiting time to encourage attendance and allow busy mothers to go about their business. (3) Reduce personnel seen by each mother to three: registration clerk, weighing clerk and nurse or midwife, who provides the care and medicine; this cuts the waiting time. (4) Weigh children on each visit or monthly, and graph the weights so that the growth curve can be readily assessed. (5) Make the mother custodian of the growth card and clinic contract card; this saves time, money (no

filing), and loss of records (mothers rarely lose them). It also provides information for other caretakers if the mother travels. This Under Fives card or Road to Health chart provides a record of growth velocity, malaria prophylaxis, immunization, indications for special care (risk factors), and past medical history. The cost of the card in Nigeria was about five cents including a plastic envelope. (6) Use simple, low-cost medicines dispensed by the nurse according to written instructions for the common conditions. (7) Use each consultation between mother, nurse, and doctor as a method of maintaining and raising the quality of care; less than 10 percent normally need referral to the doctor.

Does this kind of primary care make a difference? It seemed important to find out, in view of the widespread proliferation of child health services based on the Under Fives Clinic model 9/10/11/12/13/ and the fact that so little is still known about the cost-effectiveness of this or any other model for the delivery of primary health services in rural areas.

This study was designed to find out: (1) Whether one of these clinics in the village of Imesi Ile was, in 1966-67, achieving its objectives as stated above; (2) Whether the under-five-year-old children of this village were healthier than other children in the area; and (3) Whether any differences found were attributable to other characteristics of the village or the children, or primarily to the activities of the Imesi Under Fives Clinic.

In addition, two other questions were asked: (1) How much did the UPC services cost? (2) What are the implications of the program for child health elsewhere in Nigeria and the developing world?

Five methods were used: (1) Examination of Imesi children and comparison with children from Oke Mesi, a village nearby; (2) Recording of vital statistics over a one-year period in both villages; (3) Re-examination of the children and questioning of their mothers; (4) Review of clinic and patient records to clarify clinic methods, determine costs, and measure utilization and immunization status; and (5) Review of available information about the two villages relevant to child health.

The population of Imesi Ile and Oke Mesi at the time of this study was 5,850 and 8,343 respectively. One-sixth of the population was under five years old. All 2,362 under-five children from both villages were given appointments for examination. After repeated efforts, 2,010 or 85 percent were finally examined. The primary reason for failure to appear was that large numbers of infants at Oke Mesi were at the rice farms with their mothers. Also, women traders in both villages tended to take their babies with them to the daily village markets in the area. Laboratory and other special examinations were carried out several months later on a 30 percent subsample of those who had previously been examined in each village.

In general the results, reported more completely elsewhere,¹⁴ were favourable:

1. The objectives of the Imesi UPC were being achieved. Of Imesi 0-5 children, 96.3 percent were registered at the Under Fives Clinic and were being visited on the average 24.4 times a year. The children's growth was being closely monitored and it was found that there were half as many children below 60 percent of standard weight for age as in the comparison village. Immunization rates were extremely high: Smallpox 99.6 percent, DPT series 88.9 percent, Measles (age 6-60 months) 77.9 percent, BCG 90.8 percent. Malaria was being controlled by regular prophylaxis and treatment.

2. The health of the Imesi children, in outcome terms, was demonstrably better than the children of the comparison village. Mortality rates among the 1-4 years old were significantly lower. Imesi infants also had lower mortality rates. Among survivors, there were significant differences in growth as indicated by percent of standard weight for age. Study children also had significantly greater height for age, triceps skinfold thickness and upper arm circumference. Developmentally, there were significant differences. There was significantly less hepatomegaly, splenomegaly, and better oral hygiene. Finally, there were significantly lower malaria (14 percent compared to 52.5 percent) and Ascaris rates and significantly less anemia was found.
3. While important differences between the two villages exist, as well as a variety of study limitations, they did not seem to explain the inter-village differences in the health of the children: (a) Imesi education levels were higher than at the comparison village, yet child weight for age was significantly superior independent of this factor; (b) Comparison village children were getting a substantial amount of care (9000 visits or 7.2 visit/child) from a variety of health systems, which probably reduced inter-village differences in child health status; (c) Other differences favoring the comparison village included maternal height and weight (both of which correlated significantly with child weight) and mortality after age five; and (d) Overall, the villages appeared to be by and large well matched geographically, culturally and socio-economically.

In sum, the consistency, diversity, and extent of the observed inter-village differences in child health, the overall similarity of the study and comparison populations, and the observed effectiveness of the IMESI UPC services strongly suggested that the UPC was a primary factor to which the superior health of the Imesi under-five children could be attributed.

4. The cost of services was estimated at about 15 cents per visit or \$4.43 per child per year, or almost ten times what the Nigerian Government was spending per capita on health. Whether the same results could be achieved at lower cost was not clear from the data. In any case, at the government-operated health center in the same town, costs of care were estimated at about \$14.00 per visit.

In conclusion, the goal of this study was to see if the UPC made a difference, rather than to analyze why. Nevertheless, questions arise: What were the most important components of the UPC system at Imesi? and What relevance do they have for care elsewhere? Several key components deserve emphasis: (1) Available resources were used to meet the major health needs of the vast majority at highest risk, (i.e. the under fives). The most important resources at Imesi were the Grade II midwives who lived and seemed to work happily in the small, isolated village. Costs were kept low. (2) Preventive and curative services were integrated for under-five children on an accessible, high frequency visit basis, together with maternal health service; care of other family members was a second priority. (3) A home-based health record and growth chart, owned and carried by the mothers was used; this system had many benefits and fewer records were lost than in most conventional systems. Also it provided a unique opportunity to collect target community-based data on clinic utilization, malaria treatment and immunization levels. (4) There was reliable delivery of simple drugs and supplies; though obviously essential, this is probably the major stumbling block in most primary health systems. (5) There was adequate supervision and referral.

Family planning was one important care element included but not stressed at Imesi. The observed high dependency ratio (117 percent at Imesi compared to 86 percent at Oke Mesi) suggests the need for earlier and better integrated child-spacing services.

In terms of institutionalization, the Imesi experience suggests that if the UPC is to provide hope for life in a developing country it must contribute to community development.

This requires (1) a system of cost-sharing by central and local governments for primary health services; (2) active involvement of the target community so that the primary care system is seen as "theirs"; and (3) recruitment of committed workers who, like the Imesi midwives, can relate successfully to both the professional and village worlds and who stay long enough in the latter to understand and be understood by the people.

Finally, what was learned from the evaluation itself? Several conclusions may be tentatively drawn in the hope that they will be tested in other settings:

1. Young child mortality is extremely hard to measure in developing areas. For age 1-4 mortality, enumeration and physical examinations, done twice at appropriate intervals, may be more useful and easier than weekly registration of vital events.
2. If vital events are monitored, community acceptance of the workers (older, trusted citizens) may outweigh literacy (usually younger people) in terms of reliability of data.
3. The growth chart (Road to Health Card or Home Based Medical Record), if incorporated into the child health care system, provides a unique tool for community based assessment of services used, immunization status and growth. In addition, it provides useful family planning outcome data in terms of birth intervals.
4. Criteria for comparing villages need refinement but should be included in all outcome studies as protection against confounding environmental, demographic, cultural, economic and sociopolitical variables.
5. The impact of endemic diseases such as onchocerciasis, tuberculosis or trachoma must be assessed. In this study, the effective malaria control was probably a major factor which would have been missed without the malaria smears.
6. Evaluations need be neither complex in design nor expensive. This study was kept relatively simple and only cost about \$15,000, excluding fellowship stipends.
7. When to do the evaluation is critical. Health outcomes are slow to change. Yet if institutionalization is the goal, that outcome cannot be studied until stable funding and support are assured. How many evaluations wait that long?
8. Sometimes the outcome is delayed and secondary. In this case, even while the survival of the original Imesi UPC was threatened by take-over from its parent hospital, the "Under Fives" concept was spreading widely over Africa and Asia.

Data from this study suggests that Under Fives Clinics can in fact make a real difference in young child survival and health status.

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**OUTCOME INDICATORS IN NUTRITION INTERVENTION
PROJECT EVALUATION**

Clayton A. Ajello

Panel Speaker

The purpose of this paper is to present in outline form a methodology used to evaluate six nutrition intervention studies, with special emphasis on useful outcome measures and then to present a short outline of pertinent aspects of evaluation which different organizations should address. This presentation serves to:

1. Illustrate the necessary steps before any service program or applied research study is instituted;
2. Demonstrate the need for planning ongoing project evaluation rather than post facto evaluation;
3. Illustrate that even appropriate outcome measures can be useless at best and misleading at worst if other aspects of a project are ill-conceived;
4. Demonstrate that evaluation should not be thought of as an easy task; and
5. Suggest that rigorous program or project evaluation may not be accomplished for projects, but that careful project design and planning can and should be accomplished if there is a real desire for project impact. In short, careful project design and planning, particularly in the case of service programs, can make the lack of an evaluation component less anxiety producing.

In planning for future nutrition intervention projects, specific objectives should be:

1. To determine whether enough information is now available to conclude that nutrition interventions can have significant beneficial effects on nutritional status and mortality of newborn children and children under five years of age;
2. To define some of the major weaknesses which seem to have been repeated in recently executed studies (e.g., methodological problems and gaps in information); and
3. To recommend guidelines for future program design and evaluation.

Three criteria guided the selection of nutrition studies for review:

1. Ready availability and accessibility of data either in published form or through the principal investigator(s);
2. Inclusion of a wide spectrum of nutrition interventions, as technically feasible within the constraints of the grant budget; and

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3. Primary concentration on research efforts and inclusions of service projects only if information from research efforts for the particular intervention package was not available.

The evaluation of each project involved several steps which attempted to avoid the pitfall of so many assessments of the work of others: a simple reiteration of the effects of a project as stated by the principal investigator(s). A systematic evaluation comprised the following:

1. Familiarization with the available projects or studies relevant to future programs through:
 - a) Review of published and unpublished project materials;
 - b) Discussions with principal investigators where possible;
 - c) Site visit where necessary and feasible;
 - d) Identification of project objectives (research and/or service);
 - e) Characterization of the project design (input, output, and outcome); and
 - f) Study of verifiable projects results (primary and secondary analysis).
2. Epidemiological appraisal of:
 - a) The validity of the project. How was it determined, when was it determined and by whom was it determined that a nutritional problem existed and that it was of a magnitude that this project could address? Is the selected intervention appropriate as determined by a pilot study, evidence from an earlier or parallel study(s), laboratory or clinical evidence? Has the study design taken into account the target population which the intervention is to have an impact upon in terms of age groupings, vulnerability of the age group to the problem attempting to be ameliorated, vulnerability of the problem to the intervention, and population selection?
 - b) The validity of the results. Is the method of analysis appropriate and sufficient? Do the results come from the comparison of true study and control groups compared over time at several intervals including before and after the intervention was affected? How were the persons included in the different study groups selected? Are the groups comparable?
 - c) The applicability of the results on a broad scale in terms of cost, technical feasibility and acceptability.

3. Secondary analysis

Each project evaluation utilized the major results of the primary investigators themselves, verifiable results, the major results of a secondary analysis of original data, and an analysis of major limitations.

Verification of most (but not all) effects enumerated by the principal investigators were obtained in only three of the six studies. In the remaining three, the effects (in most cases expressed in otherwise reliable outcome measures) could either not be verified or the magnitude of those

effects were markedly less than indicated by the principal investigators. The major reasons for the conflicting interpretations of the same data are that:

1. In the study design in general, too little attention seems to have been paid by the planners of the study to selection of valid controls. Five projects used either no control group, invalid or weak controls to establish overall or selective program effects; and
2. The method of analysis used by the investigators stopped short of sophisticated analysis. In one study positive results were found to become completely wiped out when the results were adjusted for co-variables through multivariate analysis. In another study the secondary analysis substantially reduced (but did not completely negate) the magnitude of the intervention effects. It should be noted that in two studies secondary analysis further strengthened or uncovered unknown effects. Only two of the studies ascertained cost information.

Not every project can or even should be evaluated on a continuing or post facto basis. This is particularly true of projects funded by the small private voluntary organizations. In general, large donor agencies should rigorously evaluate most applied research projects and many of their service programs. Even the small private voluntary organizations should be encouraged to evaluate at least some of their projects. Such evaluation is essential for improving the effectiveness of any intervention if the program or study is to have a genuine impact upon the population. Rigorous evaluation is especially important where funding is derived from public taxation.

This paper has served to demonstrate a methodology for assessing potential projects and their design, as well as the available evidence used as a basis for a project. While this in-depth view and extensive re-analysis are not possible for every project started, those contemplating the initiation of any health program or applied research project should ask the following questions:

Service Programs

1. Of what importance is the proposal in its potential contribution to the community?
2. Has the program been done before? If so, what were the results?
3. Are the underlying assumptions of the intervention clearly identified? Is there evidence to justify the validity of the assumptions?
4. Are the objectives clearly stated and is there any evidence that the project inputs can be expected to cause those objectives to be fulfilled? If evidence is available is it clear that those who gathered that evidence asked the same questions listed here?
5. Will this project last for a sufficiently long time and/or is this project innovative and likely to influence others to replicate the project and/or is this project so costly that an evaluation of the project could contribute in a significant way to affirming or refuting a new concept of intervention?

6. Have adequate provisions been made to be able to document all costs of the intervention?

Applied Research Projects

1. Of what importance is the proposal in its potential contribution to the community?
2. Has the program been done before? If so, what were the results?
3. Are the underlying assumptions of the intervention clearly identified? Is there evidence to justify the validity of the assumptions?
4. Are the objectives clearly stated and is there any evidence that the project input can be expected to cause those objectives to be fulfilled? If evidence is available, is it clear that those who gathered that evidence asked the same questions listed here?
5. Is (was) the study design adequate to achieve the stated objectives? Particularly, are the following adequate to determine conclusively the presence or absence of intervention effects: sample size, control groups, criteria for effects, and methods of analysis.
6. Is (was) a pilot study planned (carried out)?
7. How valid and replicable will (are) the results in terms of adequacy of controls, adequacy of analysis, captive or voluntary "beneficiaries", and cost and resource requirements.
8. Does (did) the study design include and permit monitoring of overall project cost? Of service versus research costs?
9. Is (was) the budget adequate to perform appropriate analysis?

**OUTCOMES: WHAT IS IMPORTANT? WHAT IS USEFUL?
WHAT IS REALISTIC?
A RESPONSE**

O. Nyaga Gakuru*

Panel Speaker

The Tototo-Kilembu Program

From 1978-1980, the National Christian Council of Kenya and World Education, Inc., both private voluntary agencies, implemented and evaluated a nonformal education program for women of six rural villages in the coastal area of Kenya. The villagers were helped to develop their abilities in whatever areas they chose. Clinical services were not delivered, nor the content of learning predetermined. For example, rather than deliver specific health information, the task was to help people see, wherever possible, a connection between their learning priorities and positive health practices.

The program was based on these premises:

1. People are most motivated to learn things of immediate interest and use to them;
2. People will tend to choose to learn things that they perceive will improve their social or economic lot;
3. The learning choices of rural people contribute to reaching generally accepted development goals such as improved health, nutrition and agriculture;
4. People can engage in critical analysis of problems and learn skills vital to development without first learning to read and write;
5. An ongoing learning approach using discussion and group problem solving enables learners over time to develop strategies for best utilizing available resources. Such an approach increases learner's confidence and willingness to try new things; and
6. Engaging in an active learning process which involves mobilizing available resources, increases one's involvement in community development activities in general.

Results After Sixteen Months

Data compiled after eight months and again after 16 months of program operation suggest that the basic project premises are accurate. In five of the six villages the combined elements of the approach were successfully implemented. In these villages, women's groups identified objectives and moved significantly toward reaching group goals. Although the specific goals of each group differ, the learning process is generally the same in each village.

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In one village, women chose to build a blocks-and-mortar nursery school. In four communities, women chose to establish businesses. These included building coops for broilers and layers, beginning egg and poultry farming, and constructing and operating a bakery -- the first of its kind in this area. While no project chosen was specifically related to health, evaluation results indicate that each project ultimately improved environmental sanitation, nutrition and health. In five villages, other outcomes were deemed important for community development and the situation of rural women. For example, in 16 months time there was significantly more participation among all group members in harambee ^{1/} and additional members who held office in community councils, committees or organizations. The expressed confidence of women in all five villages to earn income, attain their own goals, and participate in harambee increased fourfold. Five groups raised significant amounts of capital to invest in their projects. The majority of participants actively participated in collective efforts to earn income and were less likely to engage in subsistence farming.

Overall, participants reported significant changes in diet, primarily more chicken, eggs and legumes. Other health changes related to immunization and sanitation were evident in individual villages according to the type of learning project selected. For example, in the two villages where women elected to begin egg and poultry selling, group coordinators used feeding and care of healthy chicks as an analogy for disease prevention and proper diet for families. Women in both groups who before had rarely used eggs as part of the family diet began to do so when they realized some eggs from every harvest would be damaged and could not be sold. From this they moved to sharing on a regular basis a number of eggs and chickens for family use in lieu of part of their earnings. In another group that constructed and operated a bakery, the women, as required by law for such a commercial venture, installed sanitary latrines. They also designed a system for catching and storing rainwater (the water in the area is frequently fouled) and immunized each baker of the family for typhoid strains A and B.

The Evaluation Approach Employed

Because the Tototo-Kilemba program was exploratory and involved a complex series of activities, data were needed to explain what happened and why. Both quantitative and qualitative information was collected. The evaluation plan was conducted in five phases:

1. An extensive interview of each of 100 participants was conducted and observations made of existing conditions in each village at the initiation of the program. Included in the questionnaire were items related to basic health and nutrition practices.
2. Formal and informal interviews were again conducted with participants and program staff members at midpoint with questionnaires focused on the learning approach itself.
3. Endpoint data were collected using interviews and observation schedules comparable to those at baseline.
4. Ongoing collection of data documenting project events was instituted at the outset including:
 - a) weekly logs kept by each village coordinator;
 - b) monthly observations of groups by supervisory staff;

- c) quarterly reports by the program director; and
 - d) compilation of external events in each village by staff (that is, those events not initiated by the program which might influence participants).
5. An endpoint seminar involving experts from outside the program was held and their assistance obtained in analyzing the data collected during the life of the project.

The bulk of evaluation procedures were carried out by program staff as part of their regular responsibilities. Efforts were made to maintain objectivity. For example, interviews with program participants occurred in villages where they were not employed so that learners would be candid in their responses. Data were tabulated and analyzed initially by program consultants.

The evaluation system, as it drew from all program staff and participants, proved very valuable for ongoing program decision-making. It enabled regular communication between field and central staff. Supervisory personnel were able to pinpoint and often circumvent problems. Data were used to determine in-service education needs, and examples from logs and observations were often used in teaching. Endpoint data were shared with staff and participants, affirming their individual and collective achievements. This motivated the majority to continue and expand their work. The evaluation seminar enabled staff to notice trends in the data they might otherwise have overlooked. It also served to disseminate information about the program to others who could benefit from the activities and assist the program.

These procedures could be utilized by many private voluntary agencies, the greatest cost involving the addition of data collection and reporting to the regular responsibilities of staff. The key is to integrate assessment techniques with an ongoing program, so that costs are manageable. Staff should use and view the data collected in day to day decision-making. In this way, continuous assessment is less threatening to program staff and participants and, in fact, becomes part of everyone's job. In addition, a variety of data sources describing a complex program increases reliability and validity of the information itself and provides a more comprehensive picture of program processes and outcomes.

NOTES

1/Harambee is Kiswahili for community self-help, a principle widely practiced in Kenya.

**OUTCOME INDICATORS USED TO EVALUATE
THE BOHOL PROJECT**

Nancy E. Williamson

Panel Speaker

The Bohol Maternal-and-Child-Health-based Family Planning (MCH-FP) Project was a five-year (1974-79) project of the Philippine Ministry of Health. It operated through the public health system in the northwestern half of the island of Bohol, located 350 miles south of Manila. By 1979, the population of the Project Area was 425,000 and was growing at about 2 percent annually. There were 67,000 priority children (ages 0-5) and 47,000 priority women (those in the childbearing ages) living in the Project Area. Four-fifths of the people lived in rural areas and almost all (95 percent) were Catholics.

The Bohol Project was one of four similar MCH-FP projects. The others were in Indonesia, Turkey, and Nigeria. The Project received technical assistance from the World Health Organization and The Population Council which also co-ordinated the international project. External funding of \$1.6 million came from the United Nations Fund for Population Activities.

Objectives of the Bohol Project

The 1974 project proposal laid out the following long-range objectives:

1. Improve maternal and child health and regulate fertility.
2. Determine and demonstrate effectiveness of a project in which family planning services are delivered through a well-organized maternal and child care program in a large and predominantly rural area.

The proposal specified these more immediate objectives:

1. Develop and provide a better quality of health services for mothers and children.
2. Introduce and/or improve family planning services in the context of an expanded MCH program within the general health services.
3. Improve MCH-FP training and supervision of health personnel.
4. Undertake operational and other studies which will achieve the immediate objectives, including the determination of the types and amounts of program investment which give the best results, in the light of available resources.

Evaluation

Evaluation was an important part of the Bohol Project. Baseline conditions, as well as local beliefs and practices, were studied. "Before" and "after" surveys measured changes in family planning knowledge, attitudes and practice; MCH practices; morbidity; nutrition; and socio-economic

conditions. A dual record system was maintained for four years and covered 8,000 households in the Project area. It estimated levels and trends in fertility, mortality, and contraceptive use. Twenty small studies were done to improve health and family planning services. Papers were locally published on topics ranging from abortion practices, birth weights and breastfeeding trends, to patterns of migration and age at marriage.

Outcome Indicators

Other Bohol Project documents and publications present the results, lessons learned, and recommendations made by those associated with the Bohol Project. Here are presented only the indicators used to evaluate the project outcome, organized by topic: general health services, maternal health, child health, family planning, morbidity, fertility, and mortality.

General health services: Increased number of service providers, trained staff, clinics, and boticas; number of health staff with transportation (horse, bike, motorcycle, boat); number of clinics with basic equipment; number of villages visited by mobile audio-visual team; extent of community participation (e.g., number of communities building a clinic and supporting midwives, community health workers, boticas); number of non-MCH/FP services (mostly curative) provided monthly.

Maternal health: Percentage of priority women identified by name; percentage of priority women given at least one health service; percentage of traditional birth attendants (TBAs) who have been trained; percentage of pregnant women who consulted health staff during pregnancy; percentage of pregnant women receiving prenatal care early in pregnancy; percentage of pregnant women receiving the basic "package" of prenatal services; average number of prenatal visits per woman; percentage of pregnant women receiving FP counselling during pregnancy; percentage of TBA deliveries in which umbilical cord was cut with bamboo sliver; percentage of delivering women (by type of care and attendant) practicing family planning after birth; percentage of women getting postpartum care; percentage of pregnant women seen by trimester; percentage of deliveries by type of attendant (doctor, nurse, midwife, trained or untrained traditional health worker).

Child health: Percentage of priority children identified by name; percentage of priority children given at least one health service; number of sick and well infants seen monthly; number of sick and well children seen monthly; percentage of priority children given BCG and DPT immunizations; mean age (in months) when children first came to health clinic; percentage of last liveborn children who were breastfed; mean duration of breastfeeding; percentage of children (0-6) who are severely malnourished; and percentage of infants of low birth weight.

Family planning: Availability of family planning (FP) services; percentage of husbands and wives approving of FP; percentage of wives approving of sterilization; mean ideal family size; percentage of women wanting no more children; knowledge of FP methods; percentage of eligible couples practicing FP (by method); percentage of FP users from more traditional backgrounds; continuation rates by FP method; and pregnancy rates by FP method.

Morbidity: number, type, and duration of illnesses in household in specific period.

Fertility: Crude Birth Rate; other fertility rates (age-specific, total, gross reproduction rate) by ecological areas.

Mortality: Crude Death Rate; Maternal Mortality Rate; Child Death Rate; Infant Mortality Rate; number of stillbirths; Fetal Mortality Rate; and number of deaths due to tetanus neonatorum.

Recommendations for Future Evaluations Based on the Bohol Experience

A thorough evaluation of a large-scale health and population project requires a carefully thought out combination of sample surveys, secondary analysis of census data, small applied studies, and the use and improvement of service statistics produced by public and private health and family planning programs and the vital registration system. The first step is to identify indicators which best measure the attainment of the major objectives of the project and to discover what information is already available.

The strength of service statistics systems is that they can potentially provide timely information, often monthly, on an ongoing basis for the general population at little additional cost since recording and reporting are typically routine tasks of service providers. Data collected by local service statistics systems can sometimes be compared with regional or national data. Finally, for infrequent events such as maternal deaths, there may be no practical alternative to using service statistics data.

The weakness of service statistics systems is that the data they produce are often incomplete, frequently biased, slow to be available, and inadequate as measures of long-term objectives (such as improving health). Some data produced may be quite accurate (e.g., payroll or distribution records) but many are typically inaccurate (e.g., numbers of current users of different family planning methods). Furthermore, service providers have information only for those utilizing the services.

Some improvements can be made in service statistics systems by training field staff in record-keeping and reporting, by simplifying forms, by providing sufficient copies of forms, by preparing manuals on how to fill out the forms and how to obtain the required information, by reviewing all the records of clinics producing the least accurate figures, by holding frequent refresher courses for field staff, and by providing regular feedback to health staff on how the project is going and how their data are being used. Office staff need to be instructed on how to supervise data collection and how to prepare timely and useful reports for managers.

But even under the best of circumstances and with infusions of money, expertise and effort, data from service statistics systems will be very limited. Service providers often have little aptitude, time or interest in data collection. Nor should they be required to collect all the information an evaluation will need.

Surveys on representative samples of the project population will be necessary to check on the accuracy of the service statistics and to collect information unavailable from any other source. Most useful is a multipurpose household survey using a representative sample of sufficient size to measure the levels and changes in the most important indicators. In the Bohol Project, the indicators were fertility, mortality and family planning use.

For the first several survey rounds, the household survey could be combined with an independent system to estimate the extent of under-reporting in the household survey. When it can be demonstrated that most "events" are being caught by the household survey, the second system

could be dropped and later household survey estimates adjusted for missing events. The "household change" technique should be used in the second and subsequent surveys. That is, instead of listing all household members and their characteristics anew at each survey, the focus should be on changes since the previous survey. Data retrospective to the first survey should be collected by both systems but only to improve the accuracy of subsequent estimates rather than to get an estimate prior to the first survey which would be likely to be an undercount.

The multipurpose household survey could supplant the "before" and "after" design which is not very useful for managers due to the lateness of the "after" survey. The household survey questionnaire for each round could add or subtract modules. For example, a module on socioeconomic characteristics of the households might be included in only the first and last rounds whereas modules on family planning attitudes, MCH practices and health services utilization might be included in the first, middle and last surveys. Having family planning use information by method for each round, combined with service statistics data on acceptors and contraceptive supplies distributed, could give a rough impression of continuation-rates by method, hence eliminating the need for special family planning acceptor surveys. Most modules could be administered to only a sample of respondents in the master sampling frame -- perhaps only to those living in every third sample area.

The multipurpose survey could be used to identify areas for improvement in service statistics and to estimate how far off they are. Between and after the surveys, the only data available may be from service statistics, so it is important to measure their accuracy.

Smaller applied studies could be done at other times of the year using the same master sampling frame. This eliminates the need to collect household information again and allows data to be linked with other surveys. For example, a sample of children in the sample households could be selected for studies on nutrition.

Basic results can sometimes be obtained more quickly by hand-tabulation than by computer. Sample areas can be classified and then hand-tabulated by the most important groupings in the population--urban/rural, religion, ethnic group, ecological area and the like. Mini-computers may soon make analysis easier in remote areas.

Needless to say, the results need to be presented quickly and clearly to managers and policymakers, with generous use of summaries, graphs, concise non-technical language and clear recommendations.

MEASURING MALNUTRITION:
THE COLOMBIAN FOOD AND NUTRITION PLAN

María C. Bustillo

Workshop Speaker for
Community Health Workers

Community-level surveillance of the nutritional status of children under age-five is part of Colombia's Food and Nutrition Plan. Program components have been adopted from conventional nutritional evaluation methodologies to meet the reality and needs of poor rural and urban communities. Many of the ideas utilized in this work are taken from Dr. Morley's work at Iresi in Nigeria and from other similar experiences in Indonesia, Philippines and India.

The Food and Nutrition Plan is a component of the Government development strategy, coordinated by the National Planning Office. It emphasizes those interventions with different sectors (agriculture, education, health and sanitation) that have an impact on nutritional status. It is aimed at 30 percent of the poorest population.

The main purpose of the Surveillance Program is to promote adequate growth among under-fives. In doing so there is an opportunity to: (1) collect information regarding the nutrition and health of children; (2) use that information for making decisions; and (3) provide educational opportunities for mothers, the community at large and health workers at all levels.

How is Surveillance Done?

The backbone of the system is the monthly weighing of all under-five children by a person from the same community. The weight is then plotted, with the help of the mother, on a chart which the mother keeps. There is also information on diarrhea, cough, vomiting, fever, skin disease and other signs that the child may have had during the week before the weighing.

There are 38 community leaders working in seven different areas. Each one is responsible for about 120 children, making a total of about 5000 children. The program will be extended to ten areas during the next two months to cover a total of about 15,000 children.

To help the health promoter decide on the nutritional status of the child, a system has been developed that tells both the worker and the mother when the child is in danger of becoming malnourished and when he should be sent to the doctor.

Instruments have been prepared in such a way that they are simple to understand and manipulate:

The Growth Chart: The project first utilized Morley's Chart, then a modified version of the World Health Organization International Growth Chart. The Chart now in use is a modified version of both these charts.

The Scale: A bar scale -- market scale -- has been designed. Traditionally, people in the rural areas have used these for weighing the

goods they sell. There is no problem with reading it. Some workers consider it a bit too heavy, so there is a new model that weighs up to 20 kilos.

Training: Training is emphasized by doing. In general, there are no difficulties with training illiterate people in the use of instruments and concepts. More difficulties exist with professionals accepting a different way of looking at nutritional status.

In general, difficulties were found when trying to put forward these simple techniques for measuring malnutrition. Traditionally, nutrition evaluation has been carried out in a complex way and with sophisticated instruments. It is then urgent to find acceptance and understanding of simple techniques at the community level to promote adequate growth among children.

ON MEASURING PROGRESS IN FOOD-AIDED
HEALTH-PROMOTING PROGRAMS

Jean-Pierre A.C. Dustin

Workshop Speaker for Program Managers
and Consultants

In one form or another, food aid has existed throughout the recorded history of mankind. But only after World War II did it become a systematic international activity. This occurred in recognition that while large groups of the world's population were chronically malnourished, the most efficient food producing countries were grappling with commodity surpluses. These surpluses were often either donated or sold at concessional prices to those countries most visibly requiring assistance. Yet such surpluses result, at least in part, from the considerable international contracts that must be fulfilled, irrespective of the effects of weather variations on agricultural yields. Thus food aid tended to be made available on an ad hoc rather than a rational basis.

This approach, generous as it was, usually did not take sufficient account of the social and economic consequences in recipient countries. The net effect was sometimes to disrupt existing trade and commercial exchanges, discourage domestic food production, and promote dependence on food importations. As the poorest countries usually could not afford to purchase food at normal commercial prices, the final result was often a form of "addiction" to concessional priced food or even to free food aid. As these factors came to be recognized in the late 1950s and early 1960s, preventive measures were introduced in most bilateral food aid programmes and built into the policies of the World Food Programme, which began multilateral food aid in 1963.

Properly administered food aid programs soon demonstrated that more than just avoid harm, they provided a powerful tool to help countries toward economic and social development. Many experimental projects yielded increased agricultural (and food) production in recipient countries, while others concentrated on developing the country's infrastructure. Some even contributed to accelerating some aspect of industrial development. Yet their success depended essentially on well thought-out project design, adequate governmental backstopping (technical and budgetary) and, most important of all, the motivation of those involved in project management and implementation.

For example, Chile expanded the coverage of its rural centres to more distant areas than the national budget had allowed. Food aid was granted to a group of large urban hospitals, mainly in Santiago and Valparaiso, with the proviso that the savings thus made in their food bills would be set aside for the construction of 50 remote health centres which had existing trained personnel but inadequate buildings. The design of such projects supporting primary health care structures is critically dependent on the initiative of health authorities and on the cooperation they can get from village leaders and rural communities generally. The evaluation of such projects is comparatively easy as it can be based on the net value of the food distributed, the number of facilities erected and their utilization rate. The "bottom line" is then simply expressed in terms of population served per unit of food aid invested. A similar line of reasoning applies to the use of food aid for the establishment of rural community water supplies where a given amount of food aid can be related to the number of

systems installed (wells, catchments, networks) and the population thus served with directly available drinking water.

However, supplementary feeding projects for vulnerable malnourished groups are much more difficult to set up, monitor and evaluate. The general weaknesses of the health services available to such underprivileged groups make the judicious distribution of food supplements an unfortunately haphazard proposition. In addition, even when a functional health facility can adequately direct the food supplements specifically to those at greatest risk, health personnel often don't know whether the supplements finally get to those intended, except if the food is actually prepared and consumed directly at the health post (which is usually more than its personnel can or should undertake in view of existing health priorities). In most cases the supplement, intended for needy individuals, usually ends up being shared among the entire household. This "dilution" effect among households explains the present tendency to consider supplementary feeding operations on a family scale rather than on an individual basis, requiring more food and correspondingly higher logistic and distribution expenses. The actual impact on the beneficiaries' nutritional status should be determined.^{2/} Yet so far most such programmes have only been examined subjectively, with health workers stating that "they see less malnutrition" or schoolteachers saying "their pupils are more attentive" as a result of the ongoing supplementary feeding programme.^{3/4/}

When the suggestion is made that measurements should be taken to allow some more systematic and scientifically respectable evaluation of the programme's achievements, a frequent response is that this should not be imposed upon the beneficiary community or government because they are already putting every available effort into running the feeding programme itself. This is a fallacious and potentially detrimental line of thought. It is fallacious because its origin stems from the belief that a measurement of nutritional status is inherently difficult to the point of requiring large numbers of nutritionally qualified personnel -- which is not necessarily true.

For example, Professor Durnin of Glasgow University recently proposed to train a nucleus of Peruvian health auxiliaries in making fundamental anthropometric measurements for the monitoring and evaluation of Peru's food-aided projects^{5/} (which include a component of supplementary feeding of vulnerable groups) while a World Health Organization (WHO) group similarly produced -- as a minimum procedure -- evaluation guidelines based on no more than the age, weight and length or height of pre-school children.^{6/7/} In both cases the training requires tuition by a few experts and should include the means to conduct self-calibrating exercises to ensure consistency and a constant quality of measurements.^{7/8/} On that basis, no more than a few supervisors remain necessary to maintain the quality of data gathering. WHO's guidelines are presented in such a way that the interested worker can figure out for himself the significance of his own data. The biostatistical basis of the procedure will allow one to show to any expert statistician its mathematical basis. Admittedly, all this requires more effort than taking unreliable or even no measurements at all and will mean some expenditure, as will the data processing.

Yet this evaluation expenditure is a wise investment mainly because the chief beneficiary of an objective evaluation is the recipient country itself. Food aid must necessarily be viewed as a temporary phase in a country's development; otherwise it evolves into food aid dependency, a country's addiction. Consequently, any properly designed food-aided operation must "work itself out of a job", with government and/or local authorities progressively taking over the operation, using their own

resources. This, in turn, demands that project managers provide their planning ministry or their budgeting authorities with convincing documented proof that the activity is effective. Short of such proof, their chance of getting the necessary allotments for self-sufficient operation will be poor, their efforts wasted if the activity is discontinued. Furthermore, the country will need more external aid, with the corresponding addiction risk.

In conclusion, food aid no longer needs to be considered a misdirected effort as its pitfalls are recognized and preventive precautions known. The measurement of a project's nutritional impact should appear less frightening than it has so far appeared to many. The effort this measurement requires, when kept to the scientifically acceptable minimum, is one that countries receiving food aid should undertake themselves because it is in their best interests. Correspondingly, organizations providing food aid should insist that along with logistic and distribution costs, an evaluation expenditure be recognized at appropriate budgetary levels as a legitimate operational cost.

NOTES

1/Dustin, J.-P., and Lavoipierre, G.J., "Food Aid as a Capital Investment," World Health Organization document PAF/78.1, (1978), (also exists in French and Spanish versions).

2/The same may be said in the case of resettlement operations where it is imperative to know that the food aid grant -- helpful as it is to the quickest possible development of agricultural capacity -- should certainly be sufficient to prevent any nutritional deterioration amongst the settlers' most sensitive groups. These will be all the more sensitive an indicator if the settlers were already malnourished in their original habitat.

3/When they notice instead that their pupils are more playful and run about more energetically, the probability exists that they may have a significant observation. How to quantify physical exertion under field conditions then becomes the next problem.

4/The bias inherent in such statements is clearly unavoidable, and occasionally leads to harmful consequences. One case of this nature occurred when a Ministry of Education, considering its school feeding project highly successful, suspended the distribution of anti-anaemic ferrous sulfate tablets -- while it was clear that no dietary iron source worth mentioning existed in any of the feeding supplements provided.

5/Proja-Ronchi, Francesca, personal communication, (1980).

6/Waterlow, J.C., et. al., "The Presentation and Use of Height and Weight Data for Comparing the Nutritional Status of Groups of Children Under the Age of 10 Years," *Bull. WHO* 55(4), pp. 489-498, (1977).

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HEALTH FOR ALL BY THE YEAR 2000
MONITORING: WHY, WHEN, WHERE

Stanley O. Foster

Workshop Speaker for
Policy and Decision Makers

Introduction

In the year 2000, the World Health Organization (WHO) and its member countries will be judged on their success in achieving the goal set at Alma-Ata in 1978, "Health for All by the Year 2000."

This assessment, if it is to be meaningful, will require four types of data:

1. Baseline data on health status and priority causes of morbidity and mortality;
2. Identification of priority areas for intervention;
3. Establishment of quantitative time limited objectives; and
4. Establishment and implementation of monitoring systems to measure progress toward objectives.

As discussions on monitoring are frequently confused by different definitions and interpretations, it is important to differentiate measures of service delivery (process indicators) from those that measure impact of services on health (outcome indicators).

Identification of Priority Areas for Intervention

The Alma-Ata document identifies Primary Health Care (PHC) as the operational strategy to achieve Health for All. It envisions action in all of the following seven areas:

1. Education concerning prevailing health problems and methods of prevention of them;
2. Promotion of food supply and proper nutrition;
3. Adequate supply of safe water and basic sanitation;
4. Maternal and child health care including family planning and immunizations;
5. Prevention and control of endemic diseases, including those preventable by immunization;
6. Appropriate treatment of common diseases and injuries; and
7. Provision of essential drugs.

Before implementing any or all of the above, it is important to critically examine each area according to the following criteria: (1) need of a population for a specific intervention; (2) desire of a population for a specific intervention; (3) technical feasibility; (4) logistic feasibility; (5) effectiveness; (6) cost; and (7) resource availability.

Although certainly open to challenge, a problem oriented approach to primary health care, selected according to the above seven criteria, offers the greatest hope for significant health improvement between now and the year 2000. Once key areas of intervention are selected, specific objectives need to be developed.

Establishment of Monitoring System

Monitoring is not a simple recording of events, but an active selective measurement of key indicators to measure progress toward specific objectives. It is a dynamic management process by which progress is documented and problems are identified. The failure to meet objectives provides the single most important potential force for finding better approaches to improve health.

WHO has identified certain basic principles for selecting indicators:

1. Every level of the health system, including the community, has its own information requirements concerning primary health care, and the same information may call for a different degree of elaboration at each level.
2. The collection of information has to be kept to the minimum required.
3. Identify only relevant information that is actually used.
4. Information reporting from one level to another is a two-way process and should be limited to that which is actually used.
5. Data should reveal intensity as well as extensiveness of shortfalls from objectives.
6. Data should reveal differential effectiveness among different groups within the population.
7. Indicator selection is an evolutionary process.

Indicator selection is an evolutionary process which will change as needs and methods are better understood. It is doubtful that the indicators selected today will be used in the year 2000.

Monitoring is required at all levels. Probably the most important level is the local level, where local collection and analysis of data can lead directly to action. The following are some of the key aspects of local monitoring:

1. Posting of a map, hand-drawn if necessary, introduces to local staff the concept of responsibility for an area and a specific group of people within a geographic area.
2. Using best available census data, identify population by geographic area. In addition, estimate specific target groups (e.g., pregnant women, newborns, one-year olds, two-year olds).
3. Combining map and population data, determine population with reasonable access to available services. Discussion of data with consumer and local health staff is the first step in providing extension of services.

4. Service statistics, the number of immunizations given, the number of deliveries attended, or the number of malaria cases treated provide a utilization measure of health activity.
5. Coverage can be measured in two ways, direct assessment and estimation. Direct assessment involves the statistical sampling of an at risk population as to numbers receiving a service, divided by those in need of that service. Local, community, and health staff participation in evaluation potentially provides a major stimulus to the self-sufficiency envisioned at Alma-Ata.
6. The feasibility and validity of measuring health status at the local level need exploration. Possible areas for experimentation include: (a) local registration of births and deaths; (b) recording of birth weights; (c) surveillance for high frequency conditions routinely seen at health facilities (e.g., measles, pneumonias, diarrhea); (d) monitoring of nutritional status (e.g., weight for height, weight for age); and (e) survey of infant and under-five deaths.

In developing the monitoring system, it is important to recognize the advantages of selective monitoring. Surveys and sentinel sites frequently provide higher quality data at lower cost than the continued passive non-selective collection of all data.

Conclusion

Without a commitment to effective monitoring, the current talk on "Health for All" will be only rhetoric.

III. PROCESS INDICATORS: COVERAGE, EQUITY, COMMUNITY PARTICIPATION

The use of formal measures, such as number of people at meetings, patients served, follow-up appointments kept, and other measures mandated from above, will not convey the underlying qualities that process indicators measure. Without the involvement, understanding and commitment of those providing data, the dangers of useless and false information will be high.

James M. Pines

In primary health care there continues to be a rich diversity of practice. The coming decade is likely to see the emergence of an equally rich diversity of more community-centered evaluation approaches and practices.

Marie Therese Feuerstein

**CRITERIA AND RATING SCALES FOR
EVALUATION OF PROGRAM STRUCTURE AND PROCESS**

Lawrence W. Green*

Plenary Speaker

Many international health programs emphasize process evaluation rather than impact (or outcome) evaluation due to their particular evaluation needs, resources and program setting.

Three variables often included in process evaluation are equity, coverage, and community participation. Specific indicators may be selected to measure each of these variables. For example, citizen participation can be examined in terms of the recruitment process, the number and background of participating citizens and the extent of citizen participation in different situations. Coverage could include the number of persons receiving services and the types or range of services offered. Equity could include services offered versus need, access to services and type of professional delivering the services. However, it may be more efficient to evaluate equity, coverage and community participation across four stages of program development: problem diagnosis, planning, preparation and implementation.

Problem Diagnosis Stage

The first step in this stage involves information gathering and analysis: the incidence, prevalence and etiology of the health problems in a given population and the most recent available demographic, vital and socio-cultural characteristics of the sub-populations experiencing the health problem. The problem should be further analyzed on the basis of the experience of related agencies and through a literature search and report analysis. The views of patients, consumers and health service providers should also be included. The second step is a redefinition of the health problem in behavioral terms and identification of the specific factors affecting the behavior. Finally, the appropriate interventions are described. Criteria appropriate for evaluating this stage are:

1. Data from available sources should have been gathered and consolidated for planning purposes.
2. Existing literature on the specific problem or population should have been reviewed prior to planning.
3. Available resources should have been surveyed in the community to avoid overlap and to identify individuals and groups with prior experience with the problem.
4. Consultation from Federal agencies should have been utilized where specific data, literature, resources or experience were lacking.

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The Planning Stage

This stage involves the coordination and budgeting of the selected intervention methods into a timetable. Central to planning is constructive participation by potential consumers who, in addition to understanding and defining the program's intent, also contribute to the setting of priorities, the determination of acceptable approaches, the informational content and phraseology, the suggestion of barriers and facilitators to achievement of program objectives, the identification of indigenous resources, and the review of program materials. Participation of lay individuals in this stage enables program planners to incorporate consumer interests, perspectives and values into the program's activities. This stage involves: (1) identification of priority target populations for specific program components; (2) specification of behavioral objectives; (3) specification of educational objectives which must be accomplished before it is possible to achieve a change in behavior; (4) assessment of barriers and facilitators to implementation; and (5) assessment of available resources. Criteria appropriate for evaluating this stage are:

1. The specific target and transmitter populations should be identified (e.g., geographic, ethnic, social and economic status and age).
2. Representatives from the "target" and transmitter population should have been included from the beginning of the formal planning.
3. Representatives from each level and occupational category ultimately responsible for implementing the program should have been included in the planning.
4. Objectives for the program should have been stated from the consumers' perspective (in terms of their goals and with numerical targets).
5. Priorities should have been established among objectives.
6. Participating agencies should have been represented throughout the planning.
7. Participating personnel within each agency should have been kept informed of progress in planning.
8. Planning sessions should have been varied in format and location to provide opportunities for input from individuals and groups who are more or less responsive under different circumstances.
9. Planning should not have ended with submittal of the grant proposal or receipt of the contract.
10. As much attention should have been given to the knowledge, attitudes, values and social relationships of the target population as to the behavior.
11. The community at large should be kept informed of development at all stages of the program.

The Preparation Stage

This stage involves: (1) priority setting and selection of program

strategies; (2) development and assessment of educational methods and media; (3) orientation and training of staff, volunteers, community aides and community organizations; (4) selection of data collection methods, records and forms; and (5) scheduling of program activities. If concerned persons are involved and planning is detailed and thorough, staff, volunteers and cooperating agencies should agree with the program's aims and general strategies. Criteria appropriate for evaluating this stage are:

1. Specific program and service components should be specified (e.g., kind of prevention, training or treatment).
2. All participating staff should have received a full orientation to the program objectives, philosophy and limitations.
3. Volunteers should be recruited and trained, and existing staff with major responsibilities in the program should have been provided in-service training to assume their new roles in the program.
4. Supervisory responsibilities should have been clearly delineated.
5. Specific staff functions should have been clearly delineated.
6. Specific audio or visual aids collected or produced for the program should have been carefully pretested on the populations with which they are to be used.
7. Opinion leaders in the community who may not have been directly involved in the early planning should be involved at this stage to preclude their opposition during implementation of the program.
8. Commitments of personnel, physical facilities, financial assets and supplies should be reasonably firm before implementing program.
9. Evaluation design and sampling should be developed.
10. All recordkeeping forms for service data in the program should be developed and pretested.
11. Referral sources and cooperating agencies should be lined up and informed of the beginning date for the program.
12. Methods of recruiting consumers should be specified.

The Implementation Stage

This stage is designed to provide immediate feedback to program staff on whether everything is working satisfactorily. Feedback facilitates program adjustments and replanning. Criteria appropriate for evaluating this stage are:

1. Publicity or promotion of the services should be limited at first to avoid creating more demand for services than can adequately be met at the outset.
2. High priority cases or groups should be handled first. Satisfied clients should be a major goal of the initial services rendered.
3. Data collection and recordkeeping procedures should be appropriately applied and monitored.

4. Criteria specific to film showing:
 - a) Films should have been previewed several days in advance of their scheduled showing, with representatives of target audience reacting to preview.
 - b) Audiences should be small enough and homogeneous enough to allow intimate discussion following film showing.
 - c) Verbal introduction of films should include a statement on the purpose of showing the film, reasons for selecting it, what to look for and what aspects will be discussed following the film.
5. Criteria specific to training workshops:
 - a) Develop a normative ratio of project funds per day of training provided. Use this as one index of program support.
 - b) The program should have the active support of health administrators.
 - c) Participants should be allowed release-time (with pay) or receive school credit or both.
6. Staff and supervisors should perform the functions specified in the organization stage.
7. The program should make appropriate use of volunteers, audio and visual aids, cooperating agencies and referral sources as specified in the organization stage.
8. Communication and feedback should be maintained between personnel at all program levels (vertical) and between cooperating agencies or groups (horizontal).

Rating Evaluation Criteria

Upon selection of the process criteria, methods must be devised to collect and assess data on each criterion. Questionnaires administered to program participants, staff, or both are often used to generate data on process criteria. Rating scales should be constructed for all criteria and whenever possible objective responses should be required. This has the advantage of facilitating interpretation of results and reducing the response burden. Given the subjective nature of criteria and the purpose of the evaluation, a three-point (0 - 2) Likert-type rating scale is suggested where "0" represents the least desirable outcome. The following is an example of rating scales assessing the problem diagnosis stage of program development:

1. Scale 0 = Little or no attempt to collect data on problems or population.
 - 1 = Some attempt to collect, but no attempt to consolidate or use data; or data collected on population but not on problem, or problem but not population.
 - 2 = Reasonable efforts to collect and consolidate data from available sources on both population characteristics and problem.
2. Scale 0 = No evidence of serious review of scientific literature on the problem prior to planning.
 - 1 = Some evidence of literature review prior to planning but not recorded or used in the planning; or literature systematically reviewed on population but not on problem,

- or on problem but not the population.
- 2 = Clear documentation of previous research and experience pertinent to the problem and population.
3. Scale 0 = No effort to interview other agency representatives in the community who may have had prior experience with the problem.
- 1 = Some effort to interview others, but some obvious omissions, or some clearly wasteful overlap in services.
 - 2 = Rather thorough survey of available resources and individuals with prior experience with the problem in the community.
4. Scale 0 = No effort to consult with Federal agency officials when specific data, literature, resources or experience were lacking.
- 1 = Some assistance or consultation obtained but not actively sought or not obtained until after the planning stage.
 - 2 = Consultation from Federal agency used where specific data, literature, resources or experience were lacking.

It would be improper and unjust to use the response on any of the rating scales as a sole basis for judgment. A more reasonable approach is to view responses to all rating scales in relation to one another. An overview of the program's status with respect to that group of criteria can then be depicted. Construction of rating scales for the other criteria areas would allow for a useful and systematic assessment of the program's performance in such areas as equity, coverage and citizen participation. The number of items and rating scales may be increased to account for specific program emphasis or interest. However, the suggested framework for assessing equity, coverage and community participation includes criteria and rating scales which should satisfy the evaluation needs of most programs.

EVALUATION -- A TOOL OR A BURDEN?

Mary V. Annel

Panel Speaker

Evaluation is a word which greets health workers on every side and often strikes terror in their hearts. "We were trained in health care, not in statistics," they say. Evaluation may even come to be hated: at times it has stopped a program dead in its tracks. In Huehuetenango, Guatemala, a very promising rural women's program was paralyzed by an over-ambitious evaluation attempt. Activities in the program were suspended for the evaluation effort, first for three months, then for six. By the time the results were presented, the program had lost its momentum and stopped abruptly, overwhelmed by evaluation.

Despite this negative view of evaluation, health programs need assessment for health personnel to chart future activities. But evaluation must be a tool, not a burden. From a field worker's viewpoint, the ideal evaluation scheme would be adapted to the needs of the particular program, incorporated easily into the daily running of the program, and made intelligible to participants at the village level.

In view of the needs and limited resources of rural communities in third, fourth, and fifth-world countries, highly technical evaluation might perhaps be abandoned in favor of behavioral criteria, borrowed from educational theory. Teachers today state classroom objectives "in behavioral, or performance, terms that describe what the learner will be DOING when demonstrating his achievement of the objective." ^{1/} The rural Health Promoters Program of Huehuetenango has borrowed this concept to assist in the evaluation of its work.

This health program attempts to serve the primary health care and preventive medical needs of the 380,000 people of the Department of Huehuetenango, the western-most state of Guatemala. Guatemala has the worst health statistics in Central America, with 80 percent of its children under five suffering from malnutrition. Infectious diseases are rampant, especially tuberculosis and diarrheas. The program presently has 400 health promoters scattered throughout 7,403 km². Its health workers are local to the village where they work, have an average second-grade education, speak one of six Indian languages as well as Spanish, and often have to walk eight to twelve hours from their outlying villages to reach the nearest town where there is a drugstore. A doctor or a hospital may be another two to eight hours bus ride away.

Given semi-literate, volunteer workers who are widely separated in tiny, mountainous villages, the traditional evaluation questionnaires or other techniques would be impossible to complete and counter-productive. Instead, the program has adopted behavioral criteria which serve it well:

1. Does the community trust and act on the advice received from its health promoter? The traditional, Guatemalan-Indian mentality perceives illness as caused by God's will, to be accepted fatalistically. If members of the community follow advice from the health promoter, they are moving into a more active control of their own health and lives.

2. Does the community collaborate with the health promoter in common projects, for example building a small health clinic, or helping pay for his/her expenses during a training course? All of the promoters have been elected by their communities, but monetary help or volunteer labor implies a much broader commitment to the health program.
3. Do neighboring, unattended villages ask for their own health promoter? It would seem that this is one of the most powerful behavioral criterion for judging the impact of a working program. Good news spreads.
4. Do sick people, referred to medical centers by the health promoter, actually arrive at the center? Or do they still prefer to die in their villages? In the rural area, especially among indigenous peoples, a hospital is a place to die. Furthermore, the local belief system demands that a person be buried in the cemetery of his own village, so that his spirit may not wander. If the community can overcome all of these prejudices, it would seem that they have genuinely changed a deeply-imbedded belief system.
5. Do the mothers of the village bring their children monthly to be weighed in the "well-baby clinic"? (One of the most sensitive indicators of early malnutrition.) Preventive medicine is always one of the most difficult concepts to communicate. If the promoter can convince the mother that a relatively healthy-looking child is beginning malnutrition when his weight gain falls off, great strides have been made toward eliminating malnutrition in the village.
6. Does the health promoter want to learn more? Does he/she regularly attend continuing education courses? Does he/she spend free time during courses studying booklets, or doing optical reading? Does the health promoter stay after class, asking more questions? Does the health promoter bring patients to the courses for consults on difficult cases which were not solved in the village? Does he/she bring lists of patients with their symptoms for consultations?
7. Do the health promoters themselves innovate ideas and projects which can be used by other communities also served by health promoters? Or do they simply accept what is brought from outside?
8. Do the health promoters have more responsibility for the administration, supervision, and continuing education within the program than they did six months, one year, two years ago?

Other health programs might use different behavioral criteria for evaluating their impact, but the advantages of behavioral criteria, rather than statistical, are several:

1. They are possible in a semi-literate, rural, community-based program, oriented toward broad, low-cost coverage.
2. They assess attitudes and changes in behavior in the community, rather than numbers, or presently available inaccurate statistics.
3. They make evaluation a tool, not a burden. They are visible and meaningful to the workers from the village as well as the administrators of the program. They are incorporated as a continuing part of the program, without interrupting the flow of the curative and preventive services offered.

4. They are inexpensive. Use of behavioral criteria does not require highly trained technicians, long questionnaires, or computers.

Perhaps to outside observers, the principal disadvantage of behavioral criteria lies in the difficulty of standardization among programs. Traditional Indian cultural values were considered in developing the criteria cited for Huehuetenango. Many other programs could not depend on community cohesion or cope with a traditional, fatalistic mentality suspicious of change. Further, this program is financed largely by the local sale of inexpensive medicines and does not have to respond to pressures from outside funding agencies for an evaluation technique foreign to the local reality.

Certain universals appear among the criteria indicated: community involvement; community confidence in the health worker; change in deleterious health customs; community participation in preventive activities; and increasing participation of the local health worker in administration of the program.

International health program personnel should find some of these behavioral criteria useful for evaluation. Whatever the approach utilized, the field worker hopes that evaluation will improve the program's service, not weigh it down.

NOTES

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COMMUNITY PARTICIPATION IN EVALUATION
PROBLEMS AND POTENTIALS

Marie-Therese Feuerstein

Panel Speaker

Within the past two decades the concepts and practices of community participation have developed with rapidity and force. People have been encouraged to identify their own health needs and to help themselves fulfill them. Traditional patterns of leadership have been used as well as new forms such as cadres of community-based health workers and specially convened committees.

The adoption of these and many other innovations has not been an easy or painless process, either at the level of nationwide policymaking, or at the community level where the practical cutting edge of community participation was really felt. Successful community participation depended to a large extent on various behavioural changes, often of long duration. These new ideas and approaches involved seeing man himself in a new way, not just as a "cog in the wheel of life" but rather as a dynamic component of the wheel itself.

"Community" itself was also seen in a new way and the view rejected that community was some kind of "somnolent, good-natured giant to be wakened into useful activity by well-directed prods."^{1/} There was increasing awareness of the complexities of community structure and of the actual dynamics and methods needed to increase community participation in health improvements.

In addition, the ever widening context and implications of primary health care itself were explored. For example, only when the deep underlying causes of ill-health were tackled, such as problems of unequal distribution of resources basic to man's needs -- food, land, water, education, justice, freedom of speech -- could health really be improved. To some extent the cry of "better health for development" gave way to the cry of "better development for health."

Today the concepts and practices of community participation, albeit imperfectly understood, have come to suffuse virtually all primary health care activities. In fact without community participation, in many instances, there would be no health progress to measure.

Community participation in project evaluation can also be useful in the measurement of progress. For example, a "participatory evaluation" approach is based upon the underlying assumption that the very people involved in health care are capable, given certain circumstances, of evaluating their own work.^{2/} This in itself is nothing new. Many methods of evaluation, of the on-going monitoring type, have been successfully used for some time. Many health workers already collect data, particularly statistics relating to their own work. But evidence suggests that they do not always understand the basis for collection, and may not collate them themselves or receive feedback regarding their implications. The principles and practices of regular reporting, holding meetings, discussions, and other analytic encounters may have been well developed, and this experience and these skills can be used in a participatory evaluation process. But in addition, other specific, appropriate evaluation techniques and procedures are needed at the community level.

In planning for community participation in evaluation, the following ten topics for analysis should be explored and the relevant questions addressed:

1. Origin of the Stimulus for Participation

Catalytic action by an individual or group may have initiated the development of the health activities. A similar type of action may need to precede the evaluation activities. Individuals normally external to the community may be involved, not in the roles of experts, but rather as catalysts, resource persons, co-workers and participants. Recent evidence suggests, for example, that if evaluation is seen only as a system of grading performance, resentment can be expected.^{3/}

Relevant questions include: Who asked for the evaluation? and How is evaluation itself regarded by the community?

2. Leadership -- Eligibility and Availability

Traditionally community participation aims to identify and use leadership and create new leadership patterns. Participatory evaluation may employ a parallel approach, using either an existing or specially convened team to carry out the evaluation.

Relevant questions include: If the evaluation activities add to the normal workload of those involved, how will the timing and length of the evaluation be affected? Is there a unified leadership capable of carrying out group decisions? What might happen when curative demands conflict with the evaluation activities? (Can a man who arrives with a broken leg be told, "Just wait a minute, we're collating our questionnaires!")

3. Self-help and Self-reliance

Relevant questions include: Of the contributions customarily made in time, labour, material or financial resources, what is available for evaluation purposes? How much will the evaluation cost? Can the cost be met out of current expenditures? If not, who pays? How can the evaluation be tailored to fit the costs that the community can afford -- so that it can be considered appropriate technology?

4. Needs, Values and Attitudes

Evaluation is often said to be essentially a subjective process, and as such value-laden. "A value is the driving force in a man which determines, shapes and reshapes his attitudes, (and)... it is a man's values, not necessarily his needs that determine his behaviour."^{4/}

Relevant questions include: In response to whose needs is the evaluation being carried out? What priority does the community accord the evaluation; what do they expect to get out of it; and are they prepared to make whatever changes that it may indicate as necessary?

5. Methods and Capabilities

Most primary health activities involve personnel of differing educational and technical abilities. Some members of the community may have limited, if any, skills in literacy and numeracy. The roles of the various individuals involved in the evaluation will be determined by the design objectives and methods of the evaluation and the experience and capabilities of the participants. Many of the admirably rigorous and meticulously

developed evaluation methods which are used successfully in settings like laboratories, hospitals or health care systems at macro level, have encountered difficulties at community level.

Relevant questions include: Was a baseline study ever established? Is the type and quality of record-keeping already employed usable for evaluation purposes? How can existing skills in leadership, planning, organization, technical practice and self analysis be fully utilized in the evaluation; What additional skills are necessary? How can the traditionally acknowledged norms of 'good evaluation practice' be retained? How much, and what type of statistical data is necessary and feasible for the evaluation?

6. Goals and Objectives

Some health activities, especially the older ones, began with general aims to 'improve health', but few concrete objectives. Relevant questions include: Who selected the health goals? Have they "evolved" over time and altered from the original? Are the goals long term or short term and specific? How is 'success' or 'failure' to be determined and by whom? Can there be, for example, enormous effort, reasonable efficiency but little effect?

7. Technical Ability, Training and Education

At present a wide variety of training methods and technical ability exists in the field of primary health care. Questions include: Can technical expertise only be evaluated by someone of higher technical level? Will the evaluation indicate a desire for further expertise which is likely to be unfulfilled? If the evaluation is to be a learning experience for the participants, might its speed, where this is dictated by cost or availability of personnel, outstrip the ability of the participants to fully understand what is happening in the evaluation?

8. Planning and Administration

Five years ago a World Health Organization (WHO) study commented, "Communities should be involved in the designing, staffing and functioning of their local primary health care centres, and in other forms of support."^{5/} These ideas have yet to become widespread practices, yet the evidence confirms that communities are generally more committed to plans of action which they themselves have helped to develop. The concept of 'shared responsibility for health' then becomes a reality rather than mere rhetoric.

Relevant questions include: Can the evaluation improve planning and administrative capabilities of participants? Can it improve existing record keeping and monitoring, or 'build in' a baseline and help to establish more concrete goals where necessary? Will the community be subsequently better able to make decisions in copin~ with the even changing problems of their own reality?

9. Findings, Feedback and Utilization

An unfortunate tendency in many evaluations has been to remove the data obtained, often long-distance at the conclusion of the evaluation. This complicates the whole issue of 'feedback' and disrupts a circular process of practice-evaluation-feedback-utilization-practice which could be regarded as a dynamic, potentially, self-fuelling learning process.

Relevant questions include: Who do the findings belong to if the various participants contributed to its cost and execution? Who reports the

findings and in what style, form and language? Where the whole of an evaluation is marked "confidential," how can it be used for further study or enable others to benefit from its findings and experience?

10. Widening Perspectives and Change

Health progress is a part of integrated rural development. Participation in health progress has been seen as an encouraging indication of "the building up of the infrastructure within the community -- an infrastructure which can in the future be used not only for health services but also for other development purposes."^{6/} But the anticipated consequences of wider participation and mobilization have not always been appreciated and on occasion have resulted in "discrediting of the programme sponsors [and a] violent repression of the mobilization process they had started."^{7/}

Relevant questions include: How do the health activities relate to other local, regional and national health and development activities? Will the evaluation process result in a better understanding of participation and of the possible consequences of the changes resulting?

In conclusion, if community participation is to be used as a process indicator in evaluation, then evaluation design, methodology and objectives will be largely determined by the way community participation is understood and used in a particular context. In primary health care there continues to be a rich diversity of practice. The coming decade is likely to see the emergence of an equally rich diversity of more community-centred evaluation approaches and practices.

Finally, it may then be possible for more communities, rural and urban, to echo the sentiments of a health promoter who, on the completion of a participatory evaluation, said: "In all the years that we have been working, we have never so clearly seen the value of our own work."

NOTES

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THE ESSENCE OF EVALUATION RELATES TO THE DECISION IT SERVES

Theresa F. Miller

Panel Speaker

Introduction

Prior to launching a project evaluation, evaluators should be aware of the type of decisions their findings will precipitate. In addition, evaluators should focus on all relevant components in an evaluation situation. An evaluation must consider the total experience.

The development and implementation of the Indonesian Health Centre Reference Manual demonstrates how an innovation designed primarily to effect coverage and quality of health care was also an important catalyst in improving other, supporting elements in the health care system.

The Indonesian Health Centre Reference Manual is a loose-leaf, four-volume document prepared by the Ministry of Health, Republic of Indonesia. The objectives of the Manual are: (1) to serve as a guide for Health Centre staff members in carrying out the daily activities, (2) to serve as a continuous reference for Health Centre staff in policies, procedures, techniques, and methods, (3) to serve as a source of information for supervisors and teachers about Health Centre activities.^{1/}

Evaluation Perspectives

In order for the Ministry of Health to evaluate the Manual effectively, these conditions must be considered: (1) each project activity must be clearly defined, (2) the decisions that need to be made must be apparent, (3) the evaluators must delineate what information is required to make each decision, (4) the evaluators need to select feasible methods to collect the information within their capacity, and (5) finally, the information must be analyzed and put into a form that will communicate clear options to the Minister of Health and the Secretary General of the Directorate of Family Health who, assisted by their findings, make the final decision.

Another type of evaluation model is required when the government wants an answer to the questions: Is the Health Centre Reference Manual a valid document? Does its use, in fact, increase coverage and improve the quality of care? After the Manual had been in use for approximately three years (1976-1979) the Ministry of Health studied the expected outcomes defined in the objectives. This evaluation required a different framework. It involved an analysis of variables, including (1) the practice of the users (community, health workers, educators, administrators, international consultants, etc.), (2) the settings in which the Manual was used (e.g., health centers, schools), (3) the opinions related to the Manual itself (e.g., content, size, language, cost), and (4) the expected outcomes achieved (e.g., increased community awareness, increased skills in personnel and improved quality of services).

The two evaluation models mentioned are useful primarily to the Indonesian government. From the perspective of an international agency, the information needed about projects such as the Health Centre Manual are quite different. The evaluator will be primarily interested in how the project has affected the total system of health care services: What was the value of

the input from the various international consultants and agencies? Should international agencies support this type of program? Looking only at outcomes will limit the understanding of the value of the project.

For instance, there should be an awareness of the country's style of leadership and its decision-making process, as well as knowledge of the people available to develop, implement, and maintain the project. Looking at the Health Centre Reference Manual we might ask: What was occurring in the 1970s, when this project was in the initial phases, that made the achievement of publishing a comprehensive manual based on Indonesia's own problems and available technology important? Why did the Ministry of Health in Indonesia decide to write a Health Centre Reference Manual? For what purpose did the Indonesians undertake such a long and costly task, a departure from using translated materials from other countries?

To think of Indonesian decision-making in the early 1970s as a coordinated group deciding to produce a manual for their health system is an over-simplification of what happened. The writing of the Manual was a complicated interplay between the abilities of the people available to work on the project, the external environment and culture represented, and the national climate of Indonesianism.

The case of the Health Centre Reference Manual provides another set of clues about evaluating the success or likelihood of success in health projects. An examination of the relationship of the Manual to the organizational development of the Ministry of Health itself reveals how the Manual stimulated the Ministry's capacity to function more effectively.

The Manual passed through stages of development along with a re-organization of the Ministry of Health itself: (1) a beginning phase characterized by high-level lack of clarity about the structure, (2) a developmental phase when a great deal of energy went into actual ordering details so that the product could be published, and finally (3) the present stage of stabilization in which efforts are consolidated to keep the Manual up-to-date and to improve implementation and operational effectiveness. During this last phase, complacency can set in and stop the project. Energy is needed for continued renewal of the Manual. An awareness of developmental phases, Ministerial organization and their effect on projects is important for an evaluation of the project.

Ministry of Health leaders in the early 1970s recognized that in order to change the approach to health, the values of the entire system needed to be studied. The health professionals who worked in the Health Centers were not a homogeneous group. Each program in the Centre was planned separately, and each small group of specialized workers acted as a single organization.

As the Health Ministry's new Health Planning Bureau began to function, the philosophy of manpower development and utilization began to be discussed. It was obvious that Indonesia could not afford to maintain a health care model in which services were limited largely to medical personnel. Health care coverage was low, and new designs that would provide services to larger numbers of people needed to be considered. Since the health scheme was not under single management, new ideas and concepts had to be shared between all responsible for the health service -- administrators, planners, researchers, educators and the workers.

A shift occurred in the belief that all health workers can actively participate in improving village conditions. The doctors became less sensitive about practicing certain treatment roles and began to foster a willingness to increase the competency levels of other staff. Through these changes in attitudes, and because of changing roles of the health workers,

the development of the Health Centre Reference Manual became a logical support to the educators and the health planners. The Manual offered direction for providing additional skills, documentation of new policies and procedures for staff communication. There was interplay in the development of health services and the institutes of education.

Change in the perspectives about the role of the workers was a forerunner to thinking about what the community could do for itself. The various boundaries of the health structure were beginning to change. In April 1976, the Ministry of Health had the first cross-sectoral seminar to study policy papers on the role of the health sector in community development and to look for new models to expand the primary health care concepts. As they develop, these changes have continued to be incorporated into the Manual.

Conclusion

Focusing on the evaluation of one project, the Health Centre Reference Manual, demonstrates the factors relating to its development and value in relationship to improving the quality of health care in Indonesia. Some of the changes in the organization of the Ministry of Health and system of education was a result of the Manual, some influenced the Manual's development, and some occurred concurrently with its development. The central focus of the project was to increase coverage and improve the status of health of the people. The "angles of vision" presented have not given a single evaluation measure related to the percentage coverage increased or the degree health improved, but they afford a more complete picture of what has happened.

It is quite clear in this example that no one isolated factor determined the final production of the Health Centre Reference Manual or its impact on health and coverage. Politics, the cultural situation, the organizational process, the implementors and attitudes were all causal factors which, woven together, caused the Health Centre Reference Manual to be an important and viable project.

Evaluating the Health Centre Reference Manual by measuring increased coverage would focus only on one set of characteristics related to the project. It would fail to show the Manual's part in the total health program, role change on the health centre staff, changing attitudes of health workers and organizational growth. Many evaluators fail to identify the relevant components of an evaluation situation. Therefore, they make decisions based on information describing less than the total experience. Often evaluations simply hang in space, unrelated to the decisions being made.

At each point in the model, a different relationship between the evaluator and decision-maker is required. Thus the "decision to be made" is central to the aim of evaluation and the model selected.

NOTES

1/ Ministry of Health, Republic of Indonesia, Indonesian Health Centre Reference Manual, (December 1976).

SELECTING PROCESS INDICATORS:
A PARTICIPATORY PROCESS

James M. Pines

Panel Speaker

Process indicators reflect how activities are being carried out, not the results being obtained from them. For example, measures of coverage, equity and community participation can be very favorable without any assurance that health services are effective. The concepts reflected by process indicators, important goals in themselves, also can serve as intermediate measures of content or impact. The design of health service delivery systems usually includes an often implicit hypothesis that certain process variables are essential for achieving desired health-related results. Community participation, for example, may further not only the cultural values of self-determination and human dignity, but also the success of the health system itself, due to the informed participation by the people expected to benefit.

Process indicators are important for verifying process outcomes that are preliminary, intermediate and prerequisite to the broader concerns of health planning. They are not a luxury, but a key element in improving system designs by using evaluation findings.

These indicators lend themselves more readily to routine on-site collection and analysis by community health workers than do indicators of morbidity, mortality, and other "result variables." Planners and administrators need to convey to operating staffs a sense of how services are to be delivered. Questions of style, courtesy, outreach and other less tangible aspects of service delivery are often crucial in building the processes necessary for effective use of services. Health promoters and other deliverers of primary care show more interest in these aspects of performance than they do in health status information. When field staff understand well the desired processes, they can readily identify useful indicators for measuring and monitoring progress, thus assisting persons interested in formalizing evaluation.

Health planners should avoid imposing outside judgements about formal data requirements for tracking process indicators. National health information systems are already overloaded and have difficulty making use of output measures. The identification and assessment of process variables should flow from the participation of the staff who, through relationships with the target population, have direct responsibility for building "process." Administrators must first create a vision, even a mystique, of desirable service and the will to achieve it. When this is done, staff will be sensitive to measures of deviation from it. Process indicators are most valuable at the local level and, understandably, more easily developed and administered there than through national "central plans." The use of formal measures, such as number of people at meetings, patients served, follow-up appointments kept, and other measures mandated from above, will not convey the underlying qualities that process indicators measure. Without the involvement, understanding and commitment of those providing data, the dangers of useless, misleading and false information will be high.

The identification of appropriate process indicators is less a matter of "capital city" expertise than of local wisdom. It requires initiation of a

field-level process for probing the concerns and insights of primary providers, reducing resentment and defensiveness, and developing consensus. In broad terms, training and supervision need to include discussion of "What do we want our services to be like?" and "How can we tell when our services are not the way we'd like them to be?" Approached this way, the search for process indicators, and the monitoring of them, become tools for improving the quality of services. This motivation and education process is critical for developing humane human health systems.

EVALUATION AS AN EDUCATIONAL PROCESS IN RURAL HEALTH PROGRAMS IN GUATEMALA

Mary Hamlin de Zuniga

Workshop Speaker for
Community Health Workers

In December 1979, a national seminar on rural health was held in Guatemala co-sponsored by the Guatemalan Association of Community Health Services (ACECSA) and the Meso-American Center for Studies of Appropriate Technology (CEMAT). A major discussion theme was "Evaluation in Rural Health Programs in Guatemala." A panel of representatives from programs involved in the provision of rural health services responded to the following questions:

1. What is the meaning of evaluation?
2. What purposes are served by evaluation?
3. What are the criteria for an evaluation in order that it be educational?
4. What are the obstacles to or difficulties involved in an educational evaluation?

The panelists discussed these questions from the distinct viewpoints of the physician, administrator, educator, technical advisor, public health consultant and village health worker.

In this paper the author will summarize the reflections of the panelists and present certain conclusions regarding evaluation as an educational process.

The Meaning of Evaluation

Evaluation was seen by the panelists as a dynamic process in which evaluators determine the effects of a particular program. It permits health workers, program personnel and administrators to discover and analyze the program's errors or failures. If the results are shared with program personnel and clients, then the evaluation has the potential to serve as a positive educational experience. They are then in a more favorable position to make the necessary improvements in their program.

Often program personnel view evaluation in a negative way; they fear evaluations. The presence of fear may indicate that the evaluation is being used by the directors and administrators to threaten or coerce the staff. When faced with criticism and the need to make changes, the personnel may become defensive and resist recommendations made by the evaluators.

The Purposes Served by Evaluation

"How does one evaluate an evaluation?" a panelist asked. An evaluation serving as an educational tool must be grounded in the reality of the situation. The objectives of an evaluation are to: (1) Measure progress toward clearly defined objectives and goals; (2) Suggest adjustments and/or changes in the program; (3) Resolve conflicts; (4) Educate program workers;

and (5) Provide the basis for ongoing future evaluations. A "good evaluation" results in changes in mentality and interpersonal relationships.

Most private rural health programs in Guatemala began with the arrival of persons with good will and/or a Christian motivation to serve. They encountered serious health problems in the population and began providing medical and preventive services. Few studied the community in a scientific way to determine its needs and resources or to establish baseline data. Objectives and goals of the programs were not clearly defined. In such a situation, evaluation was viewed as a difficult, often threatening task.

Evaluation often takes place only upon the termination of a funding-phase or during a serious crisis situation. Mechanisms should exist for the periodic or ongoing discharge of conflicts. Evaluation may serve that purpose by relieving the accumulation of internal conflicts. Problems may be presented in such a way that, through the participation of the entire program personnel, they may be recognized and resolved.

Procedures that evaluate the middle-level and village workers, and not the management and directors, are viewed as unfair, manipulative and even paternalistic. All aspects of the program, including the opinion of community members, should be included. An evaluation that allows participation based on the equality of the participants, with dialogue and a spirit of camaraderie, is more likely to be a pleasant, positive learning experience.

Criteria for an Educational Evaluation

For evaluation to serve as an educational tool, certain necessary criteria were identified by the panelists:

1. The evaluation ought to be organized systematically with written notes and conclusions.
2. It should be dynamic and uncomplicated.
3. The evaluation ought to be participatory and democratic. There should be equality in the weight of the voices of the most and least powerful individuals within the organization, and the community being served should be included in the evaluation process.
4. The evaluation should create a critical awareness in the group, resulting in a new stage in group consciousness.
5. It should be objective, based in the reality, and take into account the established objectives of the program.
6. The results of the evaluation should be available to, shared with and commented and acted upon by the personnel at all levels.

Evaluation is central to the activities of any program and basic to its functioning. Rural programs often fall into a pattern of activism, measuring only quantifiable results, such as the number of patients seen or the amount of medicine dispatched. It is imperative to reflect upon where the program is and where it is going: Is it really making a difference in the living standards and the quality of life of the community? That is the real educational value of the evaluation.

Obstacles and Difficulties in Achieving an Educational Evaluation

The panelists discussed certain obstacles to evaluation that they considered to be typical of the Guatemalan situation. The difficulty in developing a critical awareness or consciousness is related to the fear of hearing criticisms. Often the individual or the group becomes defensive and resentful. Participants do not want to see their errors and/or failures presented in front of others. Therefore, the primary obstacles to evaluation were identified as making unclear observations and confronting problems indirectly.

Another obstacle is the lack of any obligation on the part of the medical profession (therefore most medical programs) to evaluate their own work. Because the objectives of some programs have never been clearly defined nor established, there is no basis for evaluation. Also, many workers have not defined their own purposes.

Other difficulties identified in the Guatemalan rural health programs included the lack of experience in doing evaluations, and the lack of commitment, time and resources to conduct them. It was suggested that efforts be made to share experiences among those who have experience in doing evaluations and those interested in beginning the process.

Conclusion

In rural Guatemala, community-based health service personnel are beginning to understand the value of and need for permanent systems of evaluation. More programs will accept evaluation methodologies when evaluation is viewed as a participative and democratic process. The program personnel will support evaluation to the extent they believe it to be a dynamic process detecting problems and suggesting alternative solutions. The task now before the Guatemalan Association of Community Health Services is to continue promoting evaluation as an educational process among community-based health programs, with the overall objective of improving the quality of health services and subsequently the lives of the peoples in rural Guatemala.

**CHILCHINBETO: COMMUNITY INVOLVEMENT IN A
RURAL NAVAJO HEALTH PROGRAM**

Michael W. McCandless

Workshop Speaker for
Program Managers and Consultants

Introduction

For the past year Project Concern International (PCI) has been operating a rural satellite health clinic in Chilchimbeto, Arizona, a community of 1000-1500 in one of the more remote areas of the Navajo Nation. It represents an attempt to create a relatively low cost health program incorporating primary care, health education, and development of a local governing board, with the goal of achieving complete local administrative control and as much financial self-sufficiency as possible within a five year plan. If successful, and if replicated successfully in other reservation communities, this model may dramatically influence the organization of primary health care programs in the Navajo Nation.

The Model

PCI's model for its U.S. rural health programs consists of the following elements:

1. Primary care provided by a physician's assistant or nurse practitioner;
2. Health education, including the training of community service promoters (CSPs), local residents - hopefully opinion leaders - who receive training in basic health care techniques and who will be expected to serve as sources of accurate lay medical knowledge in their community;
3. Development and training of a local governing body for the health program;
4. Achievement of local administrative and financial self-sufficiency, phasing out PCI's involvement within five years; and
5. Replication in other communities.

The Clinical Program

The success of the clinical program has exceeded the expectations of PCI and the Indian Health Service (IHS). The number of ambulatory patients treated at the Chilchimbeto Clinic from June 1979, through March 1980, tripled the number treated by IHS staff during the same period of the previous year. Over this ten month period the number of ambulatory patients averaged 18.4 per clinic day. This represents a 40.5 percent increase in patients treated per day at the clinic.

While data is not yet available from IHS for the period of Project Concern's operation of the Chilchimbeto Clinic, experience indicates that health care utilization patterns for Chilchimbeto residents have shifted considerably. For Fiscal Year 1977, Chilchimbeto residents received 29 percent of their ambulatory care at the Chilchimbeto Clinic and 64 percent at the Kayenta Health Center. 1/

Reports by the physician preceptor indicate that quality of care given by the nurse practitioner is high. Error rate in completing IHS Ambulatory Patient Care sheets has been consistently lower than at the Kayenta Health Center. The number of no-shows (patients who sign in but are not seen by a provider) is miniscule, 0.1 percent, considerably better than at any other facility in the Kayenta Service Unit. This reflects the short waiting time at the clinic. Although no systematic studies of waiting time have been completed, patients rarely wait more than one-half hour to see the nurse practitioner. Based on a number of unsolicited reports by community members, reduced waiting time is a primary reason many people come to the local clinic, rather than going to Kayenta. Obviously, the price of gasoline is another. In addition, no well-grounded complaints have been heard about the quality of treatment or the manner of the nurse practitioner or the community health nurse.

The number of after-hours patients has been a problem. The nurse practitioner lives next to the clinic, so it is all too easy for patients to knock on her door. For most of the year about 10 percent of the patients have been seen outside of regular hours. The nurse practitioner has had a hard time refusing to treat non-emergency cases evenings and weekends. Recently, however, the rate has doubled. The Board of Directors has been consulted, the issue was discussed at a recent Chapter meeting and the nurse practitioner has begun educating patients to come during regular clinic hours.

Health Education

The health education component has been slow to get off the ground. Initial experience organizing a series of health education sessions for the Summer Youth Employment Program indicated that a traditional didactic instructional approach possessed limited usefulness. Not hiring an administrator trainee, who also would have served as an interpreter for the health educator, was one major factor which has contributed to delay in implementation of the health education plan. It is hoped that this plan will be implemented in the near future. Its main focus centers on involvement in patient regimens of at least one member of the extended family in order to improve compliance and the participation of at least one member of each camp willing to participate in CSP training. (A camp is an isolated cluster of dwellings occupied by members of an extended family. Navajo is an extremely decentralized society, with few large towns or villages.)

Although the Board of Directors has not yet adopted the health education plan, members have expressed support for development of a community first-aid training program. Hopefully, first-aid can be used as the base for introducing much of the content of a CSP program whether or not the participants are ever designated CSPs.

Board Development

Board development and progress toward local administrative self-sufficiency is viewed as a five-year process. In this perspective the Board of Directors is developing on schedule. PCI's expectations were that in the first year the Board would form, meet fairly regularly and establish the organizational framework for future development. That has happened. The Chapter selected members for the Board, with the understanding that the Board would be the governing body for the program. Initially, seven community residents served on the Board; recently membership has been expanded to nine. The administrator serves as a technical advisor to the Board but is not a voting member. The Board presently serves without

compensation (a rarity on the reservation) and has been meeting regularly since June, 1979, often twice a month. Bylaws have been adopted and a committee has prepared Articles of Incorporation for consideration by the full Board. Plans have been made for a series of formal Board training sessions and the Tribe's Division of Health Improvement Services has agreed to fund them.

Costs and Income

Program costs have been divided into three main components: clinical operations; community health nursing/health education; and general administration/board development. A systematic effort was made to account for hidden costs, since a number of services are provided to the program, but are not included in the budget. However, no attempt has been made to calculate direct or opportunity costs to patients.

For the ten-month period under consideration, total program expenses were \$84,297. On a yearly basis this extrapolates to \$101,156. Besides budgeted items this includes estimates of costs for maintenance, laboratory services, medical backup and a physician preceptor from IHS, labor donated by the Chapter, a nurse's aid provided by a local Comprehensive Education Training Act (CETA) program and a part-time janitor supplied by the Tribal Assistance Projects Program. Clinical operations account for 51 percent of the total expense. Total non-PCI income for the ten months (including hidden income) was \$28,144. Of this amount over \$23,000 came from IHS. Based on total clinical costs of \$43,091 and 3895 total patients visits, cost per visit was \$11.06.

Conclusion

Project Concern International attempts to establish programs that can be sustained by revenue generated locally, reducing or eliminating dependence on outside funding sources as much as possible. The Indian Health Service's legal obligation to provide free health care to Native Americans stands, ironically, as a major obstacle to the goal of financial self-sufficiency for a community like Chilchinbeto. Other barriers include severely limited opportunities for third-party reimbursement, relatively accessible sources of other non-fee medical care and a depressed local economy based largely on stock raising. In spite of these difficulties, local leaders have begun discussing possibilities for raising funds from local resources.

To date the community has exhibited resourcefulness and perseverance in attracting suitable medical care, and its support of the present program has been crucial to its success so far. With continued effort, imagination and unity of purpose, the Board stands an excellent chance of achieving administrative self-sufficiency and a measure of financial independence remarkable for community-controlled health programs in the Navajo Nation.

NOTES

1/ Navajo Area Indian Health Service, Navajo Area Patient Distribution Report Fiscal Year 1977, (May 1979).

**PRIMARY HEALTH CARE PROGRAM IN PANAMA:
AN EVALUATION**

Jorge E. Montalvan

Workshop Speaker for
Policy and Decision Makers

Introduction

This paper presents an evaluation of the performance of 36 health assistants working in rural Panama, conducted four years after the start of the Primary Health Care (PHC) program.

The Panamanian PHC program is integrated by three "elements": the National Health System (NHS), the rural communities and trained health assistants. Because these elements are in constant interaction, the program outcome is considered a result of actual health assistant actions performed within that context. This evaluation work had to focus on the pattern of that interaction for results to provide good feedback for decision-making at the NHS. The evaluation process, which must be permanent, includes the examination of input, output, outcome and impact phases. Both NHS and the rural communities take active parts, even at the input phase.

The research offer made by NHS to rural communities was based upon certain needs identified in accordance with Western health conceptions and, in a more subtle way, with dominant norms and values of society at large. In our PHC program, NHS input participation included the training of new health assistants. Naturally, communities' choices actually reflect the local acceptance of the dominant general culture and medical conceptions. The health assistants are directly from the rural community, thus their training included the personal health behavior and the clear perception of their role within NHS.

The objectives of the evaluation were (1) to describe the initial impact of the PHC program, and (2) to establish a baseline for future studies. The research includes: (1) description of the processes of establishing a new health assistant at his/her post (decision-making, personnel selection and training) related to initial theoretical formulations and acknowledged needs of PHC program; description of the new health assistant profile; description of the established and expected administrative support; (2) survey conducted on the 32.9 percent of households of all the rural communities involved in the program; (3) survey of the interviews of every health assistant working at the time of the research; (4) survey of the 32.6 percent of local personnel whose functions include any relation with a health assistant; and (5) inventory of health post supplies. In this paper, only data obtained from the rural communities survey is presented.

The survey instrument was a pre-coded questionnaire translated to local Indian language -- Guaymí -- and applied by trained indigenous people when necessary. It included variables related to: (1) community data; (2) personnel data of family members; (3) family mortality in the previous year; (4) family morbidity in the previous two weeks; (5) maternal-child care; (6) community organizations and head of household participation; (7) head of household knowledge and participation in health assistant activities; (8) satisfaction with health assistant behavior; (9) economic activities of the family and possession of household items; (10) housing conditions; and (11) contact with mass media. All the respondents were the heads of households or their spouses.

Perception of the Health Assistant

Villagers were asked about activities carried out in their communities by the health assistants. Spontaneous mentions were registered and then a list of tasks assigned to the health assistants was read to check if in the respondent's opinion they were actually performed. They were also invited to mention the health assistant's three most important activities.

People's perception of activities actually carried out was confirmed by health assistants' records and in general were in accord with the expectations of NHS authorities. Nevertheless, preventive tasks were not given importance by the majority of the villagers. The non-Indian group assigned relatively overwhelming importance to curative actions and gave little attention to sanitation and organization. On the contrary, Indians tended to overemphasize organization. As will be shown later, people living in poorer districts tended to declare less morbidity and were perhaps prone to give less importance to curative facilities. The paradox of hamlets with little health education and organization simultaneously assigning relatively more importance to sanitation and organization calls for further research.

Health assistant medical attention was sought by 53.2 percent of the families, and 82 percent of the population used their prescriptions. Respondents declared them "always effective" in 54 percent of the cases and "sometimes effective" in 41 percent. Only 5 percent considered them "ineffectual."

When asked, people showed very strong opinions about desirable personal characteristics in the health assistant: less than 5 percent gave no opinion about preferred age or sex. Opinions tended to coincide with their actual characteristics, except for marital status: people preferred them to be married.

Data about perception of the health assistants' medical knowledge was derived showing that knowledge was appreciated. In addition a Chi-square test found a significant association between literacy and knowledge-appreciation variables.

Selective Utilization of the Health Assistant

Villagers' preferences among health assistant services showed consistency with the importance they assigned to different areas of activities: curative services were more utilised; sanitation activities received good participation; but preventive actions obtained an attention well below NHS standards.

Participation in Health Committees

Participation in formal health organizations is of course indicative of the acceptance of NHS programs. Only 41 percent of respondents knew of the existence of a local health committee (48 percent of these considered themselves members). Of these health committee members, only 32 percent had attended a meeting in the previous month and only 26.2 percent had participated in some health committee activity in the previous three months.

Based upon data comparing villagers' knowledge of all local organizations, there is reason to believe that villagers have moderate knowledge of health assistant activities.

Conclusion

There is reason to believe that rural NHS activities of the health assistants are reasonably well accepted by villagers.

**IV. COST/BENEFIT CONCEPTS AND THEIR
APPLICATION TO MEASURING HEALTH
PROGRAMS IN DEVELOPING COUNTRIES**

Cost/benefit and cost/effectiveness analysis, incomplete and subjective as they may be, offer an understandable analytic framework for making allocation decisions.

Roy I. Miller

In general, benefit-cost analysis applications should be limited to use in situations where the real conditions correspond to the theoretical assumptions made by the benefit-cost framework. These conditions rarely are satisfied, and certainly do not lend themselves to use in support of national resource allocation policy determination.

Alan W. Fairbank

**A HEALTH DEVELOPMENT MODEL
APPLICATION TO RURAL JAVA**

Anne Dievler*

Panel Speaker

When the governments of developing countries (as well as agencies which aid development) decide on policies and allocations of resources in the health sector, they have little assistance from quantitative information relating costs and effectiveness of health programs. Even in developed countries, data about the effects on health of alternative courses of action are controversial at best. In developing countries, reporting of morbidity and mortality is incomplete, uncertain and frequently biased because report collection has been primarily from urban areas and hospitals, with limited meaning for the health of the whole population. Information on the costs of health services in developing countries is fragmented and often ignored altogether. A research group at The University of Michigan has developed a model which takes what is known about the health sector (e.g., indicators of health status, types of service utilization, effectiveness of these services, per capita costs and foreseeable resource allocations) and places these quantities into a systematic framework as a tool for planning. This paper describes the development and application of this health resource allocation model to Java, Indonesia.

Java, the most densely populated island in the world, has a population of approximately 80 million people. As the Indonesian government further develops its rural health care system, questions have arisen around alternative health care policies. Current policy provides a health center for each administrative unit averaging about 50,000 persons, and questions about the effectiveness and coverage of this standard have been raised. Little knowledge exists about the cost of operating other types of health care services and the effects of such program options. In response to these questions, the Center for Health Services Research and Development (Surabaya, Indonesia) began a collaborative analysis with researchers at The University of Michigan to test the usefulness of the health resource allocation model as an aid in health policy formulation in Java.

The first phase of the health resource allocation model activity was to develop a disease profile of the population. This disease profile includes a description of the age and sex distribution of the population and information about the most prevalent diseases in the population. In Indonesia, 31 diseases were identified as being the most important health problems among the population. During an interactive exchange between University of Michigan researchers and Indonesian officials, information about the population structure and incidence of disease was derived.^{1/2/3/}

First an age-specific attack rate was specified for each disease. Next, the proportion of the sick population (by age and sex) who utilize the services was determined. Death and disability rates for each disease were specified separately for those who utilize health services and those who do not.

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Estimates for these variables were derived by an interdisciplinary team through expert judgment and literature review.^{4/5/6/7/8/} As a further check, the estimated age-specific attack rates were reviewed by the United States Center for Disease Control. Later the aggregate computed outputs from the estimates were checked against published control totals such as Crude Death Rate, Infant Mortality and reported health center utilization for verification and necessary revisions.

Once the overall estimated disease profile was established, a matrix of alternative programs of prevention and medical care organization was specified. The policy alternatives under consideration were combinations of nutrition, sanitation and immunization programs, and health centers, subhealth centers, and village health workers of varied numbers per population unit of 50,000 (e.g., 25 and 200 village health workers). Requirements for the delivery of these programs and services were specified in full detail. Measures of effectiveness (levels of incidence, utilization, and case fatality and disability rates) and cost were developed for each of these program alternatives.

The effectiveness of program alternatives was based on both previous experience in Indonesia and more generalized epidemiologic data. For example, the nutrition program was assumed to be effective in lowering the incidence of mild diarrhea and severe diarrhea, as well as lowering the case fatality rate for measles.^{9/10/11/12/} The direct and indirect effect of sanitation and immunization programs on certain diseases was specified in a similar manner.^{13/14/15/}

The utilization of medical care services is expected to increase with ease of access to a source of trained personnel. Therefore for each type of medical care organization specified, levels of utilization and effectiveness were estimated. ^{16/17/18/} As the number of contact points are increased (e.g., by adding more village health workers), the utilization rates would be expected to rise. The effectiveness of treatment, however, would not be expected to rise in direct proportion to the number of contact points due to differences in level of training and effects of the procedures delivered.

The costs for each type of program were determined on the basis of staffing, rate of utilization, equipment, supplies and training needed for the establishment and operation of facilities. These costs were determined for a five-year period. ^{19/-26/}

A computer program was used to examine combinations of programs both in terms of the effectiveness levels of programs and particular costs. Program alternatives were compared at seven levels of expenditure per capita, per year (\$5, \$7.50, \$10, \$15, \$20, \$30), in terms of morbidity and mortality.

At each specified budget level, resources were allocated to the program alternatives with the amounts of the programs influenced by their costs. Since a health center in each administrative unit of about 50,000 people is an established part of rural medical care organization in Indonesia, it was assumed that first call on the budget would maintain these centers. The remaining financial resources would be used to install and operate program alternatives in addition to the health center. How many administrative/population units received the proposed alternatives was determined by the cost of the alternatives.

Thus the effect on health status of a particular alternative is related to the effect of the alternative on disability or death, the available

budget and the cost of the program alternative. This relationship of costs and effectiveness provides the basis for comparison of program alternatives.

When the preferred program combinations were compared with Crude Death Rate as the criteria, some important findings emerged. First, given the existing system of one health center for each 50,000 population, the use of village health workers without subhealth centers produces the lowest mortality levels at almost every level of expenditure. At the budget levels of \$5, \$10, \$20 per capita, the 25 village health worker alternative was preferable, while at higher levels, \$15 and \$30 per capita, the 200 village health worker organization was preferred. The exception to this is at \$7.50 per capita when subhealth centers were preferred, and at \$25 when both subhealth centers with village health workers and village health workers alone were tried.

A second finding was that among the promotional or preventive programs, immunization was always preferred when Crude Death Rate was the criteria. Nutrition was next preferred as an additional program when budget permits. Sanitation was added only at the highest budget levels.

A third finding was that almost every budget level had a different combination of medical care organization and promotional programs yielding the lowest mortality. The exception was that the same combination of 25 village health workers and nutrition appears at the budget level of \$20 per capita and \$25 per capita.

The ranking of programs varied by level of budget as additional expenditure permits increases in either the number of village health workers per unit of population or coverage by promotional programs each of which lowers computed mortality. Under tight budgetary constraints, there are insufficient resources to cover the whole population with expensive programs.

Should additional resources become available, either a more effective health program could be implemented with additional resources, or additional resources could be allocated outside the health sector. Ideally the effect of spending this "excess budget" on education and transportation should be calculated in order to measure the opportunity cost of selecting a health program which uses all the funds. This model and the present information do not permit such calculation. However, the increments in health status associated with increments in expenditures in the health sector are shown. Whether these expenditures are worthwhile depends on the valuation of the health results relative to other national objectives.

In the final phase of the model activity, sensitivity analyses were conducted to identify the important areas of uncertainty in the model, determine the implication of these results and from these suggest research priorities for future collaboration on the model in developing countries. In the analysis, the values of selected variables estimated in the model are altered to determine to which variables the ranking of program alternatives was most sensitive. Examined were the inputs used to describe and quantify the effects and costs of program alternatives, and the outputs used as criteria to determine preferences among rural health program alternatives.

For the sensitivity analysis of the outputs used as criteria, Crude Death Rate, Infant Mortality and days of illness were used and the relative ranking of programs under each criterion were compared. The most significant change was seen in the type of preventive program preferred. Under the criterion of Crude Death Rate, immunization was the preferred program. When Infant Mortality was the criterion, nutrition was preferred, and with days of illness as the criterion, sanitation was the most

cost-effective. The sensitivity of the rankings to the criteria indicates the importance of criteria selection for decision-making in the health sector.

In addition, the "preferredness" of programs under multiple criteria were compared. Given the two criteria of days of illness and mortality, the choice of the most cost-effective program depends upon the valuation given to each criterion. The health planner can systematically narrow the number of alternatives that policy makers have to compare, by identifying the "undominated" alternatives. Undominated alternatives are superior to all other alternatives in at least one outcome attribute (mortality or disability). Dominated alternatives are those which are inferior to some other alternative in both days of illness and Crude Death Rate. Undominated alternatives are "efficient" because it is impossible to find a different program alternative that improves, for instance, the level of days of illness without increasing the Crude Death Rate or vice versa.

The sensitivity analysis tested the inputs that led to the preference of immunization to nutrition and the preference for village health workers, using Crude Death Rate as the criterion. Then the inputs that led to the ranking of programs under the criterion of days of illness were tested. In general, the sensitivity analyses indicated that the results were robust with respect to uncertainties or variations in underlying epidemiological data, and utilization estimates. Variations of these values produced little or no changes in the rankings. The rankings were most sensitive to changes in the relative cost, effectiveness, and case fatality rates for diseases which are the major cause of death in Indonesia.

The calculations and the sensitivity analyses which were performed with the model indicated the signal role that the values of policymakers play in determining preferred methods of delivering medical care and selecting promotional or preventive activities. The criteria used for judging programs and policies make substantial difference in selecting preferred alternatives. When the criteria have multiple attributes such as mortality and disability, analysis reduces the number of alternatives among which to choose, and makes estimates of the outcomes. Beyond this, policymakers must use their own judgement, albeit informed by the results of the analytic calculations.

Preferred programs and policies change, depending upon the level of budget allocated to health. While health sector budget levels are in part determined by the resources available to society, they are also a function of the values assigned to health relative to other sectors of society. There is no uniquely technical or analytical answer to optimal or preferred policies. Analysis aided by a model estimates effects of policies. The valuation of these effects is determined by decision-makers.

The results of the sensitivity analysis suggests that serious attention should be given to the area of cost analysis: developing cost-estimating relationships, and designing systems and procedures for reporting and estimating costs for each of the health program specifications being considered. At the same time there is a need for a more intensive research in the area of effectiveness of programs.

The application of the health resource allocation model to rural Java is an illustration of the use of a quantitative approach for planning, decision-making and establishing research priorities in the health sector. Since the time of this research effort, a time-phasing capability is being incorporated into the model, with a projection of population and resources. Future research efforts include examining constraints other than the budget, health behavior, referral patterns among institutions and the implications of self-care and traditional medicine.

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A BENEFIT-COST ANALYSIS OF MEASLES VACCINATION IN YAOUNDE, CAMEROON

William M. Makinen

Panel Speaker

Introduction

Benefit-cost analysis is routinely used by both rich and poor countries when deciding which industrial and infrastructural projects to undertake. This method of project analysis is seldom, though increasingly, used to evaluate the merits of health programs. This paper discusses some of the issues involved in applying the benefit-cost framework to health programs and suggests a method for handling them.^{1/} The methodology is used to analyze the performance of the measles vaccination campaign carried out in Yaounde, Cameroon in 1971-76 and to show how its results could be used to plan future campaigns. Throughout, the difficulties and weaknesses of the benefit-cost approach are noted.

Background to Measles in Yaounde

Before laying out the benefit-cost structure, a brief background to the study is in order. Yaounde is the capital and second-largest city (1976 population about 250,000) in Cameroon, Central Africa. Its economy is dominated by the government and service sectors. Per capita income was about 76,000 Central African Francs (CFA)^{2/} (US\$ 304) in 1976. Unemployment is high; it was about 26.5 percent in 1969^{3/} and is probably at a similar level now.

Measles is a serious illness in Yaounde. Virtually all children not made immune by vaccination contract measles by age four years.^{4/} The relatively young age of onset, malnourishment, and other factors make measles in Yaounde a high mortality illness.^{5/} Although no data are available for Yaounde, its measles case-fatality rate is probably on the order of the 5 to 10 percent found in other urban African sites.^{6/}

Benefits and Costs of Vaccination

The incidence of measles in Yaounde results in four types of costs: formal medical care costs (hospital stays and clinic visits), household care costs (time foregone in households to give care to measles victims), future productivity losses (the lost future earnings of children who die from measles), and suffering and grief costs (the pure utility losses associated with illness and death). These costs are the benefits to measles avoidance.

The costs of giving vaccinations also fall into four categories: direct fixed costs (mainly administration), direct variable costs (vaccines, personnel, and variable transport and materials), indirect costs (time foregone by parents bringing children to vaccination sites as well as their transportation costs), and pure utility costs (the disutility of being vaccinated). No cost is charged for the population growth consequences of measles avoidance, since it is a policy of Cameroon to not interfere with population growth.

The benefits to avoided measles and the costs of giving vaccinations are linked by an epidemiological model which shows how many avoided cases of measles result from each additional immunization produced through vaccination.

Estimation of Benefits

The benefits estimated are the costs avoided by avoiding measles. Each of the four costs of measles indicated above is estimated, with the exception of the pure utility loss.

Formal medical care costs per measles case are estimated from data on the type, cost, and duration of care. Two types of formal care are given to measles victims: hospitalization of severe cases and ambulatory clinic visits for less-serious cases. The hospitalization rate is estimated to be 5 percent of all cases,⁷ the average length of hospitalization 7.5 days,⁸ and the total cost of a day of hospitalization (including actual cost paid by patients and a government subsidy) 2,000 CFA.⁹ An adjustment is made to the nominal cost of hospitalization to reflect the true scarcity of the foreign exchange ¹⁰ used by hospitalization; this adjustment brings the real cost per day to 2,062.5 CFA. The average real cost of hospitalization per case is 773 CFA (US\$ 3.09).

A similar estimate is made for the cost of clinic visits. An average of one clinic visit is made for each less-severe case;¹¹ the nominal cost of a clinic visit is 900 CFA;¹² and the real cost, adjusted for foreign-exchange use, is 922.5 CFA (US\$ 3.69). The total formal medical care cost per case is 1,696 CFA (US\$ 6.78).

Household care costs are based on an expected extra 18 to 34 ¹³ hours of mothers' time spent caring for children with measles. Estimates of the marginal value of mothers' time are made from census¹⁴ and social survey ¹⁵ data on women's workforce activity status by age and estimates of the earnings¹⁶ of women in the various sectors of activity. The wage paid domestic servants, 8,495 CFA per month,¹⁷ is used to approximate the earnings of women in the non-formal sector and those engaged in own-household services. Women engaged in formal sector work were assumed to earn average formal sector wages, 24,172 CFA per month. Women in either traditional sector or own-household services represented 68.6 percent of the total, those in the formal sector, 7.7 percent, and those unemployed or not seeking work, 23.7 percent. Average monthly earnings of women of the age of motherhood (15 to 44 years) is calculated as 8,398 CFA. Since mothers are less likely than non-mothers to hold formal-sector jobs, this figure calculated for all women is likely an overstatement of mothers' earnings. In the absence of data on the extent of this overstatement, an arbitrary 25 percent reduction in the wage is made. The monthly earnings of Yaounde mothers is 6,298 CFA (US\$ 25.19). The 18 to 34 hours of household care costs of a case of measles is evaluated at 595 to 1,122 CFA (US\$2.38 - 4.49).

The future productivity cost of measles is the present value of future earnings of children killed by measles. To estimate the present value of future earnings the following data are necessary: current earnings, expected growth in productivity, labor force participation rates by age, survival rates, employment rates, and the social rate of discount. These data are used to calculate the productivity benefit of avoiding a measles death in a given year for a child of a given age.

This study will use the lowest estimated benefit per avoided measles case, 11,617 CFA (US\$ 46.47), in all future calculations. Thus, the results should indicate the minimum benefits attainable through vaccination.

Costs of Vaccination

Estimation of the costs of vaccination^{18/} is easier than estimating benefits. Direct fixed and variable costs of vaccination are estimated from a past vaccination campaign.^{19/} Foreign exchange spending is adjusted for its undervaluation as before. A similar but downward adjustment is made for the cost of unskilled labor used in giving vaccinations, as it must be paid a minimum wage which overstates its scarcity value. The results of these calculations and adjustments: real annual fixed costs of a vaccination campaign are 697,400 CFA (US\$ 2,790) and the real variable cost per vaccination given is 60.1 CFA (US\$ 0.24).

The indirect costs of vaccination are the costs of transporting children to vaccination sites and the time foregone by mothers in accompanying them. Transport costs are one-half round-trip bus fare (25 CFA), since only some vaccinees travel by bus. The value of mother's time foregone is estimated as before, and the amount of time spent per child comes from a study of "wait time."^{20/} This is approximately two hours, making the time-foregone cost 91 CFA and the total variable cost of vaccination 151.1 CFA (US\$ 0.604).

The costs of vaccination and the benefits from avoiding measles have been presented. However, there is a link that must be made between giving vaccinations and preventing measles. Since nearly all unvaccinated children in Yaounde get measles, each effective vaccination prevents at least one case of measles. In addition, each child made immune through vaccination reduces the number of infectious children in the population, hence reduces the chances of susceptible children contracting the illness. This external benefit to vaccinations may be captured by an appropriately specified epidemiological model.

A modified Reed-Frost model of measles-spread with the following case generating equation is used:

$$C_t = S_t \cdot \left[1 - \left(1 - \frac{a_t}{P_t} \right)^{C_{t-1}} \right]$$

where C_t is the number of measles cases occurring in month t ; S_t is the number of susceptibles; a_t is the average number of effective contacts between individuals; and P_t is the total population size. Effective vaccination's impact on monthly case incidence is modelled by subtracting susceptibles.

Base-line population data from census records, estimates of susceptibility from serological surveys,^{22/} records of reported cases, and estimates of vaccination effectiveness are used to find the parameters of the model. An annual pattern of effective contacts was found, with a peak in December and a trough in September.

Benefit-Cost Estimates

This epidemiological model is used to simulate the incidence of measles that would have occurred without vaccinations over the years 1971-1976. Without-vaccination incidence is compared with actual incidence; the difference in cases multiplied by the benefit per case avoided is the benefit attributable to the vaccination given. The cost of the 68,809 vaccinations actually given is estimated, then compared with the benefits, producing 322 million CFA (US\$ 1.2 million) in net benefits and a 23.3:1 benefit-cost ratio. Clearly measles vaccinations are socially profitable.

The analysis of the actual 1971-76 vaccinations indicated that had more vaccinations been given, even greater net benefits could have been attained. The only limit on producing benefits over costs by vaccinating would seem to be that there be cases to be prevented.

In a given population there may be a level of immunity sufficient to choke off the spread of an infectious disease for lack of susceptibles. This is called the level of "herd immunity." Once this level of immunity is reached there would be no more case avoidance possible by additional vaccination. Hence, the epidemiological model was used to find the herd immunity level for Yaounde. At a sustained level of immunity of 59 percent in the population aged 6-36 months, the incidence of measles would eventually fall to zero. At higher levels, incidence would drop off more rapidly, at lower levels measles would continue to be endemic.

Calculation of net benefits arising from vaccinations given to reach and exceed the herd immunity level, show that benefits in excess of costs may be earned for additional vaccinations until virtually every child is effectively vaccinated.^{25/} These calculations are made using two critical assumptions: (1) vaccination effectiveness could be maintained at 48.5 percent as it had during the actual 1971-76 program and (2) the cost of giving additional vaccinations would remain constant.

There are reasons to believe that effectiveness might decline and the cost might rise as more vaccinations are given in a time period. Effectiveness might fall as the probability of mistakenly vaccinating someone already immune rises and as additional, less-experienced vaccination workers are hired. In addition, to protect all susceptibles it becomes necessary to vaccinate children closer to the age at which they are protected by maternal antibodies;^{24/} vaccination of those who are still protected by the antibodies renders the vaccination useless. The cost of giving vaccinations may rise as the difficulty of finding susceptibles increases. If the quality of vaccination workers is to be maintained, it may be necessary to increase training, pay, or both.

Given rising costs or falling effectiveness of vaccination and the possibility of herd immunity, the rising marginal cost may meet the declining marginal benefits of an effective vaccination short of vaccinating to the level of complete immunity.^{27/} No data are available on rising vaccination costs and only point data are known for vaccination effectiveness. Economically optimal (i.e., net benefit maximizing) levels of vaccination were estimated. The benefit-cost analysis of the actual annual average vaccination program carried out in 1971-76 with an optimal level program was calculated assuming an intermediate rate of decline in vaccination effectiveness. The 82 percent increase in the number of vaccinations given produces a 53 percent decline in measles cases, but any additional vaccinations would cost more than the additional benefit they would produce and net benefit would decline from 83 million CFA.

Sensitivity Tests

The results demonstrate that measles vaccinations were socially profitable for Yaounde in 1971-76 and that they could have been even more profitable if an optimal level of vaccination had been used. These results are produced using the lowest of the measles-avoidance benefit measures; using any of the other estimates of benefits would produce even larger social profits. However, there are some assumptions embodied in even the smallest benefit estimate that might be questioned. Therefore, analysis of the benefits and costs of an optimal vaccination scheme for 1976, assuming a

rapid rate of decline in effectiveness, is done with even more restrictive assumptions about benefits. It is assumed that no gain in future productivity will result from the avoidance of measles deaths, that the marginal value of household time is zero, and that there are negative population consequences of saving lives which cause the expenditure of 12,500 CFA for birth control as the result of each life saved. These assumptions severely reduce the benefits and raise the costs of vaccination, but leave intact the conclusion that vaccinations produce social net benefits.

Conclusion

Benefit-cost analysis may be applied to health programs like measles vaccinations. Measles vaccinations in Yaounde appear to be an overwhelmingly favorable project, no matter what restrictions are placed on benefits. This result suggests that there may be a broad underallocation of funds to health projects, so that wider application of benefit-cost analysis to health programs may result in bigger health budgets, hence better health.

NOTES

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2/ 250 CFA = US\$1.00.

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5/ Average age of onset is less than two years. See Guyer, et. al.

6/ Makinen, "A Social Benefit-Cost Analysis," pp. 80-84.

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9/ Based on estimates made by Gateff and Durand, "Rentabilite Economique," Agboton, "La Vaccination Contre la Rougeole," Mbarga, J.R., "Les Aspects Particuliers de l'Economie Medicale en Republique Unie du Cameroon," Medicine d'Afrique Noire, pp. 904-17, (1974), and Cameroon Government, Direction de la Statistique, Bulletin Mensuel de Statistique, Yaounde, (1973-1976).

10/ This adjustment process or "shadow pricing" is necessary when countries hold the exchange rate for their domestic currency artificially high, thus understating the true value of imports.

11/Gateff and Durand, "Rentabilite Economique," Agboton, "La Vaccination Contre la Rougeole," and Cameroon Government, Bulletin Mensuel de la Statistique.

12/Ibid.

13/The average duration of measles illness is nine days. The lower time estimate is two hours per day of illness; the higher is ten hours for each of two days, then two hours each for the remaining seven days.

14/Cameroon Government, Direction de la Statistique et de la Comptability Nationale, La Population de Yaounde en 1969, Yaounde, (June 1970).

15/Cameroon Government, Direction de la Statistique, Enquete Sur le Niveau de Vie a Yaounde 1964-1965, Paris, (1965).

16/Earnings or the wage are assumed to represent the marginal value of time, whether lost time is taken from leisure or productive activities.

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20/Ibid.

21/An effective vaccination is one which confers immunity to the vaccinee.

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23/Reported cases and vaccination effectiveness data come from unpublished statistics gathered by B. Guyer and D.L. Heymann at OCEAC, Yaounde.

24/Only 33,344 vaccinations were considered effectively given, or 48.5 percent.

25/The highest benefit-cost ratio is reached at vaccinations producing 60 percent immunity among the 6-36 months age group.

26/Usually six to nine months.

27/Where rising marginal costs are equal to declining marginal benefits, net benefits are maximized.

**BENEFIT-COST ANALYSIS IN THE NUTRITION AREA:
A CASE STUDY IN THE PHILIPPINES**

Barry M. Popkin*

Panel Speaker

By studying first the epidemiology and prevalence of vitamin A deficiency, planning and implementing three alternate interventions in Filipino areas, then evaluating the effectiveness of each intervention and conducting a benefit-cost analysis, the stage has been set in the Philippines for a national fortification program to prevent vitamin A deficiency and its aftermath, blindness. This study represents one of the few projects in the nutrition area which have attempted benefit-cost analysis. The goal of this study was to determine which of three interventions should be promoted in the Philippines.^{1/}

Xerophthalmia, the clinical aspect of vitamin A deficiency, affects millions of children and blinds or kills tens of thousands. Xerophthalmia is ranked as one of the four major nutritional problems in the world.^{2/} It has been found to be most prevalent in the rice, white corn and cassava-eating areas of the world where the staple contains no carotene (the precursor of vitamin A) and where children consume few animal products and little in the way of carotene-rich fruits and vegetables.

While all age groups are affected by this deficiency, young children and adolescents appear to have a greater prevalence of xerophthalmia and so become blind or die from factors associated with xerophthalmia. An initial baseline multipurpose survey was conducted to establish the magnitude and determinants of xerophthalmia and design potential programs for eliminating it. The initial survey was conducted in June-July, 1973 on 626 households and 1,715 children. The survey was conducted in four ecological zones representative of different food and labor market and socio-economic conditions. These four zones were: (1) the urban densely populated squatter areas; (2) urban fringe, semi-industrialized barrios; (3) rural coastal, fishing and lowland farming barrios; and (4) rural hinterland barrios, located in upland, hilly areas. In each zone, three barrios were selected and households were selected on a random basis within each of ten segments. ^{3/}

Based on this baseline survey, three alternate preventive programs were designed. These programs were (1) the provision of a mass dosage capsule of 200,000 IU of vitamin A every six months to children ("capsule program"); (2) the fortification of monosodium glutamate with vitamin A ("MSG"); and (3) a public health and horticulture intervention (PHI) which used paraprofessionals plus village volunteers to carry out health and nutrition education, disease prevention (sanitation, immunization) and limited curative work.^{4/5/} Each intervention was monitored in four different areas, one for each ecological zone, for almost two years. Similar examinations were performed before and after the intervention period to determine program effectiveness. No control group was employed for comparison, rather statistical controls were followed. A separate epidemiological survey of blindness among all residents of these twelve areas plus the detailed socio-economic data from the final 1975 survey are used to determine program benefits.

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Benefits and Costs

The model developed considers pecuniary costs and benefits for both individuals (private) and the public (social). Only private monetary benefits are considered. These represent the additional income earned over the lifetime of an individual as a result of completely eliminating xerophthalmia.^{5/}

Social benefits are the sum of all effective expected private benefits and any benefits accruing to society which in this case are the treatment costs no longer needed with the elimination of xerophthalmia. These benefits are calculated for 900 children in each barrio. The age and sex distributions of these 900 children are based on the 1970 Philippine Census distribution of children for the Province of Cebu. Of the 900 children, 167 are males age 1-6, 175 are females age 1-6, 272 are males age 7-16 and 286 are females age 7-16. Each program's effective expected private benefits are the sum of the benefits for each age-sex cohort times the present value of their benefits times the age-sex relevant program's age-sex specific effectiveness parameter.

The direct costs include the purchase of materials such as toilet bowls, medical supplies, and seeds or fertilizer for the home gardening program. The indirect costs include the value of the time devoted to attendance at nutrition and health education meetings, additional time devoted to home gardening, travel and waiting time to see paraprofessionals or physicians. Social costs are the sum of private costs plus all public investments in facilities and the operating and maintenance costs for each program. For the capsule and fortification programs, no private costs were incurred. Research costs, which could be viewed as joint costs with the application costs analyzed here, are excluded.

Cost calculations incorporate economy of scale considerations. These are most relevant with regard to training of personnel for the PHI program, the purchase of supplies for all these programs, and the purchase of equipment for the fortification program.

Also program costs are not evenly spread out over a time span. Some programs incur major costs in five-year intervals when major retraining efforts or equipment purchases are required. Costs will be calculated for a five-year and a fifteen-year program.

In computing the specific costs of each program several assumptions are made. First, the target population of 300 households in each barrio is assumed to have three children per household. Second, the costs are based on the present salary structure and nature of medical technology available in the Philippines. For example, new tuberculosis chemotherapy used in other countries which is more cost-effective, but unused at present in the Philippines, was excluded.

The mass dosage capsule was provided twice each year to each child. The social costs calculated included only the capsule costs and the cost of the delivery system. This is the least expensive program and costs about US \$62 each year for each barrio (300 households). This may represent an under-estimation of the costs of the capsule program as no user time was included. There was a significantly greater probability that children of mothers engaged in market work missed at least one of the capsule deliveries compared to children of mothers engaged only in home production.

To fortify MSG, a mixture of vitamin A was combined with the MSG in a large mixer along with silicic acid, a flow-enhancing agent. The major expense was for the vitamin A. The cost of the mixer, vitamin A, silicic acid and personnel to do the mixing was calculated for peak annual capacity for one machine and prorated to the costs for 300 households. The costs for the first year are \$173 per barrio and decrease slightly to \$168 in the second year. The mixer is purchased in the first year.

The public health intervention required both time or monetary investments to be made by each household. Private costs include the construction of toilet housing, sharing in the establishment of a small pharmacy in each barrio and the time to attend nutrition education classes and implement the new ideas. These private costs were estimated at \$6.12 for the first year and nothing for the second year of the project. The much lower effectiveness of the PHI may reflect the time and money expenditures which households must incur if they are to benefit from the PHI program.

The social costs provided for a physician and auxiliaries to visit each barrio one day per week, a part-time horticulture consultant, tuberculosis and antihelminthic drugs, seeds and cuttings, and various educational and medical supplies. The costs for volunteer assistants in each area were also included. This was essential and was reflected by the much greater difficulty in getting volunteer assistance in the coastal areas where the market value of time for women was much higher. In all cases, the mean market value of time was used for these time costs. The total social costs per barrio were US\$ 2,840 for the first year. Over 65 percent of these costs were private household costs. These social costs dropped to US\$ 947 in year-two when no private costs were incurred.

Benefit-Cost Analysis

Social benefit-cost ratios were calculated for these three programs. The project costs for 15 years are compared with social benefits for an entire age 1-16 year cohort. In other words, it is assumed that the benefits of coverage to a 12-year old for four years plus 11 years of coverage to a child who enters the program during his fifth year of operation and is covered by it for 11 years are equivalent to coverage provided to one child for 15 years. The resulting benefit-cost ratios show that both the capsule and fortification programs produce significant net benefits while the PHI's costs are greater than its benefits.

In many ways, it is inappropriate to compare these three programs. The benefits of the PHI program are different. The MSG fortification and capsule programs will provide benefits only while their programs are operating. In other words, it is possible to consider that the benefits of these two programs are transitory as they would disappear if the interventions were interrupted. On the other hand, the education, sanitation, horticulture and other aspects of the PHI program could produce benefits for a much longer period. Consideration of longer term benefits, even intergenerational ones, could significantly enhance the economic benefits attributed to the PHI program. Of course, the need for consumer involvement may be the reason why the PHI program's effectiveness was so much lower.

Additional health and nutrition benefits accounted for in this analysis accrue to children covered by the PHI program. This analysis has focused on the economic benefits of the prevention of xerophthalmia, but the PHI had other benefits. For instance, hemoglobin levels of PHI children increased while those of MSG and capsule children decreased during the intervention

period. Moreover, the overall current nutritional status of PHI children (measured as percentage weight for height of a weight for height international standard) increased significantly relative to the other areas. Other benefits include the elimination of tuberculosis and the immunization of most of the children. If these additional and longer term PHI benefits are considered, it would be possible that the PHI benefits would outweigh the PHI costs. If not, the key question is whether these intangible health and nutritional benefits are worth the difference between the economic costs and benefits. This difference represents the economic price for the intangible benefits of the PHI program.

Additional research would be needed to quantify these non-xerophthalmia related health and nutritional status benefits of the PHI. It is obvious, however, that a different ordering of project priorities would exist if these were viewed as health rather than as nutritional projects.

The private economic benefits of these programs may be significantly understated. The estimated probability of having xerophthalmia is very conservative and a level of xerophthalmia much higher than that used is possible. In fact, if the level of deficient and low vitamin A in the blood (serum A) were used as the measure of xerophthalmia, 57 percent of the sample children would fall in this category. Also the earnings of children and the value of time of women are significantly underestimated. If a definition of the total economic contribution of women were employed, their income would have increased by about 74.1 percent.^{7/}

The selection of the most feasible program for the Philippines from this pilot project must be done with great caution. Different age-earnings profiles, probabilities of having xerophthalmia, and program costs and effectiveness would be expected for a national program. The program costs of the PHI and capsule distribution would be expected to increase relative to that of the MSG fortification program. Cebu is a densely populated island with an extensive primary and secondary road system which has facilitated the use of person to person delivery systems such as the PHI and capsule programs. Few other areas in the Philippines are as dense as Cebu or have road systems as well developed.

The effectiveness of each program will vary not only when the ecological area changes but as the program is expanded from a pilot project to a national program. To protect itself from some of the problems involved in this transition, the Philippine nutrition program is testing the efficacy of fortification in a three-province pilot project before it decides whether a national program would be appropriate.

Summary

This paper has summarized a benefit-cost analysis comparing three alternate programs for eliminating xerophthalmia, a nutritional problem prevalent throughout much of the world. The private economic benefits for the total population, including those without xerophthalmia, served by each program were calculated. Use of an effectiveness parameter allowed consideration of factors related to the utilization and effectiveness of each of the programs. The only relevant social benefit, the elimination of the government's costs of treating children with xerophthalmia in hospital and outpatient settings, was included among these benefits.

The total effective benefits accruing to children served over a 15-year period in different ecological zones were compared with the costs of each program. Costs included the direct and indirect private costs and the costs to the government. It is noteworthy that the PHI intervention,

the least effective program when benefits related only to the elimination of xerophthalmia are used, had the major direct and indirect private (user) costs.

Based on strict economic criteria and dealing with the limited objective of eliminating xerophthalmia, either the capsule or MSG fortification program should be selected. On the other hand, if the other nutritional and health benefits associated with the PHI program are considered, this program might be strongly considered. The capsule and MSG fortification programs (and this pilot project's research design) were developed with the focused goal of eliminating xerophthalmia, whereas the Philippine Nutrition Program has a broader set of goals. Thus it is not surprising that the village-level nutrition delivery system being developed in the Philippines includes elements of the PHI system. Also, MSG fortification is being tested in a three-province area in the Philippines before being considered for expansion to a national program.

NOTES

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COST/BENEFIT AND THE COMMUNITY
HEALTH WORKER

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A first reaction to the idea of discussing cost/benefit analysis with community health workers is: "What a mistake!" There were several reasons for this reaction. The technique of cost/benefit analysis is really a management and/or planning technique applied before a program reaches the community level. In addition, the notion of quantifying benefit and comparing the value of programs based on the "numbers" divined is terribly difficult and quite unattractive in the health field. (What value is a child's life?)

The concept of cost/benefit and the related concept of cost/effectiveness are relevant at all levels of program planning, management and implementation. Furthermore, the role of the community health worker in management's efforts to do cost/benefit studies should not be small. Thus, community health workers should understand this concept and appreciate their role.

The Concept of Cost/Benefit Analysis

Although the jargon of cost/benefit analysis as articulated by academic types can be confusing, cost/benefit is a truly intuitive and simple notion. An informal form of cost/benefit analysis is applied every time one asks is it worth spending money on any particular purchase or activity? One enumerates the anticipated benefits and expected costs associated with a planned program in an effort to decide whether the program is worth tackling.

The need to perform such analysis in the health sector arises in response to two "truths." First, resources for health care in all countries are limited; therefore, some hard choices must be made with regard to the allocation of those resources. Second, the once basic assumption of health practitioners that "more is better" is coming under serious attack.

"A growing body of evidence calls into question the assumption that the relationship between health status and health care services is a proportional one."^{1/}

This citation comes from an article concerning health care in the United States; however, the developing world offers examples where simply providing more food or building more health posts solves nothing.

Cost/benefit implies the question "Should we tackle a given task?" yet cost/effectiveness suggests the question "How can we maximize effectiveness given costs and how much must we spend to achieve a certain level of effectiveness?" More importantly, cost/effectiveness has been used as a retrospective evaluation technique and not just as a planning technique. It certainly makes sense to compare the effectiveness of two programs relative to their costs in an effort to learn what works best.

To some degree, a cost/benefit analysis assumes that the cost/effectiveness ratios of various alternatives are known. Note, that a

cost/effective analysis can be done without attributing a "value" to an outcome. That is, it makes sense to speak of the dollars per change in mean percent of the Harvard standard in a cost/effectiveness analysis. To go on to cost/benefit, one must attribute a dollar value to that change in the nutritional status of the target population. A very good list of potential cost/effectiveness measures in nutrition evaluation appears in an article by James Austin entitled "The Perilous Journey of Nutrition Evaluation."^{2/}

The fact remains that even cost/effectiveness ratios in the health field are extremely difficult to calculate. Consider the measure: dollars spent per change in mean percent of the "Harvard standard" in pre-school children. The age change of the children -- before to after -- has associated with it a natural change in nutritional status. Most children undergo a period of deterioration with regard to nutritional status after weaning and then a natural recovery. The cost/effectiveness ratio must then be dollars spent per change in mean percent of the "Harvard standard" above that which would be expected in the absence of intervention. No one knows what that expectation should be. (For a good discussion of the problems of applying cost/benefit and cost/effectiveness to food supplementation programs, the reader is referred to an article entitled "Supplementary Feeding Programs for Young Children in Developing Countries," by Beaton and Ghassemi.^{3/})

The Role of Community Health Workers

If cost/benefit and cost/effectiveness ratios are so difficult to compute, why talk about them? Unfortunately, decisions about the allocation of resources must be made. Cost/benefit and cost/effectiveness analyses, incomplete and subjective as they may be, offer an understandable analytic framework for making those allocation decisions. The user must articulate the basis for his/her decisions and place on public display the otherwise implicit value judgement behind those decisions.

The role of the community health worker in these analyses is two-fold. First, the health worker should review the assumptions of the decision-makers with the perspective gained from "hands-on" experience in the field. Too often decision-makers place too much value on numbers and not enough on the knowledge of their staff. Secondly, the data to verify the assumptions of the decision-makers can be generated in only one place -- the project sites. Thus, it must come from the community health worker. One must explore the role of the community health worker in the data system used to assess costs and benefits.

In evaluating community-level nutrition programs, one quickly learns that:

1. The quality of data generated by such programs is typically poor; and
2. The ability of the researcher to interpret the results of statistical analysis is greatly enhanced by interaction with program workers who were on-site during the intervention.

With regard to data quality, poor data is most often encountered when the health worker responsible for the data collection received no feedback on the results and/or was not informed as to the intended use of the data. With regard to interpretation of results, potential competing explanations of observed outcomes emerge and can be verified only by people who had intimate knowledge of the program -- the field workers.

A term for the proper response to these issues is "Rapid Information Feedback System." In brief, such a system is an ongoing data gathering

mechanism put in place ideally at the start of an intervention. Outcome indicators, process indicators and costs are included in the system. The data is analyzed frequently during the intervention -- not retrospectively. Explanations of observed outcomes are formulated with program managers and staff. These explanations are then tested by additional data analyses as the intervention proceeds.

The key actor in such a system is the village health worker -- the person on-site to gather data and provide interpretation based on the everchanging local environment.

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**BENEFIT-COST ANALYSIS FOR HEALTH AND DEVELOPMENT PROGRAMMING:
CONSIDERATIONS FOR PRACTICAL APPLICATION**

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Objective appraisal of alternative health investments has generally been complicated by the lack of a generally recognized analytical methodology for developing decision criteria that do not require subjective judgement by decision-makers. The adaptation of techniques of benefit-cost analysis (BCA) to the health field was once thought to offer great promise in this regard, particularly in developing countries where scarce resources and myriad health problems made the payoff from identification of optimal courses of action theoretically quite high. But the expectations of applying benefit-cost analysis to evaluation of health investments have not been realized, and serious problems and questions persist concerning the useful applications of the methodology in health and development programming. This paper reviews some of the applications attempted to date, notes the nature of the problems with the analytical technique, and suggests alternatives to the traditional benefit-cost approach to program evaluation.

BCA Application in Health and Development Program Appraisal

The most common use of BCA in the health field has been to compare alternative programs for reducing mortality or morbidity from a specific disease. Malaria and tuberculosis are among the specific diseases so analyzed in less developed countries (LDCs).^{1/2/3/4/} Such analyses focus on the economic impact of the disease, using foregone wages of those afflicted as the measure of societal cost of the disease. The program's anticipated benefits in reducing the magnitude of the health problem are then quantified as the value of those wages gained. This approach has its basis in the capital theory^{5/6/} which does not encompass operational measurement of social and economic costs of disease beyond that of foregone earnings of those actually afflicted. While it is conceptually possible to use BCA to analyze a set of alternative implementation methods for a given health service objective, or to compare returns in health and health related investments to those in other sectors, these applications have not been developed as yet in LDCs.

Despite the intuitive appeal of BCA techniques in health and development program appraisal, greater application in practice is hampered by serious theoretical and practical problems. The criticisms of conventional techniques of BCA in health are thoroughly discussed in the literature^{7/-13/} and are summarized here.

Theoretical Limitations

The general framework of BCA assumes maximized economic growth to be the central criterion of all investment (benefits are reduced to money values so they can be maximized relative to costs). Conventional techniques of BCA cannot account for increases in social welfare not quantifiable in money terms nor for advancement toward social goals such as distributional equity.

Dynamic, indirect ("extra-marginal") effects of programs appraised cannot be analyzed through BCA because its techniques are oriented toward

static conditions at the micro level. Cumulative, multiple impacts of health programs in LDCs are particularly important considerations when assessing future costs and benefits of a program, and BCA is not theoretically suited to encompass such analysis. Long-term demographic impacts of health improvements are particularly troublesome for BCA because medium-term costs of increased dependency skew the conceptualization of benefits.^{14/}

Conceptual Difficulties

Inclusiveness: What is a benefit and what is a cost? The definitional problems that arise in attempts to characterize health benefits of particular program interventions increase in complexity the more inclusive an analyst attempts to be in capturing less direct effects, which can often be important. Insuring that costs accounted for are correspondent with identified benefits becomes more difficult the more inclusive the analyst becomes of indirect effects.

Measurement: The common denominator -- money? The necessity to reduce health benefits to money terms presents perhaps the most serious obstacle to the use of BCA simply because most plausible money measurements of health benefits are subject to error. The human capital convention of valuing health benefits as the wage value of increased availability of labor is misleading when applied in countries of high unemployment. Where there is a large pool of surplus labor, as is the situation in many LDCs, the general health status could be unrelated to level of output. Significant money benefits can be expected from reduction of indirect costs of disease, such as labor productivity impairment, wasted caloric consumption by infected persons, and restrictions imposed by health conditions on resource development. The practical problems of attaching money values to these cost/benefits, however, overwhelm the conceptual difficulties in defining the scope of effects to be anticipated from program intervention.

Value: What measures and techniques should be adopted as decision criteria? Two decisions affect the value questions: (1) what is the appropriate rate at which to discount a stream of future benefits and costs to comparable present values? and (2) what is the appropriate ranking measure for establishing priorities among competing programs? The first question essentially involves a judgement of society's intertemporal comparison of utility. In most LDCs, the presence of significant imperfections in the financial markets makes estimation of an appropriate rate next to impossible. The second question is a matter of deciding which conventional measure [benefit-cost ratio (BCR), internal rate of return (IRR), or net present value (NPV)] is most helpful for the purposes of the analysis in conveying an understanding to policymakers of relative value. Although NPV is the most commonly used measure, its interpretation is subject to misinterpretations because of the numerous conceptual problems generated by the internal logic of attaching money measures to health benefits.

Practical Application of BCA: Is It Useful?

The theoretical and conceptual difficulties outlined impose serious constraints on the practical use of BCA in health and development program appraisal. The conventional application of BCA to determine the quantitative dimensions of health benefits and costs is, as a result, not a fruitful tool for addressing policy questions that are clearly and increasingly important: (1) How much should society allocate to health improvements? (2) How much should policymakers allocate among various alternative programs for health improvements within the overall sectoral allocation?

In fact, there is no methodology that can now provide a single, sufficient objective quantified method for determining answers to those two questions. That is not to say that various quantitative techniques cannot be useful in assisting policymakers to make informed judgements in health resource allocation decisions. But quantified indicators (say, from BCA) offer measures too crude to be relied upon for decisions that clearly require inclusion of qualitative judgement. Besides, for most developing countries, the potential benefits of increasing allocations to particular public health measures such as expanded immunizations and sanitation programs are clear enough without sophisticated analytical techniques being needed to justify them.

What then is the practical use of BCA in health and development program appraisal? In general, BCA applications should be limited to use in situations where the real conditions correspond to the theoretical assumptions made by the BCA framework. These conditions rarely are satisfied, and certainly do not lend themselves to use in support of national resource allocation policy determination. Alternatives to BCA ought to be considered.

There are two methods of analysis whose techniques are related to BCA but which do not seek to put money values or benefits: (1) effectiveness analysis and (2) cost-effectiveness analysis. Effectiveness analysis is useful to evaluate expected results of a particular program intervention strategy, for comparison with other strategies, where resources are unlimited or the program has absolute priority. Cost-effectiveness analysis adds cost considerations to a similar approach as adopted by effectiveness analysis and is appropriate for comparison of different programs competing for limited resources or of different strategies aiming to maximize output in terms of the unit of effectiveness chosen, provided that the unit of effectiveness is common to all programs considered. (Commonly used units of effectiveness are averted deaths and averted person-years of prevalence of a particular disease.) 15/16/

The advantages of these two program appraisal techniques (in contrast to BCA) are that (1) the theoretical assumptions that must be made are more realistic and relevant to practical application, and (2) the monetary valuation of "life" and "health" is left to the judgement of the decision maker and does not masquerade as an "objective" indicator of benefit. The directions for future research are as aptly described by Rado:

There seems little hope at present of formulating workable criteria of the "optimal" level of health-care expenditures, having regard to the alternative uses to which resources could be put... (But) there is a practical...scope for testing and improving the efficiency with which resources are used in medicine ...The relevant technique is a close (if poor) relation of cost-benefit analysis, that of costing feasible alternative paths to precisely defined ends. (p. 129) 13/

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**COST-BENEFIT ANALYSIS IN NUTRITION EVALUATION:
HOUSEHOLD TIME -- A COST THAT IS FREQUENTLY OMITTED**

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Workshop Speaker for
Policy and Decision Makers

The impediments to successful evaluation of nutrition programs have been classified into four main categories by Professor Austin of the Harvard Business School.^{1/} The first relates to malnutrition not as a disease to be medically treated, but rather that malnutrition, being a consequence of interactions between biological and socio-economic factors, does not lend itself to narrowly focused technical solutions. The other impediments deal with aspects of costs of evaluations and political and psychological barriers to evaluation. Professor Austin's paper has addressed the Whys, Whens, Hows and Whos necessary to lower the political, psychological and cost barriers to evaluation. This note deals only with the issue of interaction between socio-economic and biological variables and the frequent omission of household resources as costs of achieving nutritional impact. These omitted costs may be a reason for reported low impacts of nutrition programs and should be included in cost-benefit calculations.

Low Impact of Experimental Interventions

Experimental studies suggest that most targeted nutrition programs are not likely to be as effective as expected by their planners. For example, in an experimental maternal-infant health and nutrition program in Bogota, pregnant women receiving a supplement containing 850 calories per day increased their intake by only 133 calories per day per person, thus remaining appreciably below the recommended daily allowance for energy.^{2/} These experimental results and similar findings of lower than expected participation and nutritional impact in the United States' food stamp program^{3/} suggest that before interventions are even considered, more insight is needed on the feeding and nurturing behavior of families. Why do families with malnourished children that receive food transfers increase food intake by such small proportions?

Malnutrition: A Consequence of Choice

Malnutrition appears to be a consequence of rational and efficient behavior. That is, malnutrition is endogenous to the household, a consequence of deliberate acts of choice by family decision-makers. This implies at least two explanations for the observed behavior: (1) either families cannot internalize the gains from the improved nutrition of their members or (2) the costs of achieving nutritional adequacy have been understated. This note focuses on the latter explanation.

To accept that malnutrition is the consequence of choice is not to debase the functions of the family. Rather, this gives explicit recognition to the effective bonds underlying the existence of the family by conceiving these bonds to be embodied in the quest for maximum family welfare. This quest, however, is for multiple ends constrained by limited means. Even the time for loving and caring for children is scarce. This is not to say that food and other economic policies cannot or should not be directed at changing the present status of human nutrition in the world. Rather the concept is invoked as assistance in understanding what other goods, services and activities provide the satisfaction and possibilities for families with

malnourished children, thus to enhance the understanding of the role food and nutrition policies can play vis-a-vis other economic policies in achieving multiple social goals.

Family Decisions and Nutritional Status

Family decisions in regard to a child's nutritional and general well-being begin when a woman chooses a male partner. That choice and the choices to procreate, give birth, nurse, clean, feed, clothe, train and provide health care to a child are all choices that are influenced by economic variables and have economic consequence for the woman, her partner, her children and her community. Material resources and human resources, subject to her allocation, enter into these choices. Of these, her time embodies her abilities to process information and make allocative decisions regarding a choice of mate, number and spacing of children, purchasing in the market, producing in the market, producing in the household and leisure. Until recently, analysis of malnutrition has tended to overlook household members' allocative abilities and their allocation of household time.

Time and abilities enter into knowing what and where to purchase foods or how to produce them. The services of household human capital enter into the preparation and storage of foods. Human capital enters into feeding of infants and children in general. Human capital is used in preventing and diagnosing diseases and in the management of same; including adjustments to the diet that may be accomplished in part of disease treatment. Time is also required in procuring medical services and in maintaining sanitary housing conditions.

Within the context of programs aimed at improving nutritional health, the results of this study suggest the need for further research on the household of economics of child rearing. What market and non-market signals influence the participation in, and adoption of the practices of, maternal and child health programs? What are the full (including time) costs of participation in transfer programs? How is the value of household time to be estimated so that the time costs may be included in the analyses and designs of whatever transfer and intervention programs are to be implemented? Research is needed to elucidate how household behavior may respond to the economic signals embedded in nutrition programs and policies.

Implications for Cost-Benefit Analysis

One obvious implication of the economic theory of household production is that everything a person does is of value to that person and that the time costs of participation should be included in the calculation of program costs. Another more subtle implication leads to serious problems in the calculation of benefits. If all human time allocations are value-producing, then the use of lifetime earnings differentials as a measure of benefits from preventing malnutrition will understate the present value of future benefits.

The basic economic argument for public interventions in improving nutritional health has centered on the human capital argument: through prevention of malnutrition early in life, the stock of human capital can be enhanced to achieve higher aggregate incomes. ^{4/} Continuing research is now directed at estimating the linkages between improved nutrition and enhanced social functioning. However, the results of this research will not permit us to make better estimates of benefits to be derived from nutritional interventions.

The reasons for this assertion rest on the nature of externalities that exist in the markets for health and human capital. The costs of poor nutritional health are not wholly borne by household decision-makers. Even if the only source of benefits is derived from increased lifetime earnings, current decision-makers will not capture the flow of future benefits. Beyond this, the non-market activities of humans can be enhanced by improved nutritional health and it is difficult to conceive of an imputation procedure that would ascribe monetary value to all non-market activities.

While it is possible that tests of "willingness-to-pay" could be designed by appeal to demand-analysis techniques, it appears unlikely that such can be achieved in developing country settings. Accordingly, cost-effectiveness measures will remain the principal tool for choosing among program components. To this end, refinement of dietary and anthropometric standards become crucial to nutrition planning and evaluation.

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**V. EVALUATING MANAGEMENT OF SERVICES
INVOLVED IN DELIVERING HEALTH IN
DEVELOPING COUNTRIES**

The first step involved in designing appropriate procedures to monitor and evaluate performance of management task is to define acceptable standards of performance for each task. Ideally, development of these standards will be included in the training program as a group activity. As trainees participate in the development of performance standards, they will develop an understanding and appreciation of the rationale behind them as well as a commitment to meeting them.

Phyllis Dobyns

To reflect management's capability to conduct a program, four indicators can be selected: (1) reporting, (2) supervision impact, (3) communication within the system and (4) integration of project activities into the government system.

Susan E. Leone

EVALUATING PROJECT MANAGEMENT IN A DEVELOPING COUNTRY:
MILESTONES AND MISTAKES

Susan E. Leone*

Plenary Speaker

Haiti, with a population of over 5 million people, is one of the least developed countries in the Latin American region. Both the Birth Rate, estimated at 35.8/1000, and infant Mortality Rates, ranging from 119 to 147/1000,^{1/} are among the highest in the hemisphere, while the per capita income is one of the lowest.

Widespread malnutrition has been documented in the past. ^{2/3/} Childhood diseases such as measles, gastroenteritis and respiratory infections are the major killers of the malnourished young. In terms of morbidity, a recent nutritional survey in Haiti concluded that approximately 55 percent of the children had been ill in the seven days previous to the study interview, 44 percent experiencing recent diarrhea and 32 percent recent fever.^{4/}

Xerophthalmia is an ocular disease caused by vitamin A deficiency and malnutrition. Its symptoms range from night blindness to xerosis (drying) of the eye, to ultimate deterioration of the cornea into irreversible blindness. Children from birth to six years old are at highest risk -- especially during such critical periods as weaning and illness (when children do not get enough vitamin-A rich foods, or in fighting infection, deplete what limited vitamin A is stored in their livers).

In collaboration with the Government of Haiti, a survey to determine the prevalence and geographical distribution of the disease was carried out in 1974-1975 by Helen Keller International (HKI). It concluded that vitamin A deficiency was the major cause of binocular blindness among Haitian children, and that xerophthalmia was a public health problem as defined by World Health Organization (WHO) standards.^{5/} Consequently, in early 1976, the Département de Santé Publique et Population (DSPP), assisted by HKI, initiated a major program of intervention.

This program consisted of the following components: distribution of high-dosage vitamin A capsules (200,000 IU) through the health system; nutrition education; and the training of health, medical, and nutrition personnel, in the diagnosis, treatment, and prevention of the disease. In addition to an ongoing monitoring system, an extensive evaluation was planned for the end of the third year of the project. The evaluation would investigate both the clinical and nonclinical aspects of the program. This paper will examine that part of the evaluation which addressed project management, presenting the issues involved and procedures taken.

The title of this piece -- "Milestones and Mistakes" -- refers to the reality and the perception of what management might be achieving in such a development project -- especially vis-a-vis the expectations set forth in the initial project design.

Management

The vitamin A program is primarily managed by a four-member Haitian staff, headquartered in Port-au-Prince. The group consists of a project

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coordinator (who is also an M.D. trained in nutrition); an administrator; an auxiliary nutritionist; and a typist. An HKI field representative based in Port-au-Prince has a part-time assignment to serve in a liaison and support capacity.

Technical assistance is provided at regular intervals (three times a year) by an HKI pediatric consultant and the HKI Director of Blindness Prevention, New York. Program delivery is carried out through the existing health infrastructure.

Supervision of the program has been accomplished through a number of mechanisms; on-site visits by the project coordinator to the districts; visits to Port-au-Prince by the consultant and director of HKI Blindness Prevention Department; routine submission of distribution records from the districts to headquarters, reporting on individual center distributions; and monthly reports sent from Port-au-Prince to New York.

Evaluation

To evaluate management is to evaluate how well a program is being conducted. This demands putting an administrative background to the analysis of the program outputs. In this study, four indicators were selected which reflected management's capability to conduct a program. They were examined retrospectively for different time periods from 1976 to 1978.

1. Reporting

Each center of distribution (defined as a center known to be distributing the special vitamin A capsules) was to send in monthly reports to the program headquarters at Port-au-Prince. As concluded from the data examining outputs, over 80 percent of the health establishments in the country were actively participating in the program; the number of capsules reported delivered had doubled annually.^{6/}

By examining the reporting dynamics that produce the data, the degree of success of management in institutionalizing the reporting system can be demonstrated. For example, the reporting data can establish when the program began in the district, and also when its operations were considered routine. A more detailed profile of the reporting within a district indicates specific program operations at the local level, in addition to serving as an indicator of the relative acceptance of program responsibility by the local management.

General Reporting: Reporting was generally considered routine when reports from the districts were received for more than two consecutive months. The gap between the initial report date and the date of routine reporting varied, ranging from the determinant of immediate acceptance of program to twelve months. By January 1978, all districts were reporting routinely.

In-District Reporting: Each district has a number of centers of distribution located throughout its towns and villages. The district monthly report lists each of these centers' activities. To determine the extent of reporting within the respective districts, the reports were individually reviewed for a four-month period -- August-November 1978. This period -- the end of the evaluation period -- was chosen as most reflective of established ongoing operations.

An average of 36 percent of the centers within a district sent in their reports to Port-au-Prince Headquarters in any one month. The rates ranged from 15 to 66 percent.

On further examination, however, the reporting pattern of individual centers was irregular. This was determined by analyzing master sheets recording each center's activity -- to see if they ever reported, consistently reported, or periodically reported. In general the reporting was sporadic, yet constant, for all the centers.

From the analysis of the data on reporting, a number of conclusions can be made:

- a) Length of time before program was considered institutionalized varied considerably between districts;
- b) Reporting rates for districts were, on the average, relatively low;
- c) However rates of district reporting suggested sporadic reporting of centers within the districts, rather than limited program coverage; and
- d) Output indicators alone (i.e., number of capsules distributed) are not sufficient in analyzing program management.

2. Supervision Impact

The project coordinator is responsible for making periodic supervisory trips to the districts. His responsibility is shared by the project administrator and the auxiliary nutritionist. In addition, some of the supervisory functions for the vitamin A program are accomplished while the project coordinator -- who is also assistant director of the Bureau of Nutrition -- is on field assignments for the Bureau.

The measure for determining the extent of influence which the supervision trips have had on the program was derived by determining the correlation between the centers of distribution reporting to the program headquarters in Port-au-Prince, with the number of supervisory visits.

In districts where less than two supervision trips were made, an average of 33 percent of the centers of distribution reported; whereas in districts with two or more supervision trips, the average number of centers reporting was 37 percent. In looking at the median number of percentage of centers reporting (taking into account the considerable variations between districts), the rates were 23 and 45 respectively.

In addition to on-site visits by the project coordinator, special health workers were designated in three of the districts -- Cap Haitien, St. Marc, and Gonaives -- to assist in the collection of records, and reporting to Port-au-Prince. These individuals were paid a salary supplement by the program. The extent of influence of these individuals, since they have been with the program for most of its duration, was difficult to determine.

However, when there was a turnover in the position at Cap Haitien, a dramatic decrease in reports to Port-au-Prince resulted. In the other two districts, on observation of the distribution rate and change in personnel over time, the effect does not seem significant. Thus the reason may be a matter of personality rather than the presence of a paid supervisor. Yet in comparing the rate of centers reporting in these three districts to the rate of districts without a supervisor, a higher percentage of centers reporting is demonstrated in the districts with such a supervisor (42 percent compared to 31 percent).

Two conclusions can be made:

- a) The data demonstrate that supervisory trips are positively correlated with increased percentage of centers sending in reports.
- b) The effect of the presence of a paid supervisor within the districts is unclear.

3. Communication Within the System

One indicator of the effectiveness of the vitamin A program management is the staff's ability to successfully communicate with their field workers, to "get the message out". In March 1978, a new form was developed by the program headquarters staff for use by the individual centers of distribution for reporting to headquarters. The revised form included a separate column for the number of children receiving caps as for the first time ("first dosers").

All reports from the distribution centers to Port-au-Prince headquarters for October and November 1978 were examined to determine: (1) the percentage of centers which had used the new form and (2) the percentage of those using the new form whose staff seemed to understand how to fill it out. The first percentage was a straight count; the second was a judgement made by the evaluator when studying the way the form was actually filled out. The revised form was being used by over 80 percent of the centers within seven months of its conception. However, less than half the forms seemed to be filled out with an adequate understanding of the additional information requested from them.

Two conclusions were reached:

- a) Program management had an effective channel of communication with its field network.
- b) Program management demonstrated limited ability (or inclination) in in-service instruction.

4. Integration of Project Activities into Government System

From the outset, an objective of the program was to integrate its activities into the government health delivery system. This institutionalization was viewed as some insurance of future program viability.

The President of the Republic of Haiti gave legitimacy to the program in an April 7, 1976 address, on the occasion of World Health Day, referring to the program as an example of the Government interest in preventing blindness and malnutrition. Further, the Director General of the Department of Public Health and Population (DSPP) sent out a directive to the health districts in August 1977, sanctioning the program, and indicating the necessity of distributing capsules and submitting reporting forms.

The program itself was designed as an integral part of the existing health infrastructure. Data indicate that over 80 percent of that system's establishments (dispensaries, health centers, hospitals) were participating in the program. By definition then, there was a built-in integration. This integration was further solidified by the fact that the project director was also assistant director of the Government's Bureau of Nutrition within the DSPP. Thus program activities showed promise of becoming institutionalized within the Government's Department of Public Health and Population.

Discussion

Data from the evaluation of project management -- in terms of reporting institutionalization, communications, supervision, and integration -- have been useful in developing recommendations for future program modification. They have given a picture of what seems to be going on behind the output indicators.

For example, a figure of 200,000 capsules is reported as being distributed annually. However, on the average, less than 40 percent of the centers report monthly. Yet since all centers had a history of some sporadic reporting, there is the assumption that program operations continue notwithstanding. So 200,000 capsules may be a considerable underestimate of program outputs.

On the other hand, the output indicator of centers using a revised form showed that over 80 percent had adopted its use. Yet on closer analysis, less than half seemed to know how to use it.

Looking at program management, then, is a way of putting background on a figure. Other factors which intuitively would seem influential, but which were deemed too complex for this analysis were: job satisfaction, technical assistance, personalities and policies.

Job satisfaction: Traditionally, in developed countries, job satisfaction has been measured by such indicators as job turnover and absenteeism. In countries with limited employment possibilities, job turnover (or lack of) would not seem reflective of job satisfaction. In countries where there are often multiple professional demands (i.e., more than one job) or where Western timeliness is not considered mandatory, absenteeism would not necessarily seem to reflect job dissatisfaction.

Technical assistance: The pediatric consultant and the director of HKI's blindness prevention department visited the program approximately three times a year. The impact that such visits had are not known. It would seem they would offer support to, and reinforce program management, offering counsel and direction when indicated.

Personal motivation: In terms of program viability, much is dependent on the motivation of program leadership. We had a strongly motivated leader who demonstrated personal capacity, professional knowledge, and dedication to the job.

Politics: Program management needs to be politically sensitive; this program needs political support. The leadership in Port-au-Prince demonstrated a sensitivity to the politics of the situation.

Finally, with regard to the evaluation, two themes deserve mention in terms of procedure. The first is collaboration. As is widely stated, collaboration with the host country staff in any project evaluation is essential. This needs to be emphasized -- not only in sitting down to review and modify possible forms, but in the actual development of forms themselves. The second issue is data gathering. The further away one is from the original data (such as the forms from the individual health centers), the more diluted the material becomes. At each step, judgments are made in putting together numbers. In looking at the first step, one gets a more accurate picture.

In sum, evaluating management and the dynamics behind the outputs can be an enlightening and useful exercise. Although one may not get all the

answers, one certainly can find clues.

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DEVELOPING NUTRITION INTERVENTION STRATEGIES:
TESTING INDICATORS AND ASSUMPTIONS

Nancy B. Mock *

Panel Speaker

This paper will focus on the planning function of management, assessing the relationship between perceived and objective nutritional status, and illustrating the need for planning tools which monitor the social aspects of health status. Data from a large nutrition intervention in Zaire will be used to examine standard anthropometric measurements with an emphasis on illustrating how a different choice of measures and cut-off points might affect the ability of a mother to assess the level of nutrition of her own child. This seemingly academic concern is of great importance to the manager selecting the type of nutrition program. Any strategy which does not include case-finding is dependent upon the ability of other family members to recognize and treat symptoms of malnutrition.

Methodology

From the literature which examines the relationship between disease attributes (or symptoms) and health perception, there is evidence that impairment of function, acuteness of onset and perceived prevalence are significantly associated with specific problem recognition. ^{1/2/3/4/}For the purposes of this review, existing protein-energy classification schemes provide a convenient means by which the attributes of a particular form of illness can be compared with perceived health status. The presence of edema and wasting or thinness [symptoms of kwashiorkor and acute (or present) malnutrition, respectively] were hypothesized to be associated with increased problem recognition. Degree of severity and prevalence in the community were also thought to have an effect on maternal recognition of illness.

The site of this study is Kinshasa, Zaire, where the authors are part of a team of technicians from Tulane University providing technical services for a national nutrition planning program funded by the United States Agency for International Development (AID). Appropriate nutrition surveillance and intervention strategies have been developed for Zaire based largely on pilot studies in three zones of Kinshasa and one rural area. Extensive multi-disciplinary baseline assessment studies were performed in the selected areas. A census and anthropometric study covered 100 percent of the households and a systematic sample of 20 percent represented the population examined for the socio-economic study. The data-set analyzed in this presentation was constructed by merging maternal attitudinal and health assessment variables with individual anthropometric data for each child under five years old in the family.

Analysis consisted mainly of cross-tabulations of the mother's response to the question whether or not one or more of her young children was malnourished with classifications of nutritional status based on standard anthropometric measures. The object of the analysis was to determine maternal sensitivity to physical signs of the disease. The family-point-prevalence (number of families with malnourished children at a given point in time) was determined separately by each of the following sets

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of measurements: weight for age, height for age, weight for height and the presence of edema. Since weight for height reflects current nutritional status and weight for age, past or chronic malnutrition, families were also classified by these mutually exclusive groups: wasted, stunted, and both wasted and stunted. Cross-tabulations of all groups with perceived family-point-prevalence were performed several times using different percentages of the reference median as cut-off points beginning with 90 percent height for age, 80 percent weight for age and 80 percent weight for height. These are commonly accepted levels of mild malnutrition.^{5/ 2/} Based on these results, current nutrition was cross-tabulated with perceived nutritional status by zone. Maternal sensitivity to malnutrition in her family as it was differently defined by each grouping was calculated as the percent of mothers who actually recognized the disease when present.

Results

Immediately apparent is the high level of family-point-prevalence as measured by any set of anthropometrics. At least one form of protein-energy-malnutrition is present in over half of the families assessed in this study. The only type of malnutrition not prevalent in the population is severe kwashiorkor. The family prevalence of severe kwashiorkor is only 2 percent. While this rate is not trivial, it is dwarfed by the rates of other forms of protein-energy-malnutrition. A profile by zone shows expected variation. Lingwala ranks higher than the other communities by almost all quality of life indicators. Similarly this zone has the lowest prevalence of all forms of malnutrition. Kimbanseke is a peripheral zone which can be called approximately a squatter community. As expected the family-point-prevalence was highest in this area; in fact, rates of chronic malnutrition are approximately double those of Lingwala. The less dramatic difference in current nutritional status is felt to be a reflection of the recent countrywide severe economic deterioration.

Also examined was the relationship between anthropometric measurements of nutritional status and maternal recognition of malnutrition. Maternal recognition of malnutrition in one or more of her young children is notably low. The rate varies between 6 percent and 18 percent with the exception of edema: 30 percent of the mothers of children with edema recognize malnutrition. Though the absolute number is small, this result was expected in light of the physical characteristics of this illness. No other striking trends are apparent. Though mothers of families with both wasting and stunting present in their children are somewhat more aware of the illness when present, the difference is not operationally important. Analysis by zone suggests that maternal recognition is higher in areas with higher real rates of malnutrition. But again, the significance of this pattern is more than questionable.

One more logical step was taken by examining the relationship between perceived morbidity the day before the interview and malnutrition. Again, a summary indicator dichotomized families into those with and without perceived illness in one or more of their children under five. Illness was defined as the presence of one or more of four common diseases and symptoms of early childhood diseases such as measles, diarrhea, fever and respiratory problems. A remarkable relationship was found between perceived morbidity and malnutrition of any kind and degree: 50 percent of the mothers of malnourished children indicated family morbidity while only 29 percent of the mothers of well-nourished children responded that at least one child had been ill. A Chi Square test was highly significant. The rates of perceived illness tend to increase with both severity and type of malnutrition.

This relationship raises intriguing questions for further analysis. First of all, the association of malnutrition with other types of morbidity is well documented and makes sense. Perhaps more general recognition of commonly known illnesses and symptoms can prove useful in evaluating the operational utility of the various anthropometric cut-off points and measures. This type of comparison might provide community level validation of anthropometric indicators as a companion for the existing clinical approach. A second possibility is that mothers are mislabelling the signs of malnutrition. Malnutrition is often buried in a complex of illnesses and can be difficult to distinguish. Perhaps general perceived morbidity is a reasonable reflection of nutritional status. At any rate, the question of illness-definition merits further attention.

In summary, mothers are not recognizing the presence of malnutrition as such in their young children. The possibility exists that they are mislabelling recognizable symptoms. However, the present findings have clear implications for the management of nutrition intervention programs. First, intervention programs must be oriented toward case finding and certain types of educational programs. In Zaire, at least, programs that disseminate information through the mass media seem appropriate. The implications of these findings also clearly indicate that integrated health programs, rather than single shot interventions, are the most logical form of dealing with case finding, multiple treatment modalities and education activities. While this is certainly not a new view, the evidence here provides increased rationale for the move toward a complete integration of services. A final consideration is the apparent need for planning tools which test the assumptions upon which intervention strategies are built.

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EVALUATION OF HEALTH MANAGEMENT DEVELOPMENT
IN THE CARIBBEAN

Sharon S. Russell*

Panel Speaker

Project Overview

In ranking the several initiatives required to improve the health status of the Caribbean Community, the regional Health Ministers gave first priority to "dynamic and creative management of the health services." ^{1/} To address this priority, in mid-1979 the Caribbean Community Secretariat (CARICOM) launched a three-year, nine-country^{2/} Basic Health Management Development Programme.^{3/}

In the programme design phase, Ministry of Health (MOH) personnel worked with an external design team to identify significant management problems. The nature and extent of these problems called for a more generic model of management than that which is often used in traditional approaches to health management development.^{4/} Rather than focusing upon management problems within specific functional areas, such as drugs and supplies or nursing, the generic model underscores the managerial, behavioral and change processes which affect management throughout the health system.

The CARICOM Health Management Development Programme encompasses four major components: management training, technical assistance, management resource development and special activities. These components are designed to mutually reinforce one another with respect to both subject matter and timing. The training of approximately 1,200 participants should result in a "critical mass" of Ministry personnel sharing common vocabulary and a flexible set of tools and approaches for improving management. On-site training in each of the nine countries brings together MOH personnel at top, middle and line levels of management for one-to-two week workshops, utilizing high participation and adult learning methodologies. Specialized technical assistance training focuses upon management problems in key functional areas and is closely coordinated with both the training component and technical assistance efforts under other auspices.

In addition, management resource centers are being established in each participating country and in the CARICOM Secretariat's Health Section. These centers contain books, journals, articles and selected sample management tools, as well as audio-visual hardware and software. Special activities, such as a regional health information systems workshop and a conference on primary care, are designed to reinforce country-specific health management development activities and promote cooperation and diffusion of information on an intersectoral and regional basis.

The project is being implemented in nine countries in the Caribbean and has its headquarters in a tenth country. The Caribbean includes countries which have been colonized by the British, French, Spanish and Dutch, most of which were colonized by more than one nation, so that while English is now the official language, in some countries such as Saint Lucia and Dominica one

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must speak a French Patois in order to be fully understood by the general population.

In addition to the language and cultural differences, geographic, political and socio-economic differences cannot be overlooked. In some countries, it is impossible to get to all areas by road. Although all countries are considered less developed countries (LDCs), the economies of some are more fragile than others. All countries are in the hurricane belt; and one has an active volcano. Two major disasters and three changes in government occurred in 1979. Thus, the evaluation design must reflect the diversity created by the project location and design.

Evaluation Design

A comprehensive information system was designed to provide timely and accurate data for (1) verifying that programme objectives are met (monitoring progress and measuring outcome); (2) justifying use of funds to the funding agency; (3) monitoring progress toward meeting country-specific objectives; and (4) collecting data for future research and projects. Parsimony was the guiding principle in ensuring a simple, manageable information system and, where possible, the multiple application of collected data to ongoing management, monitoring of progress, and evaluation.

The evaluation plan identifies three interrelated but discrete approaches for assessing the extent to which project objectives have been met: (1) process measurement; (2) identification and measurement of intervening variables; and (3) impact assessment. The conceptual model ^{6/ 2/} for evaluation stresses that the ultimate effects of the programme are the result of the combined interaction of the project design, project management inputs and the training and technical assistance inputs. To implement the evaluation, project management, trainers, and country project coordinators have worked jointly to develop and utilize the evaluation instruments and mechanisms. Participant profiles, together with registration and participation logs, give a complete picture of training participants and enable assessment of attendance, attrition, and training effects in relation to participant background. An organizational assessment tool used in the course of training also serves as a repeat measure for assessing changes in organizational climate at a later point in time. Evaluation questionnaires are administered during training and three months later, to assess participant response to course content and trainer performance. Similarly, the action plans which participants develop in the course of training are reviewed three months post-training to assess participants' progress along specific steps toward a stated objective. While the action plan evaluation findings cannot be attributed solely to effects of training (particularly since knowledge of the follow-up may itself serve as a stimulus to action), the findings do give some early indication of program effectiveness.

The baseline survey of participating Ministries, completed prior to programme implementation and repeated yearly, identifies existing management tools and assessment of changes in status over time. A formal technical assistance (TA) evaluation report measures the suitability and success of TA efforts and is used, together with TA report forms and the technical reports themselves, to evaluate TA. Finally, group evaluation meetings and formal reports periodically summarize progress in relation to stated objectives, and evaluate administration of the project itself.

An intervening-variables log, maintained by each country coordinator, records significant events which may affect programme implementation or outcome, such as changes in government or senior personnel, and climatic and economic factors.

To date, several specific impact assessment measures have been identified. Cost-effectiveness measures will be based on the percentage of tax dollars presently spent on health and the services provided for these. Organizational effectiveness and efficiency measures will be based on follow-up baseline data collected at the beginning of the project. Thirdly, the impact assessment will identify new programmes or services to the poor and underserved which can be directly attributable to the project.

Evaluation Issues

A number of operational and methodological problems have emerged. First, trainers found that use of individual trainee registration numbers on evaluation instruments was unacceptable to participants and had to be abandoned. This has precluded earlier plans to conduct interinstrument correlations for given participants and longitudinal "tracer studies." Secondly, a knowledge, attitude and practice (KAP) survey was intended to be administered to participants immediately before and after training, and subsequently in a post-training repeat. After use in four countries, the instrument was apparently invalid; accordingly, the KAP has been discontinued. Thirdly, while trainers have gleaned useful feedback from the participant evaluation forms, and have been able, for example, to speed the training pace or adjust the level of presentation, participant judgements are not always congruent with the trainers' assessment of one another's performance. For the latter, project staff must rely on trainers' written monthly reports.

Operationally, assessment of project impact on the health status of the population will be affected by the fact that these data will not be uniformly available until midway through the project.

Several more intractable methodological issues demand particular attention and pose a continuing challenge to evaluators of operational programmes such as this. First, while the programme has carefully identified objectives for both training and technical assistance and for the project as a whole, translation of these objectives into operationally meaningful, objectively verifiable, and quantifiable indices which validly reflect "good" management is extremely difficult -- the more so because the programme to be evaluated is regional in approach and specific indices of desirable outcomes for any given objective may vary from country to country. Accordingly, final assessment of impact will have to be done on a country-specific rather than on an overall project basis. Secondly, the number of different inputs, and the effects of the many potential intervening variables^{8/}, make even the association of inputs with outcomes -- let alone establishment of any causal relationships between the two -- a tenuous exercise. Finally, several of the more traditional techniques for safeguarding against what Campbell and Stanley have called "uncontrolled rival hypotheses,"^{9/} namely, randomization and use of control groups, are unworkable in a programme of this type. It takes significant effort to juggle schedules and arrange coverage for health workers without further attempting to randomize their participation in training. Similarly, the very diffusion effects built into the programme design (e.g., the proportionately large numbers of personnel being trained within each of several relatively small countries) preclude the effective use of control groups. Indeed, if the programme is successful, virtually everyone in a given Ministry of Health will be affected.

Selected Evaluation Findings

Preliminary findings indicate that management training is reaching the targeted numbers and types of personnel: to date nearly 550 top, mid, and

line participants registered for and completed the training course. Participant evaluations of trainer performance and programme content have been consistently high. Topic areas rated as "most useful" for participants include communications, planning, and leadership. Follow-up evaluations after three months post-training reflect a continued high degree of satisfaction with the training, together with reportedly improved motivation, although many participants found the course too short and intensive. Follow-up action-plan evaluations conducted to date indicate that between 50 and 73 percent of all participants have made significant progress toward implementing their objectives, thus improving the health care delivery system in their individual countries.

Conclusion

An evaluation of any program must include the complex interactions of cultural, geographic, socio-economic, political and administrative factors, as well as the organization and internal dynamics of the project. Such factors were considered in the evaluation design for the Basic Health Management Development Programme. The current evaluation plan appears functional for programme management and monitoring, and for evaluation of process and intervening variables. The challenge remains to improve the health status of the Caribbean Community.

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3/This programme is funded by a grant from the U.S. Agency for International Development, and by contributions from the Participating Countries and the CARICOM Secretariat. Westinghouse Health Systems, under contract to CARICOM, is providing a major portion of specialized training and technical assistance through its own staff and three subcontractors: The University of the West Indies; Lurijos Management Consultants, an Antigua-based firm; and The Analysis Group, Inc., a Washington D.C.-based Caribbean-American firm.

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**TRAINING COMMUNITY HEALTH WORKERS
TO PERFORM SELECTED MANAGEMENT FUNCTIONS**

Phyllis Dobyne*

Workshop Speaker for
Community Health Workers

Introduction

This paper proposes a five-step process for designing a training program to prepare community health workers (CHWs) to assume managerial functions critical to the success of primary health care programs. A Save the Children community-based program in Indonesia was selected to illustrate how this process can be applied. The program relies upon 22 community health workers with limited formal schooling who have received a six-week intensive training program before assuming their village primary health care responsibilities. Two months after the initial training activity, CHWs receive a one-week follow-up training and on-the-job visits by supervisory health assistants. The major thrust of their activities is, of course, the direct provision of health/nutrition-related services to villagers. However, they are also responsible for some management support for their own activities including planning, inventorying, the preparation of reports and program monitoring.

A five-step planning model was devised to train the CHWs to perform these management functions. Although the model specifically deals with the training of field workers for the management aspects of their jobs, it is adaptable and suitable for other training needs.

The model's five steps include:

1. **Identification of the CHWs Management Functions**

This step involves answering the question, "What management functions should CHWs be able to perform?" The broad functions performed by managers of all enterprises were examined. These functions include: planning, organizing, directing, staffing, controlling, reporting and budgeting.

2. **Identification of the Tasks and Skills Needed to Perform Each Management Function**

This involves reviewing the functions listed in Step 1 to ascertain what tasks and skills are implied by each.

3. **Analysis of Tasks and Skills Through Use of a "Skills Training Grid"**

The Grid facilitates the analysis of tasks according to both degree of required knowledge and the anticipated level of motivation CHWs have to perform it. Its purpose is to classify tasks in order to identify and design appropriate training models.

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4. Application of the Grid Analysis to the Design of Both Pre- and In-Service Training

Essentially, training should: (1) be experimental, "hands-on" and practical; (2) provide ample opportunity for two-way feedback; (3) use the same approaches and techniques as those which trainees will be expected to perform once they are on the job; and (4) be arranged so as to reflect the following sequences: simple to complex; concrete to abstract; here and now to remote; individually focused to community focused; and focused on most immediate needs to focused on least immediate needs.

In addition to these general characteristics, certain design requirements can be derived from the Grid Analysis:

- a) Training designs for tasks or skills which require a high degree of knowledge, but not high motivation, should:
 - reflect a balance between "how to" and "why" between the affective and cognitive domains
 - place special emphasis on the importance of the task in relationship to the total job
 - provide opportunities to create mutual support systems; an example would be the formation of ongoing teams to supply additional motivation toward task performance
 - form relationships that build levels of trust, and enable people of relatively close proximity to turn to one another for help as needed
 - provide extensive follow-up including nurturance of team efforts and specific task-related technical assistance

- b) Training designs for tasks or skills which require little knowledge and motivation should:
 - place special emphasis on motivational rather than technical considerations
 - provide rewards for successful task completion
 - create group commitment through teamwork or other means to performance of the task

- c) Training designs for tasks or skills requiring a high degree of knowledge and motivation should:
 - place special emphasis on technical rather than motivational considerations
 - build on the motivation which already exists
 - provide an exceptionally large number of opportunities for hands-on practice and performance-related feedback

In general, tasks requiring little knowledge, but high motivation, should receive the least emphasis in terms of time during the training program. These tasks are the simple ones that most trainees will want to learn to do. Their inclusion in the training design should permit a "change of pace" from those other kinds of tasks which participants are less likely to enjoy. They can be inserted at times when frustration levels are high and the opportunity for a quick success will be useful in maintaining trainee interest and self-confidence.

5. Design of Appropriate Evaluation and Monitoring Procedures

The first step involved in designing appropriate procedures to monitor and evaluate CHW performance of management task is to define acceptable standards of performance for each task. These standards should provide clear guidelines as to what constitutes satisfactory performance both in terms of frequency and quality. Ideally, development of these standards will be included in the training program as a group activity. As trainees participate in the development of performance standards, they will develop an understanding and appreciation of the rationale behind them as well as a commitment to meeting them.

In conclusion, a process has been outlined which serves as a basis for localizing program management. However, ultimate program success depends upon the presence of such factors as: choosing the right person to be the CHW; involving the community from the project's outset; and providing adequate training support and supervision. Without these, no training design can prepare CHWs to assume management functions.

A PRACTICAL EVALUATION EXPERIENCE IN RURAL BOLIVIA

Gregory J. Rake*

Workshop Speaker for
Program Managers and Consultants

Introduction

Project Concern International is a non-profit, private voluntary organization dedicated to the development of low cost, primary health care systems in the United States and throughout the developing world.

In 1977 Project Concern and the Bolivian Ministry of Health signed a five-year agreement to develop primary health care services in the sparsely populated, tropical jungle department of Pando. From 1977-1979, Project Concern has worked in conjunction with the Pando Health Department to train 30 auxiliary nurses and to develop support systems necessary for the delivery of health care in the rural areas. Under the terms of the agreement, the Pando Health Department is gradually assuming responsibility for the management of the rural health care systems.

Purpose of Evaluation

After two years of program activity, the Ministry of Health technical staff and Project Concern agreed that a general evaluation of the program was needed. The purpose of the evaluation was to describe the state of health care in rural Pando, to identify problems related to the implementation of a rural health care delivery system, to judge what progress has been made and to provide a basis for the transition of the program's management from Project Concern to the local health department. An additional aim of the evaluation was to introduce the local health department staff to both the idea and process of evaluation and planning.

Obstacles to Evaluation

Anyone who has worked in a similar situation in a developing country will recognize the problems the Ministry of Health and Project Concern faced in doing an evaluation. The most pressing were: (1) lack of reliable statistics; (2) lack of specific baseline data; (3) lack of funds for evaluation; (4) lack of time, or limited time budgeted for evaluation in the work plan; (5) the idea that evaluation is a futile exercise; (6) lack of expertise in evaluation, planning, and administration at the local level; (7) lack of reference materials; and (8) fear of evaluation.

The evaluation process was planned to minimize these obstacles.

Process of Evaluation

First, the Project Concern staff met with the Ministry of Health officials in La Paz and together agreed on areas, or components, of the health care system to be investigated. These were: (1) demography and social structure of the area; (2) Ministry of Health programs and the delivery of rural health care services; (3) training and continuing education of rural nurse auxiliaries; (4) supervision; (5) transportation;

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(6) communication and information; (7) supplies; (8) administration; (9) planning and evaluation; (10) personnel; (11) finance; and (12) inter-agency coordination.

Each component was divided into the following segments: (1) a description of the component and its present condition; (2) an itemization of the component's costs; and (3) a summary of the problems encountered within the components.

Next, the Pando Health Department and the Project Concern staff worked part time for three months gathering data, using only readily available sources of information. These included financial and personnel records of the Pando Health Department and of Project Concern, demographic data from other agencies, interviews with local authorities, and the records from rural health posts. In preparing the materials for presentation, simplicity was important.

Analysis of Findings

A meeting was held in the national capital to present the information gathered by the Pando Health Department and Project Concern and to discuss the problems identified. The meeting was attended by the Director of the Pando Health Department, Ministry of Health officials, the staff from the Bolivian School of Public Health, a World Health Organization/Pan American Health Organization expert on rural health and the Project Concern staff.

At the meeting the Pando Health Department staff and Project Concern staff summarized the factual material of each evaluation component. A document which described each component and the problems encountered was given to each participant. As a catalyst for discussion the problem section of each component was followed by a list of alternative solutions which identified some advantages and disadvantages of each alternative.

Then the meeting broke up into small working groups in order to discuss the information presented. The participants used the document as a work book. Any additional difficulties which they perceived as problems were listed, even if some seemed trivial, others important, and others unsolvable. The listing of the solutions and their advantages and disadvantages was done by all so that there was no suspicion that they had been weighted or biased in one party's favor.

The format of the problem section of each component was extremely helpful in promoting productive discussions with the small groups. As an example, one of the problems identified in the component "Programs and Services" was the inadequate coverage of rural health care services.

Conclusions and Recommendations

After the groups had discussed the problems among themselves, they presented their ideas to the others. After further discussion, conclusions and recommendations for each component were made by the entire body.

The recommendations were as varied as the problems. Not all fell within the jurisdiction of the Ministry of Health. For example, it was recommended that the 1952 Agrarian Reform Act be enforced to end the system of debt peonage, which had hindered the provision of services. Other solutions were within the scope of the Ministry of Health (e.g., creating more jobs in the Pando Health Department for nurse educators and finding funds for the continuation of the report). Others were to be implemented at the local

level, such as allowing the rural auxiliary nurses to increase the prices of the drugs they use in the treatment of patients.

Leaving the meeting with recommendations for action was a great advantage, rather than waiting months for a committee to respond to a report or to provide feedback. In addition, the full participation in the evaluation process by decision-makers had encouraged a greater commitment to the implementation of the recommendations.

Summary

After two years of program activities, the Bolivian Ministry of Health and Project Concern developed an evaluation format and process which:

1. Provided a general overview of the health care services in rural Pando;
2. Identified problems related to the delivery of rural health care services in Pando;
3. Served as a vehicle for making specific program decisions especially those related to the transfer of program management to the Pando Health Department;
4. Introduced the idea and process of evaluation and planning to the local health department staff;
5. Achieved participation by the Ministry, the Pando Health Department, and Project Concern in an evaluation process;
6. Was low in cost, and within the personnel and financial resources of the Ministry of Health and Project Concern; and
7. Provided a model of evaluation which the Ministry of Health and Project Concern plan to use in the future.

As a result of the evaluation, the Bolivian Ministry of Health, the Pando Health Department and Project Concern are in the process of implementing the recommendations.

LOOKING FOR VALUES

Stuart J. Kingma

Workshop Speaker for
Policy and Decision Makers

Evaluation really means looking for values, for the good that comes to people as a result of the programs or projects which directly affect their lives. This "looking for values" is in fact an ethical matter. It means looking for a measure of goodness that has been realized for the greatest number of people. The health and development field is experiencing a strong fixation on measurement and evaluation. This is fully justified and it is important that the approaches which have been advocated during the past few years be tested. Some of the most important aspects of health and development cannot be plotted on graphs or reduced to numbers. This includes the concern for the full participation of the people in all aspects of programs that affect their lives. This is a matter of empowerment, a very socio-political process.

As programs are planned and progress assessed, choices are made between competing values. One needs to be concerned that values and needs are those identified by the local people and their leaders. It may well be far more important to have promoted greater self-reliance, equity in land tenure, improved capacity of the local community to feed itself and the development of local leadership than some of the more measurable types of program objectives. A participatory style in evaluation is needed. The concept of social justice in health care must be extended to the matter of full participation in setting the goals for evaluation and carrying out the process.

Joseph Fletcher in his new book, Humanhood: Essays in Biomedical Ethics, pointed out that the largest and most overreaching issue in bioethics is the matter of distributive justice.^{1/} This refers to the accessibility of services and interventions to all members of a community, the correction of inequities in distribution and the allocation of resources for further development of health programs. These are values that must not be overlooked as an evaluation focuses down on the finer details of a project.

NOTES

^{1/} Fletcher, Joseph P., Humanhood: Essays in Biomedical Ethics, Buffalo, New York: Prometheus Books, (1979).

VI. THE GEORGE P. TOLBERT, M.D., AWARD

In the 1980s, the biggest challenge to health professionals lies in their style of participation and service. Professionals have been god-like in their approaches and believe they know all the answers: "The people are foolish and ignorant, especially those in the villages." So the professionals believe they must tell the people what they should know. Yet the people of Africa have been surviving for centuries in the presence of devastating tropical diseases and have not been wiped out. There must be something -- a system -- that is keeping them alive despite all their problems. And this must not be destroyed in the name of development. The critical challenge now facing health professionals is to go to the people as human beings relating and addressing human problems.

Miriam K. Were

GEORGE P. TOLBERT, M.D.
INTERNATIONAL HEALTH AWARD
June 11, 1980

The George P. Tolbert, M.D., International Health Award was established by the National Council for International Health to commemorate the late Dr. Tolbert's efforts in promoting the highest quality of life for people around the globe. Throughout his short but very productive life, Dr. Tolbert dedicated himself to the elimination of poverty, disease and ignorance as first steps in the pursuit of a good quality of life for all. The George P. Tolbert, M.D., International Health Award serves as an inspiration to the health community to persevere in their efforts with the spirit that characterized this great physician and humanitarian.

The recipient of the 1980 George P. Tolbert Award is Miriam K. Were, M.D. After completing her Masters Degree in International Health at Johns Hopkins University, Dr. Were returned to her homeland of Kenya to introduce a new concept in health care which dramatically changed the health system structure. She went back to her tribal area and began, at first alone and then with UNICEF support, the Kalamega Project. Since the beginning of that program in 1977, more than 150,000 inhabitants of various regions have begun efforts to solve their own health problems through "community participation." This program begun by Dr. Were has become not only a model, but a working system of primary health care.



Dr. Miriam K. Were

**THE PLACE OF PROFESSIONAL COMPETENCE
AND COMMUNITY PARTICIPATION IN THE 1980s**

Miriam K. Were

Acceptance Speech
1980 George P. Tolbert, M.D., Award

Preamble

The decision by the National Council for International Health that I receive the first George P. Tolbert Award has indeed touched me. More than that, I see it as a recognition not so much to me individually, but for all those who provided my training in public health. This includes the University of Nairobi, where I did my medical training, and where I am now on the teaching staff in the faculty of medicine. It also includes the Population Council in New York, which provided the fellowship for study at the Johns Hopkins University School of Hygiene and Public Health. I express gratitude to those in the office of the Population Council. I also express my joy for the opportunity to study at the Johns Hopkins University School of Hygiene and Public Health, especially in the Department of International Health. This supportive role has been played not only while I was at the School, but also by field visits to the work by my two advisors, Dr. Carl E. Taylor and Dr. William A. Reinke.

This field work was undertaken in the context of the health services of the Ministry of Health with UNICEF assistance. So to a large extent it is their work and whatever credit there is, is largely because the work was made possible by them. I pay special tribute to the Project team whose work this is as much as it is mine, and my husband Humphrey, our children and other members of our larger family who live through most things with me.

Finally, I would like to say that this award is really to the people of Tiriki and South Kabras. It is their efforts, enthusiasm and success that are helping to break through the hardened mentality that village people are ignorant and incapable of coherent planning, especially if they should be illiterate, as if illiteracy were equivalent to stupidity. I thank the people of Tiriki and South Kabras for helping to bring me back to earth before I had walked long on the road to being crystallized into that godified state of the true professionals who, as you know, know all the answers even before they begin, with godlike infallibility.

The Charge

On the occasion of this award, I was asked to say a few words of advice to my fellow young professionals in public health who are interested in international health. Since I have not treaded on this road for very long, I would rather not give any advice as such, but touch on one area in which I have been constantly challenged and where a real challenge exists for those in public health and, indeed, in other professions as well. This challenge relates to the place of professional competence in the face of increased recognition that people themselves, not professionals, should be the main decision-makers and implementers of their decisions and plans. Extended to the international scene, there are questions regarding the need for the very existence of international sharing of services, experiences and expertise. Is preparation for professional competence, excellence and international sharing still relevant in the current situation? This is a question I'd like to address. These remarks will be personal observations rather than scientific statements.

Relevance of Professional Preparation in the Face of Increased Community Participation

As a member of the faculty of medicine who participates in training medical professionals as well as other health professionals at the levels of masters degree and above, and in the face of my involvement in community participation, I am often asked if my two roles aren't contradictory. Why "waste time" training doctors and other professionals when one believes in the vital place of community participation in their own development, even in health? It would appear that to some, this appears to be an either/or situation. Either the professionals do things or the community does them. This either/or situation reminds me of many other either/or situations such as career woman/homemaker. To me the question is not an either/or one. It is a question of delineating the relative roles and activities of people in any given setting.

It has become increasingly clear on a global scale (e.g., the Alma Ata Conference, 1978) that community participation is essential in all phases of people's development. My personal persuasion is in line with this: a position that has developed from the people's challenges to as to what they could do for themselves. Most development agencies have published documents that go into the rationale for community participation. The current challenge therefore lies not in justification of this but rather in how these eloquent statements can be implemented so that they may live beyond the life expectations of a few years that such statements normally survive, when fed only on rhetorical eloquence. This is an area of challenge that I believe most fellow young professionals in public health cannot be blind to.

The difficulty, however, arises in that for many who see a place for community participation, there seems to be an implicit understanding that in the presence of community participation, professional competence is no longer necessary. However in the context of the experience of the National Pilot Project on community-based health care, we found no contradiction between the place of those with professional competence and facilitation on the community participation process. Indeed, it seemed that the crucial thing was the development of a partnership of the professionals and the community based on mutual respect. What is the place of a prepared public health professional in the context of an atmosphere that supports the enhancement of people's capacities to solve their health problems? I would like to address a few of the areas where I believe a professionally prepared person is essential.

1. Need for Leadership

Informed leadership is essential in facilitating community participation in the context of existing formal and informal structures within the community and beyond it. This leadership may be needed in the process of reorientation of operating policies in order to make community participation a reality. This overall leadership needs to be based on informed, relevant and valid professional judgement.

In a small way the Project played some role in this as a National Pilot Project that officially recognized people's participation and raised questions as to what kind of reorientation might be needed to make this feasible.

2. Need for Overall Planning

In order for community participation to be implemented, particularly at nationwide level, it is essential that the organizational frame for the

implementation of the policy be well planned and explicit. This kind of planning calls for an approach that facilitates flexibility in order to allow community initiative to be expressed while remaining within the national framework. At the same time, it allows overall directions without sacrificing or interfering with local initiative. The kind of planning required to make this possible is a far greater challenge than inflexible, structured, overcentralized conventional plans that have little relevance at the periphery. Preparation for professional competence and excellence, such as is found within the disciplines of public health, is vital for this.

While the Project activities were limited geographically to an area of about 336 square km. with a population of about 100,000, it meant dealing with 92 communities and various levels of the civil service structure. We believe that professional support provided a loosely planned framework that could be replicable in that it allowed for overall direction which we believe facilitated local initiative.

3. Need for Situation Analysis and Evaluation

Hand in hand with planning or as part of the preplanning exercise, there is need for situation analysis both at the community and at the national level, of what the issues are and how they might be addressed. It is, I believe, essential for communities to learn to analyze their problems just as it is essential for the formal system to do so. It is also essential that mechanisms for continuous monitoring at the community level be developed since they greatly help keep the people informed as to what they are achieving. At the central level it is important to have an evaluation framework in mind so that the formal system can be in a position to appropriately improve its management capability in facilitating community participation. In order for this to be done effectively at the community and at the formal level, it is essential for an information system to be developed, however rudimentary, to keep the people and the formal system in touch with the events as they occur and to meet the needs.

In the National Pilot Project, this was carried out by periodic surveys, sometimes on a whole community basis in order to enhance the feeling of everyone being involved and at other times on a sample survey basis. Professional competence is essential if relevant, valid information is to be generated that is used as feedback. The kind of periodic monitoring that went on allowed people to keep in touch with their own progress related to factors such as the rate of latrine construction, the amount of bottle feeding still in the community, and so on. Evaluation contributed to planning central inputs on issues such as how many more miles would be travelled, hence the amount of funds needed for petrol to facilitate movement, and the amount of field maintenance needed for the facilitating team as they moved from one community to the next. Continuous self-evaluation of the team and the team's evaluation of the progress were essential components of this activity. The setting up of this frame was greatly facilitated by the professional input.

4. Need for Coordination of Material and Logistical Support

Both at the local and central level it is essential not only to know what is needed, but how that which is needed has to be delivered. It is essential to deal with issues such as drug and material supply and the deployment of these materials at both the local and central level. A framework for coordination of technical supervision and streamlining of activities and supplies is essential. Professional competence is needed for this, particularly when coordination includes, as it did in the National Pilot Project, relating to other sectors and agencies in a multidisciplinary

setting. Public health disciplines are particularly well placed in their recognition of the multidisciplinary nature of problems and their possible solutions.

In the context of the National Pilot Project the multidisciplinary nature of the facilitating team and the recognition of problems presented by communities regardless of what sectors they fall in provided a beginning for a coordinated approach in these matters. We believe professional preparation facilitated in getting this organized.

5. Need for Raising Awareness to Alternative Strategies and Their Possible Consequences

At both the central and community level facilitating community participation may lie predominantly in the extent to which possible alternatives are raised and possible consequences are discussed. The professional, by the very nature of his/her exposure to what is happening/has happened elsewhere, can play a major role in opening up possibilities that may not have been familiar. The competent professional should also be in a position to help clarify the options and their sequelae.

Taking one example from the National Pilot Project, let me touch on the question of who was to be the health provider at the community level. In most discussions, the people expressed a definite need/desire for a resident health provider. In most cases they said, "We want a doctor for our village." The facilitation included discussing with the people how feasible this was and how long it would be before they could hope to have a doctor or even a medical assistant at the village level. The personnel shortage is well-known to people when they go to health facilities in need of care. They could see that if health centers, which are fewer than communities, didn't have a doctor, it probably wouldn't be possible to have a doctor at village level. The roles of a doctor were discussed and the consensus reached was that what they needed at the village or community level was a "first-aider." The point being made is that by opening up options for possible cadres of health providers from doctor, registered nurse, and so on, it was possible for people to decide on what was relevant and feasible. If alternatives to providers had not been presented as options, the people might have decided that since they couldn't have a doctor, there was nothing they could do. And how tragic that decision would have been when doctors are not needed for the majority of health problems in the villages.

The Style of Service

Having dealt at length with some of the areas where professional competence is needed, I hasten to add that it seems that changes are being called for in the style of providing services and in the expectations in relationships between professionals and those whom they serve. The clear-cut distinction between "providers" and "consumers" is no longer so clear-cut. The know-all posture of most professions is being challenged as the people become more and more aware of issues. The godlike state is, alas, to some, no longer an accepted state by the "consumers."

Perhaps the greatest challenge to the professionals of the 1960s is the fact that while the need for preparation in order to play the nurturing role may be more demanding than playing the "directive giving role", and in spite of what may be long and painful preparation, the professional is required to go to the people as a human being relating to their human condition. People everywhere are getting tired of gods; gods who posture as if they know everything today, just for it to turn out tomorrow that the infallible stance was a balloon. I extend my sympathies to all of us who have to go

through the process of "de-godifying" ourselves, particularly those who've been in that state for a long time, since it will probably be painful. But, I believe (like in opening up an abscess), it is essential.

The know-all attitude has been enhanced by a general impression that one is dealing with ignorant people whom one can fool, twist, and manipulate. The messages that seem to be coming from many sectors of the world are that people are aware of manipulative tendencies and tolerate them so long as they feel helpless and while they hope and pray for a way out. "Health" is made up of professionals that recognize the value of human life and dignity in their practice. If the current interest in popular participation should turn out to be a tool that will be used to oppress and deprive the underprivileged, I believe it is the challenge of the young health professionals of the 1980s to keep in mind the value of human life and dignity, the base on which the health professions were established, and to enter into genuine relationships with those we may be serving, whether in our own nations or elsewhere.

I personally look forward to meaningful working relationships of public health internationals of many nations, and trust that this will be beneficial not only to the individuals, but also to our world.

May I end by again expressing my thanks for this award and my gratitude to those who have helped and continue to help in my preparation and service in public health, a branch of health services that has probably played the vital role in positively altering the health status of the world's people.

The U.S.A. based National Council for International Health (NCIH) has played a leading role in fostering the sharing of health experiences and expertise between many countries. I believe this greatly contributes not only to health welfare but towards understanding of the peoples of the world. I wish to express my gratitude to the many members of NCIH who have individually touched the lives of those struggling against great odds for a better life.

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