CHAPTER 18
THE EVALUATION OF COMMUNITY-BASED NUTRITION PROGRAMMES

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Outline
• Basic approaches to programme evaluation
• Steps in the evaluation process
• The role of fieldworkers
• Possible challenges to effective evaluation
• Built-in evaluations
• Additional methods
• Evaluations as experiments
• Programme sustainability
• Ethical issues

Objectives
At the completion of this chapter you should be able to:
• Define evaluation in the context of community-based nutrition programmes (CNPs)
• Explain the value of evaluation of CNPs
• Explain the types of evaluation, the procedures necessary, and the methods used for the evaluation of CNPs
• Identify the stakeholders to be involved in the evaluation of CNPs
• State the qualities of a good evaluator of CNPs
• Highlight the tools required for the evaluation of CNPs
• Examine the challenges associated with the evaluation of CNPs
• State ethical issues related to CNP evaluation
• Explain how the evaluation of a programme can be sustained
1. EVALUATION: AN OVERVIEW

Although they may not call it an evaluation, people assess the value and impact of what they do whenever they ask questions, consult partners, make assessments based on feedback, and use those judgements to improve their work. When consultants, programme coordinators, principal investigators, or stakeholders conduct evaluation of a community-based nutrition programme (CNP), they seek to answer one or more of the following questions: What have we done? How well have we done it? How many people have we reached? How much have we done? How effective has the programme been? What could we do better or differently?

Numerous definitions of evaluation exist, but Green and Kreuter (1999) provide a usefully concise one: “The comparison of an object of interest against a standard of acceptability.” In the case of nutrition programmes, the ultimate object of interest is the overall quality of the programme, which can be assessed by comparing the programme to others that have been deemed effective (i.e., that set the standard of acceptability). In order to be useful, however, evaluations must examine a series of more concrete components that together contribute to quality overall. The object of interest might thus be a particular intervention or method of delivery, a change in health behaviour or in the environment, or a specific measure of nutritional status (such as levels of vitamin A or infant growth rate). At the outset of the programme planning process, it is important to decide precisely how the programme will be evaluated – what the objects of interest will be and how the standards of acceptability will be defined.

A thoughtful and appropriate plan for evaluation is obviously critical to programme success. In particular, those who evaluate CNPs are always confronted with this key question: How can we state with confidence that the programme has the intended effects on the target population? This question is fundamental because the answer to it will determine whether the programme should be continued in its current form, whether certain elements need to be modified, or whether the entire programme should be cancelled and a new one designed. Part of the information needed to address this question can be obtained by evaluating project design and by analyzing all the necessary inputs that make the programme succeed. Moreover, these data can be used to screen out those projects that are unlikely to have any important effect on outcome and thus are not worth evaluating further. It is important to emphasize that decision-making is crucial to programme execution and successful programme outcome. If the decision process is technically deficient, it will affect the selection of inputs into the execution of the programme, which may lead to failure to achieve the desired goal.

We need to pose the following questions during the evaluation of a CNP:

- What is evaluation of a CNP?
- Why is it relevant?
- What are the various types of evaluation?
- How should the evaluation be conducted?
- What are the necessary procedures?
- Who are the stakeholders?
- What are the qualities of a good evaluator?
- What tools are required for evaluation?
- What are the challenges associated with evaluation?
- How can these challenges be overcome?
- What are the ethical issues to be considered in the evaluation of a CNP?
- How can the evaluation be sustained?

An important reason for incorporating evaluation activities into a nutrition programme is that the knowledge derived will help programme managers improve the quality of their intervention. At the most basic level, the monitoring of the service delivery system will help sharpen the implementation of the intervention. For example, careful monitoring of the stocks and flows of programme inputs may facilitate rationalization of the flow of supplies from warehouses to project sites, especially during the distribution of food and nutrition services in times of disaster management. This will help avoid losses due to spoilage, contamination, or
deterioration that result when commodities and supplies are overstocked at the community level. The following are other examples of the benefits of evaluation:

1. Provide a basis for establishing food policies.
2. Determine the needs and priorities for acquisition, storage, transportation, preparation (including local enrichment), and distribution of food items, and provide nutrition education relevant to socio-cultural practices of the people.
3. Serve as a basis for planning community development programmes and strategies to meet the food needs of the concerned population.
4. Create nutrition consciousness among government, health, medical, and paraprofessional personnel, as well as lay groups.
5. Help people become aware of their peculiar nutritional needs so as to increase their involvement in solving nutritional problems.
6. Help determine a possible need for enrichment and fortification programmes.
7. Help support or explain morbidity, mortality, anthropometric, or biochemical findings.

All CNPs should be guided by a set of clear objectives, which are characterized as being specific, measurable, attainable, realistic, time-bound, and, in some instances, gender and ethnically sensitive. It is important that programme objectives are determined from the problems that the programme is intended to solve. A well-stated set of nutrition programme objectives has specific and measurable indicators; the checklist for determining effects, outcome, and/or impact will be formulated from this. It is therefore important to develop a strong evaluation tool that will provide information on what needs to be adjusted in order to have improved programme output. Unfortunately, planners of CNPs sometimes consider it unimportant to include the issue of evaluation in the design of the programme, usually because apart from change in knowledge that may be immediate, all other effects of the programme take a longer time to reflect changes. This may negatively affect the quality of the final report.

2. BASIC APPROACHES TO PROGRAMME EVALUATION

The following characteristics are fundamental to any well-conducted evaluation of a community-based nutrition programme, regardless of the specific approach adopted:

- **Utility:** The evaluation should serve a useful purpose which needs to be made clear.
- **Feasibility:** The feasibility of the evaluation should be considered, along with available local and external support and resources, as well as environmental factors.
- **Propriety:** The evaluation should be socially acceptable and culturally sensitive, and it must be carried out in an ethical manner.
- **Accuracy:** The evaluation method should provide technically sound and generate detailed information that is relevant to the programme objectives.

Although all evaluations should share these features, not all evaluations have the same scope. Three basic types can be identified, according to whether the evaluation focuses on effectiveness, impact, or outcome.

2.1 Process Evaluation (Effectiveness)

A process evaluation focuses on how the CNP is implemented and how the programme outcomes are achieved. Process evaluation is guided by these questions:

1. How good was the planning process?
2. What was the quality of the materials that were acquired for the programme implementation and evaluation?
3. What was the level of competence of the personnel that were recruited for the programme implementation and evaluation?

4. How favourable was the environmental condition to the implementation and evaluation?

5. Is the programme being implemented as planned?

6. How is the programme achieving its objectives?

7. What activities were conducted?

8. What materials or services did participants receive?

9. What did people experience?

10. How is the coalition working?

In addition, process evaluation tracks the strengths and weaknesses of the programme and seeks to identify what parts of the programme are working and which are not.

2.2 Intermediate or Short-term Evaluation (Impact)

An intermediate or short-term evaluation answers questions about the short-term effects or benefits of an intervention programme, as opposed to long-term outcomes, such as weight gain or loss. It addresses the factors that are believed to precede and that are linked to, longer-term outcomes. It focuses on questions such as: What effects did the programme have? Can the effects be clearly attributed to the programme? Were there changes in the knowledge, attitudes, beliefs, or behaviours of the programme participants as a result of the programme? Did the programme achieve its objectives?

2.3 Outcome Evaluation

An outcome evaluation looks at the wider effects of the programme, including social, economic, technical, and environmental effects. Outcome evaluation is long term and can address intended or unintended outcomes, be they positive or negative. Outcome studies evaluate whether the programme has made a real difference to the target group.

Outcome evaluation questions are generally related to the overall programme goal: For example, “What change in nutritional status occurred because of the programme? What is the current prevalence?” The evaluations often focus on what has changed; for example, reduction in child stunting, wasting, and undernutrition over a specific period of time. However, with many health programmes, the long-term goals are so distant that evaluating them may be beyond the range of the specific programme evaluation.

For an outcome evaluation, it is important to collect standard data to assess the CNP. These should include data related to the following:

- Morbidity and mortality rates at the beginning, during, and at the end of the programme may provide very useful information on the effectiveness and impact of the programme, especially when the influence of confounders is statistically accounted for during the period.
- Find the difference between the number of people registered at the beginning of the programme and the number remaining or at the end. This indicates the default rate.
- Change in weight of participants during the programme.
- Check for coverage. Ask, “How many of the target population were reached during the programme?”

An additional source of helpful information is the Program Development and Evaluation website of the University of Wisconsin–Extension (http://www.uwex.edu/ces/pdande/evaluation/index.html).

3. STEPS IN THE EVALUATION PROCESS

The framework shown in Figure 18.1 emphasizes six connected steps that together can be used as a starting point to tailor an evaluation of a particular public health nutrition effort, at a particular point in time. Because
the steps are interdependent, they may be encountered in a non-linear sequence. However, an order exists for fulfilling each, because preceding steps provide the foundation for subsequent progress. Thus decisions regarding how to execute a step should not be finalized until previous steps have been thoroughly addressed.

Figure 18.1: Evaluation framework.  
*Source: Centers for Disease Control and Prevention (CDC, 1999).*

The six steps of a programme evaluation process are as follows:

1. **Engage stakeholders:** This is a process in itself, through which many voices are heard. As an initial step, it makes the benefits of the evaluation clear to all stakeholders. Completing this step helps ensure that the focus of the evaluation, and ultimately the results of the evaluation, support the needs of the stakeholders.

2. **Describe the programme:** A programme description sets the frame of reference for all future decisions about its evaluation. Programme description allows members of the evaluation group to compare the programme to similar efforts and makes it easier to figure out which parts of the programme brought about which effects. Keep in mind that different stakeholders may have different ideas about what the programme is supposed to achieve, and why. For example, in a programme to reduce undernutrition, some stakeholders may believe this means promoting food production and affordability (increased food supply can reduce prices), while others may believe it means focusing on basic hygiene practices to eliminate gastro-intestinal infections, including worm infestations. Evaluations done without agreement with respect to the programme definition aren’t likely to be very useful. In many cases, the process of working with stakeholders to develop a clear and logical programme description will bring benefits long before data are available for measuring programme effectiveness.

3. **Focus the evaluation design:** To achieve a focused programme design, carry out advance planning about the aim of the evaluation and what steps must be taken to meet the evaluation goals. Also consider developing a well-focused plan or strategy to improve the usefulness of the evaluation to intended audiences. Once the goal of the evaluation is determined, take the following steps to focus the evaluation design:
   a. Determine the information needs of the various stakeholders.
   b. Assess the best techniques to describe and measure the intervention programme activities.
   c. Assess what qualitative and quantitative data may be available.
   d. Determine the design method that best answers the key questions set by stakeholders.
e. Prepare a written agreement that summarizes the evaluation procedures and specifies the roles and responsibilities of all involved.

4. **Gather credible evidence:** Through the process of gathering of credible evidence, information about the intervention is collected and synthesized for subsequent presentation. This step ensures that the benefits of evaluation – the uses of this information – are clear to all stakeholders and that the processes followed are those agreed upon by everyone.

5. **Justify conclusions:** Interpret the evaluation results and use the information to justify conclusions of the evaluation. The aim of this step is to ensure that evaluation results make sense to all stakeholders and reflect stakeholders’ values about what is important. Justifying conclusions can help stakeholders consider what actions to take as a result of the evaluation.

6. **Ensure use and share lessons learned:** This step emphasizes the importance of translating results into action. Through the process of preparation, feedback, follow-up, and dissemination of the outcomes of the programme (as revealed by the evaluation), full information is provided to stakeholders. This ensures that the lessons learned from an evaluation are shared in such a way as to influence programme decisions, policy makers, and community-based initiatives (Baker et al., 2000).

After the evaluation has been completed, it is important that those who conducted it give feedback to staff and other stakeholders, preferably in the form of a face-to-face session. This allows for factual errors and misconceptions to be corrected, and for programme staff to provide further information on outcomes. It also provides an opportunity for lesson learning.

Similarly, a draft report should be circulated to those involved before the evaluation report is finalized. At some point, key stakeholders should have an opportunity to discuss and either accept or reject the findings and recommendations of the evaluation. Once the evaluation is complete, a follow-up process should be in place, in which the programme coordinator checks to see whether recommendations that were accepted have been implemented. The coordinator also needs to have a system for incorporating lessons from an institutional level into programme systems and procedures, and for disseminating lessons learnt more widely, where appropriate.

4. **THE ROLE OF FIELDWORKERS**

Evaluations customarily depend on fieldworkers, who gather the data on which evaluations are based. Fieldworkers must therefore be trained so that the data they collect will be accurate and the manner in which it was collected will be consistent. For this reason, programme managers often apply certain criteria when recruiting fieldworkers, in an effort to set a uniform standard. The following are commonly used selection criteria:

- **Location:** A fieldworker who is a resident of the community and is known by members of the community is considered to be a key factor for sustainability. This promotes ownership, provides an opportunity to build indigenous capacity, and reduces the risk of attrition.

- **Gender:** Some programmes mainly target women of childbearing age and therefore include a preference for female fieldworkers.

- **Basic level of education:** Fieldworkers will be required to conduct a host of tasks, such as information sharing, record keeping, and sometimes community mobilization. Such tasks require certain skills and capacities that require a basic level of education.

- **Overall competence:** Fieldworkers should have certain traits including honesty, communication skills, organizational skills, motivation, patience, and flexibility. These attributes must be given serious consideration with respect to finding personnel. Of course, it may not be realistic to expect all fieldworkers to possess all these traits especially where fieldworkers work voluntarily or are only paid subsistence allowance.
5. **POSSIBLE CHALLENGES TO EFFECTIVE EVALUATION**

It is important to examine some of the challenges that may influence the evaluation of a CNP. The following are examples of such challenges:

**Goals that are too broad or are poorly defined:** Failing to define goals well at the planning stage creates a major challenge in the evaluation process. A goal that is not specific and measurable usually leads to poor evaluation.

**Differences in agendas and expectations:** During the planning process, if the agendas and expectations of different stakeholders are not focused on the same planning process and outcome, these differences will pose challenges to programme evaluation.

**Researcher not in control:** Since researchers are involved in the programme design, they are therefore of value to the evaluation process. Often, the researchers are not actively involved in the implementation of the programme. In such cases, the evaluation process will be negatively affected.

**Changing local situations:** Unforeseen circumstances can arise, such as changing environmental factors, socio-economic factors, or cultural disorientation. The occurrence of such situations can greatly challenge the evaluation process.

**Community context:** The evaluation process may also be challenged by situations arising from within the community. For instance, if the community does not support Western-style education, the members of the community may pose major challenges to documenting the evaluation process.

In addition to the challenges enumerated above, evaluators may face restrictive conditions. For example, they may be called on to evaluate the effects of a programme some years after the programme has begun. Often, they may find negligible baseline data and no control groups. In this situation, a common current practice is to collect data on programme participants, and possibly non-participants, then use statistical manipulations to investigate associations between programme delivery and outcome variables. These methods tend to be expensive and may be difficult to routinely apply in developing countries. Moreover, consideration of the questions that should be addressed before applying such methods reveals that they often turn out to be unnecessary, in that they may not provide much useful information.

Evaluation has often been viewed as a threat to programme continuity or as an expense that is hard to justify given the need to concentrate resources on service delivery. Rarely has evaluation been viewed as a tool to help learn how to achieve maximum impact of the intervention. As a result, the potential of evaluation as a means of improving project design and implementation has not yet been fully realized.

6. **BUILT-IN EVALUATIONS: AN ALTERNATIVE APPROACH**

6.1 **The Concept and its Potential Advantages**

An alternative method of evaluation is the inclusion of a system of on-going programme monitoring at designated stages during the course of the intervention. This may require the development of a checklist of simple indicators that form an integral part of the intervention. Evaluation then becomes an ongoing element of the planning and implementation of a project.

A built-in internal evaluation system conceptually merges the tasks of programme monitoring and evaluation. Data are generated throughout the chain of programme events, beginning with the cataloguing of inputs, the substantiation of the delivery of services, and, finally, measurement of nutritional outcome. This is done on a continuous basis at all project sites. Such information, to be gathered by project staff (rather than outside evaluation teams), is limited to selected key indicators of project operations and impact. The selection of data elements to be gathered and summary statistics to be computed should be based on a review of the minimal information needs of programme managers and a clear understanding of how each element and statistic will be employed in the decision-making process. A premium is placed on coverage at all project sites and on the collation and presentation of such data in simple and user-friendly formats that can be readily
translated into action by managers. In summary, a built-in evaluation system is one that provides continuing feedback to programme planners, fieldworkers, and managers.

By building evaluation functions into an intervention, programme designers provide an incentive for fieldworkers to collect and record accurate data. All too often, programmes are initiated with a set of forms to be filled out in the field and, in some cases, transmitted to a central office. Unless they are educated, fieldworkers might not understand the necessity and purpose of the forms. Quite often, forms are not used, especially those with anthropometric data. Even when completed forms are sent to the central office, fieldworkers find that no response is forthcoming. Data collection appears to them to be a futile activity, and so they lose their motivation for accurately filling out forms. However, if a programme is initiated with a set of forms for collecting limited quantities of data and these are used actively for management at the local level, fieldworkers can quickly see a purpose in their efforts. When the data are aggregated at higher levels, with feedback given to the field-level functionaries, there is an even stronger motivation for collecting data properly.

An objection to built-in evaluation is that the costs are too high to justify the claimed benefit. This is a somewhat shortsighted view that emanates from a poor conceptual understanding of the activity. This argument would be valid if the result of using resources for data collection and analysis was that fewer resources were available for other programme activities. However, if real gains are derived from evaluation activities in terms of learning how to get more out of the resources applied to the delivery of services, the question becomes whether those gains merit the costs.

6.2 Characteristics of a Built-in Evaluation System

A built-in evaluation system has three components: the data, the analytic methodology, and the management support structure.

6.2.1. Data system

The underpinnings of a built-in evaluation system are the data collection and recording procedures. Analytic results can be no better – no more accurate – than the data used in the computational algorithms. To be effective, a data system should include two types of indicators, namely process indicators and impact indicators. Process indicators are used to ascertain the provision of inputs, their costs, as well as the quality and consistency of the service delivery system. An example of a process indicator for a supplementary feeding programme would be the weight of the supplement distributed each month. Measures of impact are used to determine the degree to which a programme is achieving its goal. Taken together, these indicators enable one to relate project activities to impact. Traditionally, process-oriented data have been the subject of project monitoring systems but have been divorced from any attempt to explain the achievement of impact. An example of an impact (i.e., outcome) indicator for a supplementary feeding programme is the percentage of 2-year olds below 70% of a weight-for-age standard.

6.2.2. Analytic methodology

Although certain analytic procedures may seem obviously useful, considerable skill is required to carry out and then properly interpret the statistical procedures used to summarize a batch of numbers. For example, it is intuitively appealing to estimate outcome by comparing the percentage of 2-year olds below 70% of the standard at two points in time. However, the experienced analyst will look at drop-outs in the intervening period (e.g., “Are the malnourished disappearing from the programme rolls faster than the well-nourished?”) as well as new registrants during that period (e.g., “Were the new children entering the programme actually better off?”).

An analyst must be trained to review the competing explanations for observed changes in outcome measurements – both process and impact – and to accept only those that withstand rejection. It is difficult to conceive of a data system that will systematically collect data on all possible alternative explanations in a real-life social setting. Thus, the burden of identifying the most plausible competing explanations falls on the local staff who live in the area and are aware of the changing conditions in their communities. Furthermore, a
sense of timing must be introduced; that is, the analyst should learn to wait until trends become clear and not draw premature conclusions.

6.2.3. Management support structure

To be effective, a built-in evaluation system should be supported at the local level with expertise drawn from higher levels of management. Ordinarily, an intervention is overseen by a hierarchical organizational structure. In other words, supervision of several local distribution centres is carried out by someone of a higher authority and/or greater responsibility (and often a higher educational background or more thorough training). The supervisory function provided at these higher levels is very important: first, to provide assistance to the manager of each distribution centre in the analysis of data, and second, to transfer knowledge derived at one centre to the managers of other centres.

In reviewing data collected at distribution centres, supervisors should identify centres with abnormally bad indicators or extraordinarily good ones. The former indicate that a centre needs extra help; the latter may hold the keys to success for all. However, it should be borne in mind that centres with abnormal indicators at either end of the spectrum are often those making serious errors in data collection and recording. By singling out centres performing at the extremes, supervisors can direct their efforts where they can best be used and, simultaneously, gain insight into what project components or community characteristics lend themselves to the attainment of programme objectives (Mason & Habicht, 1984).

7. ADDITIONAL METHODS

7.1 Qualitative Methods of Evaluation

Although the medical assessment of nutrition status primarily relies on quantitative data, qualitative methods used in social science research can offer an important tool for the evaluation of nutrition programmes.

Information gathered from interviews, first-hand observations, or written sources has proven to be of much value in the evaluation of CNPs. Such information may include detailed descriptions of situations, events, people, interactions, and observed behaviours, as well as people’s own thoughts about their experiences, attitudes, and beliefs. Other data sources are excerpts or entire passages from correspondence, records, and case histories. In some cases, a scoring format can be developed for qualitative data to facilitate comparison. For example, in an intervention intended to improve nursing mothers’ knowledge of breast-feeding, the success of the programme can be judged by assigning numerical scores to the degree of knowledge that mothers possessed at the end of the intervention (Oyewole & Amosu, 2008).

The use of both qualitative and quantitative methods can strengthen the validity of findings, if the results produced by different methods prove to be congruent and/or complement each other (Chapman & Boothroyd, 1988). Comparing the results of both qualitative and quantitative methods of assessment is often referred to as triangulation. The advantage of this approach is that the methods represent independent assessments of the same phenomenon (Green & McClintock, 1985).

Assessment of food intake practices, knowledge, and beliefs should constitute part of the evaluation of every nutrition programme. Indeed, such assessment should form the basis for initial as well as subsequent programme planning. Long-term changes in food practices require changes in knowledge, attitudes, and beliefs about food, as well as changes in food practices. Evaluation of nutrition programmes should therefore assess all of these factors.

The type of evaluation of household food consumption, knowledge, and beliefs depends upon the programme objectives. Programmes may be designed to introduce new food, to bring about one or more changes in existing production or consumption patterns, or do both. Therefore, evaluation usually requires the gathering of baseline information as the first step in initiating a programme, re-gathering of data during and upon completion of the programme, and continuous comparisons.

7.2 The Use of Logic Models in Evaluation

A logic model (LM) is a tool used by programme managers and coordinators to assess the effectiveness of an intervention programme. It consists of a narrative or graphical depiction of programme processes. A logic
model illustrates a sequence of cause-and-effect relationships – in other words, it is a systems approach to communicating the path toward a desired result (Millar, 2001). Logic models link the problem (situation) to the intervention (inputs and outputs), and the impact (outcome). Further, the model helps to identify partnerships critical to enhancing the performance. A simplified version of a logic model is depicted in Table 18.2. An actual logic model would of course include a situation statement.

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<thead>
<tr>
<th>Situation</th>
<th>Inputs</th>
<th>Outputs</th>
<th>Outcomes</th>
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<tr>
<td></td>
<td>What we invested:</td>
<td>What we did:</td>
<td>Change in:</td>
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<td>• Time</td>
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<td>• Capital facilities</td>
<td>demonstrations</td>
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<td>Who we reached:</td>
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<td>• Participants</td>
<td>• Practices</td>
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<td>• Procedures</td>
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<td>External Influences</td>
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Figure 18.2: An evaluation plan in the form of a logic model.
Source: Adapted from Taylor-Powell (1999).

**Situation.** A situation statement is a description of a problem and its symptoms. The situation statement provides an opportunity to communicate the relevance of the project. It establishes a baseline for comparison at the close of a programme and provides a way to determine whether change has occurred.

**Inputs.** Inputs include those things that we invest in a programme or that we utilize in carrying out a programme, such as knowledge, skills, or expertise of personnel. Describing the inputs needed for a programme provides an opportunity to communicate the quality of the programme.

**Outputs.** Outputs are described as efforts expended, material resources used, and time spent providing the products, goods, and services to the programme beneficiaries. Outputs also include the people reached (e.g., informed consumers, knowledgeable decision makers). Describing outputs allows establishment of linkages between the problem (situation) and the impact of the programme (intended outcomes).

**External Influences.** Many nutrition programmes are confronted with the issues of confounders, especially from the institutional, community, and public policies that may have either supporting or antagonistic effects on programmes. For example, at the institutional level, schools may influence healthy eating habits in a positive way by providing valuable education (Glanz & Rimer, 1995). The community also can influence eating habits either negatively (for example, through the proliferation of fast-food restaurants) or positively (for example, through the ready availability of produce via markets). Even public policies that provide support in the form of food banks that stock whatever has been donated or food stamps that allow people to acquire some items but not others could have an impact on healthy eating habits. Documenting the social, physical, political, and institutional environments that can influence outcomes helps to improve the programme planning process.
8. INTERVENTIONS AS EXPERIMENTS: ADVANTAGES AND POTENTIAL DIFFICULTIES

Seasonal variations in weather, the ups and downs of the economy, or bad harvests could produce changes in nutritional impact indicators over time. Similarly, the amount of food lost due to spoilage or pilferage might vary over time and cause a change in the food supply. One task facing those conducting a programme evaluation is therefore to determine whether changes in observed indicators are the direct result of programme interventions or whether they might have other causes. For this purpose, the CNP can be conceived and designed as a form of scientific experiment.

8.1 The Importance of Controls

The use of controls enables a programme evaluator to decide whether observed changes in nutritional or health status can correctly be attributed to an intervention. In a laboratory setting, experimental conditions can be tightly controlled and maintained. However, communities are not laboratories. The external world is constantly changing, in ways that are beyond anyone’s control. For this reason, it can be very difficult to establish and sustain reliable controls in order to ascertain the impact of an intervention. Specifically, evaluations have faltered because they have done one (or more) of the following:

- Failed to account fully for rapidly changing external factors, such as socio-economics, political considerations, and physical phenomena, which may have an even greater effect on nutritional status than the programme itself
- Wrongly assumed that interventions are applied consistently over time when, in fact, they undergo dynamic changes in the type and method of service delivery
- Ignored the natural changes that take place in the target group, such as ageing, addition, and/or attrition of participants, and spontaneous recovery of the malnourished, which, even in the absence of intervention, may result in significant population-based changes in nutritional status
- Overlooked the many problems inherent in measuring nutritional status
- Used a sample size that was too small

When circumstances preclude setting up a randomly assigned control group to be compared with a treatment group, it is possible to use statistical controls (e.g., multivariate techniques such as regression), reflexive controls (e.g., comparisons of the treatment group with itself at different points in time), or other analytical techniques to account for or minimize the effects of extraneous factors (e.g., adoption of mixed strategy using statistical controls to account for differences between the control group and the nutrition intervention group).

8.2 Statistical Analysis

The first consideration is whether a statistical association exists between the supposed cause (the intervention) and the outcome or effect, such as improved nutritional status. Seeking associations is useful only when one needs some level of certainty that the programme is causally related to the outcome. Showing an association requires comparison of measured outcome in at least two groups that receive different intensities of programme intervention. This may include: comparing two groups, such as control and treatment; showing correlations between different levels of programme delivery and outcome (a “dose-response relationship”); estimating regression coefficients between programme activities and outcome; and statistically controlling for confounders. Although statistical tests are performed after data collection, they must be planned in advance to ensure that the data collected are appropriate to the purpose.

8.3 Establishing Causality and the Problem of Confounding

It is a mistake to automatically conclude that changes observed after an intervention are a result of the intervention process. Even where impact data were available, some evaluations have failed to demonstrate nutritional or health impact, or they have produced inconclusive results. Even in the few cases where

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nutritional and health benefits have been shown, critics have hastened to point out the methodological flaws of those evaluations. This emphasizes the importance of appropriate statistical analysis to remove the effects of confounders (threats to internal validity of data) in any set of data collected. Major causes of confounding is indicated in Table 18.1. Removing the influence of confounders in data presentation gives more credibility to the results generated from a programme. However, because of weaknesses in data collection, measurement, research design, and interpretation of results, different approaches to analysis can reveal competing explanations for the observed outcomes or, in many cases, entirely different outcomes.

### Table 18.1: Major causes of confounding (threats to internal validity)

<table>
<thead>
<tr>
<th>Causes of confounding</th>
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<td><strong>Selection procedure</strong></td>
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<td>When the assignment of subjects to treatment and comparison groups is not random, the groups may differ systematically in some characteristic(s) associated with the outcome variable. Selection bias is therefore likely to be present. Self-selection is a common source of this type of bias.</td>
<td>Mothers who choose to participate in a programme to reduce the incidence of low birth weight may tend to be more affluent, better educated, and more motivated than those who do not. These factors influence the outcome and compete with the programme as an explanation for an observed reduction in the incidence of low birth weight.</td>
</tr>
<tr>
<td><strong>Stages of human physiological maturation</strong></td>
<td></td>
</tr>
<tr>
<td>People mature over time, and this process may cause changes in the outcome variable irrespective of programme effects.</td>
<td>The nutritional status of children aged 6–24 months is often poorer than that of older pre-schoolers. If the average age of participants in a nutrition programme increases from, say, 18 to 36 months, overall observed improvement may be due to maturation and might have occurred even without the programme.</td>
</tr>
<tr>
<td><strong>Records of historical events during the intervention period</strong></td>
<td></td>
</tr>
<tr>
<td>When a programme is in effect, many other events may intervene and influence the outcome variable. When these historical events have different impacts on the treatment and comparison groups, they confound the programme effects.</td>
<td>A supplementary feeding programme is introduced in one of two areas that are otherwise equivalent when the programme begins. If food prices rise at different rates in the two areas, observed differences in nutritional status may not be caused solely by the feeding programme; the differential price rises may have influenced the outcome.</td>
</tr>
<tr>
<td><strong>Instrumentation</strong></td>
<td></td>
</tr>
<tr>
<td>Error may arise from changes in the way measurements are made, in what is measured, or from measurement errors due, for example, to instrument decay.</td>
<td>The height for age of pre-school children is often compared across age groups. With infants from birth to 2 years old, it is usually length that is measured, but with children older than 2, height is measured. Groups with similar age are compared.</td>
</tr>
</tbody>
</table>
Regression artifact

| If subjects are chosen on the basis of exhibiting an extreme value on some variable (e.g., wasting), there may be improvement over time without any intervention. This tendency is called regression toward the mean. The solution is either to observe the effect on the whole population or to make comparisons within the selected extreme group (e.g., malnourished people). | In a nutrition programme instituted for malnourished people, improvement may be shown in that some of the participants are no longer malnourished at the end of the programme. However, some improvement may not be due to the programme but to the fact that some subjects would have improved anyway. |

Subject dropouts

| Some subjects may drop out of a programme during the course of its implementation. If these subjects have different characteristics than those who remain, any before/after effect shown may be confounded by inherent differences between people included in the populations. | A food-for-work programme may not lead to an improvement in the nutritional status of a community even if it has in fact been effective. This could happen if enough of the participants who improve leave the community in search of jobs elsewhere. In this case, the observed change underestimates the impact of the programme. |

Source: Habicht et al., 1984.

8.4 Additional Considerations

The impact of food programmes on the nutritional and health status of individuals is mediated by various characteristics of households. For example, sanitary practices in relation to food preparation and storage in the home affect morbidity. In most societies, households are a primary setting for the acquisition, preparation, distribution, and consumption of food. Therefore, household composition and organization should be regarded as an intervening or confounding condition affecting the impact of nutrition and health interventions.

The types of variables that are likely to be of greatest importance to the evaluation, and that should be included in a typical household interview, can be summarized under the following headings:

- **Household composition**: The number of children and other dependants in the household in relation to the number of productive adults affects the quality of nutrition in the household.

- **Household organization**: Such factors as household dynamics, gender role division, and types of family union have an influence on the evaluation process. Therefore, these aspects of family life should be considered.

- **Material resources and conditions**: Poor weather conditions or a dearth of necessary materials to conduct the evaluation will have a negative effect on the evaluation process.

- **Beliefs and attitudes related to food, nutrition, and health**: Poor knowledge regarding beliefs and attitudes of people in a community will not provide a holistic outcome of programme evaluation.

Care must be exercised not to assume equal food consumption among household members. If correlations are to be attempted with individual findings, individual food intake data must be obtained in addition to household consumption. Likewise, household data are not adequate for identification of vulnerable age groups, such as pre-schoolers and elderly persons.

In addition, the nutritional status of a child can be influenced by genetic endowment, maternal nutritional status, the availability of food to the family, seasonal variations in rainfall and catastrophic weather conditions, the accessibility of social services (especially health care), sanitation (e.g., sewerage, the availability of potable water), and nutrient wastage caused by such factors as infectious disease and parasitic infestations.

9. PROGRAMME SUSTAINABILITY

Sustainability is a recognized evaluation criterion with respect to development programmes. For instance, in order to ensure sustainability of the use of a micronutrient product by nursing mothers in a community with a high level of deficiency, the following should be considered:

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• Cost of the product
• Its continuous availability
• Level of promotion of the product
• Integration of the product into existing child-care programmes
• Periodic assessment and retraining of stakeholders and health staff
• Local production of the product
• Positive perception about the efficacy of the product

10. ETHICAL ISSUES IN PROGRAMME EVALUATION
Project evaluation should always be conducted in a manner consistent with ethical standards. Evaluation procedures must therefore protect the dignity of the target population and their rights. Protection of vulnerable groups, especially children, should be a top priority.

A guideline stipulating ethical issues in evaluation process focuses on the following:

Beneficial: The evaluation should benefit the target population and promote their interests.

Not causing harm: The evaluation process should in no way be prejudicial to whoever is involved in the programme.

Justice: The programme should consider equity and justice. All involved in the evaluation process should be treated fairly.

Respect: It is very important to work within the socio-cultural tenets of the target population. The rights of people should be respected in every way.

The evaluation design should include strategies to reduce the risk of any harm the programme might cause and promote the benefits. This is the main goal of ethical consideration in the evaluation of a CNP.

11. CONCLUSION
Programme evaluation is one of the surest means for distinguishing between effective and ineffective community-based nutrition programmes. It is a driving force for planning effective public health strategies, improving existing programmes, and demonstrating the results of the investment of resources. However, basic steps must be followed, and established procedures are vital in achieving the goals of programme evaluation. If an evaluation is not conducted in accordance with these principles, the result of such an exercise will be susceptible to negative criticism, which may lead to rejection from the funders of the programme.

Programme evaluation is essential for testing a new idea and for making comparisons. It is the driving force that permits a judgement of programme implementation and justifying a conclusion that the intervention is worthwhile. Although quite complex in nature as well as time and capital intensive, the long-term benefits in terms of reducing wastage of time and resources makes evaluation a cost-effective venture in the long run.

DISCUSSION QUESTIONS AND EXERCISES
1. Why is it important to conduct process evaluation?
2. Who and what should be involved in a programme evaluation?
3. If evaluation results are negative, what should the next action be?
4. What are some environmental factors that may influence evaluation of a CNP?
5. How can the results of programme evaluation be authenticated?
6. What are the disadvantages associated with lack of programme evaluation?
REFERENCES


ADDITIONAL RESOURCES


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