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Promoting the Growth of Children: What Works

Rationale and Guidance for Programs

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This report is Tool #4 in the World Bank's Nutrition Toolkit. The purpose of the Toolkit is to help World Bank staff design and supervise effective and feasible nutrition projects and project components and to carry out comprehensive analysis of sectoral and policy issues affecting food consumption and nutrition.

For more information, contact the Nutrition Group of the Human Development Department, HCDVP at (202) 473-2521.

Dedication

The teachings of *Lukas Hendrata* (1941–1994) are reflected throughout this paper, not only because of his writings on growth promotion, but also because of the personal guidance he offered to many of us working in community-based programs. Lukas' strong belief in improving child health and nutrition through community self-help was infectious and inspired innovations in many growth promotion programs. It is the hope that by putting forward concepts Lukas pioneered, this document will help perpetuate his contributions to child health.

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Boxes:

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Glossary of Terms and Abbreviations

ANEP: Applied Nutrition Education Project in the Dominican Republic

Anthropometry: The measurement of the body. The measurement can be of length, height, weight, arm circumference, etc. Often measures are expressed in ratios of one to another, e.g. weight-for-height.

BRAC: Bangladesh Rural Advancement Committee

Consultative research: A combination of rapid, interactive information-gathering methods with mothers and other key people, during which important scientific information and key cultural and personal concerns are examined and "negotiated" to arrive at feasible, acceptable and effective strategies to improve maternal and child-care practices.

GMP: Growth monitoring and promotion

Growth monitoring: In this paper refers to weighing a child and graphing the weight.

Growth promotion: In this paper refers to the process of weighing a child, graphing the weight, assessing the growth, and providing counseling and motivation for other actions to improve growth.

Growth faltering: The failure to gain adequate weight for one's age between two serial weighings.

ICDS: Integrated Child Development Scheme, a national program in selected areas of India. In this paper ICDS usually refers to a pilot project carried out in Gujurat and Maharastra States to improve the nutrition component of ICDS.

INP: Iringa Nutrition Project in Tanzania

NCBC: Nutrition Communication and Behavior Change Project in Indonesia. This was a demonstration project on counseling and enhanced nutrition education for UPGK.

Nutrition negotiation: The process of decision making between a counselor and a mother regarding the actions a mother or family will take to correct their child's faltering growth.

Nutrition surveillance: Monitoring the nutrition status of a population. Usually measurements of height and weight are taken periodically (e.g. every year) on a carefully selected, random sample of individuals to monitor trends in their nutrition status over time.

PEM-PAAMI: Program to Evaluate and Improve the Maternal and Child Feeding Program in Ecuador

SD: Standard deviation

TINP: Tamil Nadu Integrated Nutrition Program in India

UNICEF: United Nations Children's Fund

UPGK: Family Nutrition Improvement Program in Indonesia

WHO: World Health Organization

1 Introduction: Sustainable improvements in child health and nutrition depend on families and communities being motivated to take timely and appropriate actions and being able to see benefits from these actions.

How can children, born into less-than-optimal environments, avert the mild and moderate malnutrition that underlies the majority of child mortality?

It is the basic thesis of this paper that, in circumstances other than emergencies, programs designed to promote growth can have an important impact on child nutrition, health, development and survival. Persons who can influence programs designed to improve child health or nutrition in developing countries should consider adding growth promotion activities or modifying existing ones to enhance their effectiveness. (This paper uses the term *growth promotion* for the following group of actions: weighing, charting, identifying a problem in growth, and responding to promote growth.)

The vast majority of parents are deeply concerned for their children's welfare. Despite this concern, motivating better nutrition practices and other preventive health actions has proven difficult, often because parents don't perceive the problem or see the results of their actions. One of the few ways to make the need for and the impact of preventive actions visible to the family and those who can assist in the community or health sector is through charting monthly changes in children's weights. Information about adequate or inadequate changes in weight can be used to reinforce positive practices, motivate changes in harmful ones, reward and sustain new behaviors, and target nutrition and health advice and services at the individual, community and program levels.

Growth promotion activities have been implemented as core components of nutrition and health programs in many developing countries, with considerable variation in objectives, approach, and impact. Experiences in a handful of successful community nutrition projects indicate that by serving to increase awareness and motivate action to improve nutrition, growth promotion has been central to success (Balachander; Soekirman; Mwikongi; Tontisirin; USAID, 1988). On the other hand, there has been criticism of the lack of expected impact on the health and nutrition of young children

achieved by other programs with growth promotion (George; Gerein, 1988; Nabarro; Cervinskas). We would argue, however, that in many of these cases, growth promotion was criticized for not achieving objectives that were impossible to achieve as the program was designed.

Both successful and unsuccessful programs demonstrate that unless a program has been designed and implemented to use growth data for *decision making and action,* there is no reason to expect that the monitoring and promotion of growth will make a difference to health and nutrition outcomes. Unless the response to an individual child is tailored to reflect what is revealed by the growth monitoring and discussion with the family, the time spent on weighing might be better used on other activities.

Reviews of effective, large-scale nutrition programs have concluded that overall program success is related to key issues such as targeting, community participation, appropriate staff selection, supervision and training, management information systems, political commitment, replicability, and sustainability (Jennings; USAID, 1989). Interestingly, most of these successful programs had growth promotion activities that were considered critical to making several of these functions viable. Some of these renowned, large-scale nutrition projects, such as the Family Nutrition Improvement Program (UPGK) in Indonesia, the National Nutrition Programme in Thailand, the Tamil Nadu Integrated Nutrition Project (TINP) in India, and the Joint Nutrition Support Programme (Iringa) in Tanzania, will be described below to illustrate effective uses of growth promotion. Other projects such as the Caritas-CRS Applied Nutrition Education Project (ANEP) in the Dominican Republic, PEM-PAAMI in Ecuador, and a pilot community-based nutrition project in Senegal provide useful examples of important innovations in smaller-scale programs.

This paper is not intended to be a comprehensive review of the abundant literature on growth monitoring and growth promotion. The focus will be on what works: on how to design and implement programs that maximize the potential offered by the growth promotion package in nutrition and primary

health care programs. The paper is illustrated by examples of when and how growth promotion has been implemented effectively and how these lessons can be applied in other projects. There are also suggestions on what to avoid. This paper includes:

- a review of the definition and purpose of growth promotion,
- a discussion of the use of growth promotion for decision making and action in nutrition and health programs (sample decision guides are provided for overall program and community-level strategies and for individual nutrition education),
- the implementation of the decision-making approach, with examples from programs throughout the world,
- management principles that optimize the impact of growth promotion activities,
- a summary of available estimates of the cost of growth promotion programs, and
- guidelines for assessing a growth promotion program's design and implementation.

2 An effective program design for growth promotion begins with clarity on its purposes, its scope, and the circumstances in which it functions well.

Discussion of growth monitoring and promotion is often hindered by a lack of consensus on its definition and purposes. Growth *monitoring* usually refers to weighing a child (from birth through the first two, three or five years of life) and graphing the weight, but it can include more. Recognizing that weighing and charting alone cannot improve growth, some practitioners use the term "growth monitoring" to refer to the whole package, taking the position that growth monitoring, by definition, includes counseling and action to improve nutrition (Latham). Others use the longer term "growth monitoring and promotion" to emphasize the need to use the information for promoting better growth (Hendrata, 1988).

The point of the whole process is the *promotion* of child growth—the weight monitoring merely provides information that can be used for choosing how and when to promote. This paper uses the term *growth promotion* to include all components of the process (see Box 1). This seems simpler and clearer and puts the emphasis where it belongs. In this paper, the term growth monitoring refers specifically to weighing and charting growth.

Growth promotion's full impact can be realized when it is employed to make decisions about three types of action:

1. Recommendations for individual children's care (particularly related to illness and feeding, but also to cognitive and motor development).

2. Activity plans for the community that aim to make it easier for families to maintain the growth of their children, for example, by addressing problems of food shortages, poor water conditions, or collective child-care needs that extend beyond a single household.

3. Program activities that bolster community actions that affect households with special needs, such as income-generating or transfer schemes.

The need for decision making and action at these three levels will be referred to throughout the paper. Few programs have had a growth promotion

Box 1: The Growth Promotion Package

1. **Regular assessment of child growth:**
   - weighing the child—monthly for the first two years of life
   - usually done by graphing the weight for the age of the child on a growth curve
   - determining the adequacy of weight gain or the velocity of growth between visits (see Box 2 on growth pattern vs. nutrition status)
2. **Decision making and action needed for the child:**
   - talking with the mother, or other caretakers, to determine the causes of problems or the reasons for successes over the past month
   - referral to available services and tailoring the counseling
   - defining the next steps and when to return
3. **Decision making and action at the community and program level to integrate and target services and resources to motivate and enhance actions in the household.**
4. **Follow-up/feedback on the effects of actions taken:**
   - household level—child
   - community/program level—all children

strategy functioning at all three levels; however, the success achieved when operating less than optimally (at only one or two levels) points to an even greater potential impact for growth promotion if implemented fully.

Growth promotion is best suited to programs with a preventive approach, because it catches growth faltering, an early sign of health and nutrition problems.

Growth promotion begins with weighing, then marking the weight for the age of the child on a growth chart. Regular weighing and charting of weight-for-age represents the best balance between simplicity and specificity because weight fluctuates relatively rapidly (as compared to height or arm circumference) with changes in health status or dietary intake. However, traditionally growth charts have had divisions representing classifications of undernutrition, (usually mild, moderate and severe), and health workers have concentrated on classifying a child's nutrition status rather than on his or her growth pattern, losing the specificity of the weight indicator to detect current problems. Recently, this view is changing in favor of monitoring the child's growth pattern or weight gain over time to catch growth faltering in order to prevent undernutrition. A program that does not use adequate weight in its assessment of a child is not a growth promotion program.

The distinction between monitoring a growth pattern or weight gain and classifying nutrition status is important for program decisions. Healthy young children all over the world grow in a particular pattern dependent upon age. However, because of individual variation and the inability of some children to recuperate from past nutritional or health insults, the *rate* of growth is an important indicator to trigger action. A view of the trend of growth over time tells much more about a child's health and diet at the present time than does a child's size or nutrition status, which reflects the accumulation of nutrition, health, and genetic influences on growth.

Child A may be low on the growth curve due to a past illness but be growing appropriately as indicated by the rate of weight gain (Chart A, Box 2). This

Box 2: Contrasting Growth Patterns

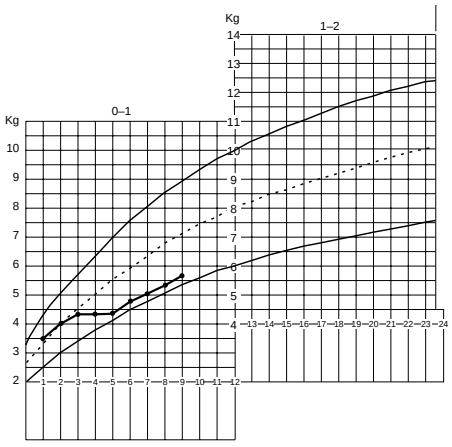

Chart A:
Child with low weight-for-age, but who is gaining weight and has a good current growth pattern.

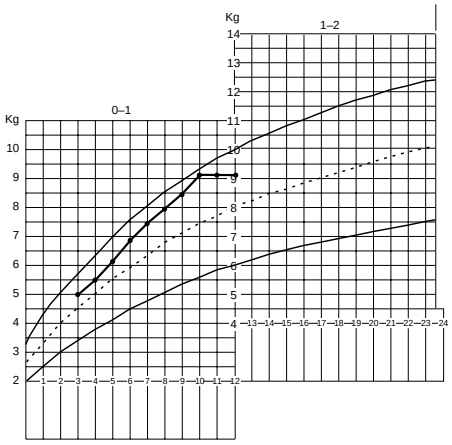

Chart B:
Child with high weight-for-age, but who is not gaining weight and has a poor current growth pattern.

child should be treated differently from Child B, who may be in the upper ranges of the chart, but who, due to a current problem, is faltering and is not gaining weight (Chart B, Box 2). A program that uses a weight-gain criterion would identify Child B for action. But a program using nutrition status as the criterion would not detect Child B as needing help until the child slid into an undernourished state.

As pointed out by Hendrata and Rohde, one common "pitfall" of growth monitoring programs has been the tendency to focus on children who are already malnourished as identified through nutrition-status criteria, thereby losing the relative advantage of detecting growth faltering early enough to prevent malnutrition. When faltering is caught early, small changes in behavior that are within the means of many families are likely to be effective in reversing the trend (Gopalan), whereas rehabilitation once malnutrition has occurred is costly, time-consuming, and often ineffective in preventing relapse.

While the debate continues about the sensitivity and specificity of anthropometry* in detecting risk of death, the argument for catching growth falter-

* It is beyond the scope of this publication to describe and debate the various anthropometric indicators and the growth standards that should be used. These are reviewed in *Growth Monitoring of Preschool Children: Practical Considerations for Primary Health Care Projects* (Griffiths, 1985). It is sufficient to say that for growth promotion, the accepted standard worldwide is to use weight-for-age and the National Center for Health Statistics growth curves published for international use by WHO. Recently, questions have been raised about the appropriateness of using the NCHS/WHO reference for exclusively and fully breastfed infants. A WHO working group recommends that new reference growth standards be proposed; however, at this time they do not exist (WHO). The implication of this for growth promotion is that women who exclusively breastfeed may have infants who appear to falter at about three months of age. These women should be encouraged to continue to exclusively breastfeed and should be counseled about

ing *early* has recently been strengthened by new evidence of the impact of mild and moderate malnutrition on child mortality. Pelletier and colleagues have estimated relative risks of death of 2.5, 4.6, and 8.4, for mild, moderate, and severe categories of low weight-for-age, respectively. Their analysis of data from 53 developing countries calculated that 56% of child deaths (6 to 59 months) are attributable to the synergistic effects of malnutrition and disease, and that mild and moderate undernutrition account for 83% of this effect. They conclude that *targeting interventions only to children with weight-for-age below 60% of reference will not be effective in preventing much of the mortality associated with undernutrition* (Pelletier, 1994).

Hence, making an substantial contribution to mortality reduction may require working with well designed growth promotion programs that address mild and moderate malnutrition by detecting and taking action when growth faltering is first manifested.

Growth promotion works well in programs seeking to improve efficiency and effectiveness by responding to individual and local problems.

There is no single solution to the nutrition problems of preschool children in a given community or region. What is needed is a problem-solving approach for gathering information, using it to define the problem (preferably before it becomes severe) and probable causes, choosing certain solutions to try, and following up to see the impact of these actions. Implementing the growth promotion package can make the problem-solving approach a reality, ***even where workers may not have the professional training usually associated with the ability to diagnose problems and fine tune recommendations.***

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the importance of frequency of breastfeeding to breast milk production. They should not be made to feel that they should abandon or supplement their breastfeeding.

The reality, however, is that growth promotion is not used as a tool for problem solving because the package (see Box 1) is not fully implemented. Because they are considered the most technical tasks, weighing and charting (rather than how to respond to results of monitoring) get a disproportionate amount of attention from trainers, training manuals, supervisors, program planners and evaluators, and consequently from health workers. Incomplete or skewed implementation has led to a fatal disjunction between growth monitoring and taking actions to solve problems that is at the heart of some of the disaffection with growth promotion.

Clarity about the objectives, the extent of implementation of the growth promotion package, and the program context are particularly important at a time when the utility of growth promotion is being questioned. Two recent, often-cited evaluations of growth monitoring and growth promotion epitomize the problem of unclear definitions (Gerein, 1988; George). These evaluation results require careful interpretation, because neither evaluated a growth promotion package. Missing in each case was the problem-solving aspect.

One evaluation that concluded that "growth monitoring and promotion" was ineffective stated clearly that programs weighed children for the sake of collecting weights and assessed nutrition status with no action plan (Gerein, 1988). It bears repeating that monitoring growth alone is not enough to bring about sustained improvements in child health and nutrition. In another program there was action but it was not targeted to individual children's problems. This evaluation of intensive nutrition counseling and primary health care with and without growth monitoring concluded that counseling was effective, but weighing and charting children's weights did not add to program effectiveness (George). However, the power of knowing the monitoring results was not tested. In both groups, all children received the same intensive counseling intervention, regardless of their growth pattern. Therefore, it is not surprising that measuring growth *per se* did not improve the impact of the counseling (Dixon).

These evaluations of growth monitoring and promotion should serve as warnings of three situations to avoid:

1. When children are weighed but the results are not used to make decisions for action because the program offers no services that could benefit from knowing a child's growth status.

2. Those times where children are weighed, but the results are not used to tailor advice or action. For example, the same nutrition messages are provided to all mothers after the weighing. This requires little time and effort on the part of the nutrition worker, but its impact is usually negligible.

3. Those programs that want a measure of a population's nutrition status for screening or monitoring purposes they need not weigh children repeatedly. For surveillance purposes, it is better to collect cross-sectional data infrequently on a representative sample of the population. For screening purposes, other indicators such as mid-upper arm circumference, household characteristics, or geographic location may be most effective.

The strength of the growth promotion package rests on its ability to identify those families in need of assistance where this might otherwise be difficult. This differentiation of need allows action programs to integrate the most appropriate services and resources under one "roof" and to target them to meet families' needs. Programs that must juggle vertical intervention plans for nutrition, diarrheal disease, acute respiratory control, child development, etc. can use growth promotion to integrate problem assessment and resolution by synchronizing the preventive and treatment protocols, enhancing efficiency. Evaluations have shown that when services and advice are tailored to an individual child's or family's circumstances, they are more likely to be appropriate and therefore to be tried and sustained, improving program effectiveness and cost effectiveness.

While growth promotion clearly has the potential to perform this integration and targeting function, it does require trained people at the local level with

proper support, some basic guidelines, time with families, and a situation that is not an emergency—where development is under way and people are acquiring tools to improve their own lives. The lessons and recommendations of this paper are most applicable in such situations.

In a few situations, it may be difficult to know if the human resources and potential exists to implement the full growth promotion package. In these situations, the problem-solving nature of the process should not be abandoned, because that is precisely what leads to greater effectiveness and efficiency. In these cases, innovation is required in the design of the growth-promotion assessment, decision-making, and action package or in the infrastructure for its implementation. Innovations that could be considered are:

- using indicators other than weight (e.g. presence of illness, extreme thinness, recuperation from illness) to identify children of different ages for special attention and tailored advice *while* weight-for-age monitoring is being introduced, because this will help workers learn to solve problems,

- restructuring workers' time or developing tools to allow for more and better counseling and community problem-solving sessions, and

- using unconventional cadres of workers such as shopkeepers or forming "working groups" to help the appointed worker with growth promotion activities.

Examples of such innovations are provided in subsequent chapters. The key point is: If families could benefit from tailored, specific help, and the program could benefit from better efficiency and effectiveness, employ the growth promotion package.

3 Guidance on the selection of appropriate actions and the content of counseling is needed to improve child health and nutrition.

Medical "algorithms" or decision trees have been developed within the field of public health to aid front-line workers in moving from assessment through diagnosis to treatment and follow-up of various diseases (e.g., WHO's charts on treatment of the sick child and on ARI treatment). This approach is also applicable to preventive health and nutrition.

Many programs have been unable to realize the potential of their growth monitoring activities because they have not given sufficient attention to linking decision making and action with each child's growth pattern. For the link to be made, program managers, health care providers, and community workers need clear operational guidance.

Detailed "decision guides" can enhance the use of growth, feeding and health information by illustrating the pathways by which appropriate actions can be selected and implemented. Doing this can also create more consistency between the services offered by the program, the health facility, and the community, and it can integrate approaches across programs such as diarrheal disease control and nutrition. Carefully conceived guides can be used to focus workers' tasks and training and can ensure that limited program resources such as food for children are used efficiently.

Because decision making and actions based on growth information take place at various levels, most programs need aids for decision making at three basic levels: (1) the program level for all major activities, (2) the collective, community level, and (3) the household level. Examples of decision guides are provided in the following sections, and program experiences with each are discussed in the next chapter.

A decision guide can illustrate how growth promotion serves to integrate and target components of a program's strategy to improve health and nutrition.

Effective strategies to improve nutrition in the community combine activities to address several of the underlying causes of malnutrition [which may be

grouped in the three categories of household food security, health, and caring practices (UNICEF, 1992)] and target various segments of the population based on need. Growth promotion can be envisaged as the hub of decision making about integration and targeting, because this is where the need is identified based on an assessment of the adequacy of child growth. Therefore, one of the important planning decisions is to define growth faltering (see Box 3: What Is an Adequate Growth Pattern?) and to decide how to combine it with the child's health status, possibly nutrition status, and the amount of time a child has been without weight gain. Below is an example of how these elements can be combined to prioritize actions.

- A child who is growing at the same rate or faster than the reference curve, regardless of position on the chart, is considered to be growing well.

- A child who has not gained adequate weight for 1–2 months, but who is within the "Road to Health" and not identified as currently ill, needs attention to feeding to prevent further growth faltering.

- A child who has inadequate weight gain for 1–2 months and is currently ill needs medical action and, in case of lack of appetite, special attention to feeding.

- A child who has inadequate weight gain for 1–2 months and is below –2SDs (standard deviations) on the curve needs more attention to nutrition (perhaps a home visit or supplementary food) than the child above who is not below –2SD on the chart.

- A child who is losing weight or has not gained adequately for 3 months or more needs urgent attention. There may be an acute illness, serious feeding problems, or an underlying social problem. Such a child may need to be referred for medical evaluation, supplementary feeding or appropriate support to the home situation.

- A child who is ill, regardless of good growth, needs medical attention.

Box 3: What Is an Adequate Growth Pattern?

Each growth promotion program needs to determine how to classify adequate/inadequate growth and what actions will be indicated at what levels of severity. Some programs use simple classifications of gaining weight (ascending line) or not gaining (a horizontal line) or losing weight (a descending line). However, the determination of weight gain without knowing if it was adequate can lead, particularly in early infancy, to a situation where a child may falter for several months, gaining small but insufficient amounts of weight before the curve actually plateaus and is identified as showing faltering. Since faltering should be detected as early as possible, many programs suggest comparing the slope of the child growth curve to the slope of the reference curve to determine if the child is growing parallel or above the reference curve (adequate) or is growing at a less than the reference slope (inadequate). While the design of the growth card (see Chapter 5) can enhance a health worker's ability to compare the slopes of the lines, such cards are the exception, not the rule. A few attempts have been made to refine the system of detecting adequate weight gain even further. In Tamil Nadu in TINP and in the Dominican Republic in ANEP, workers determined if a minimum weight gain was achieved each month. The criteria they used were:

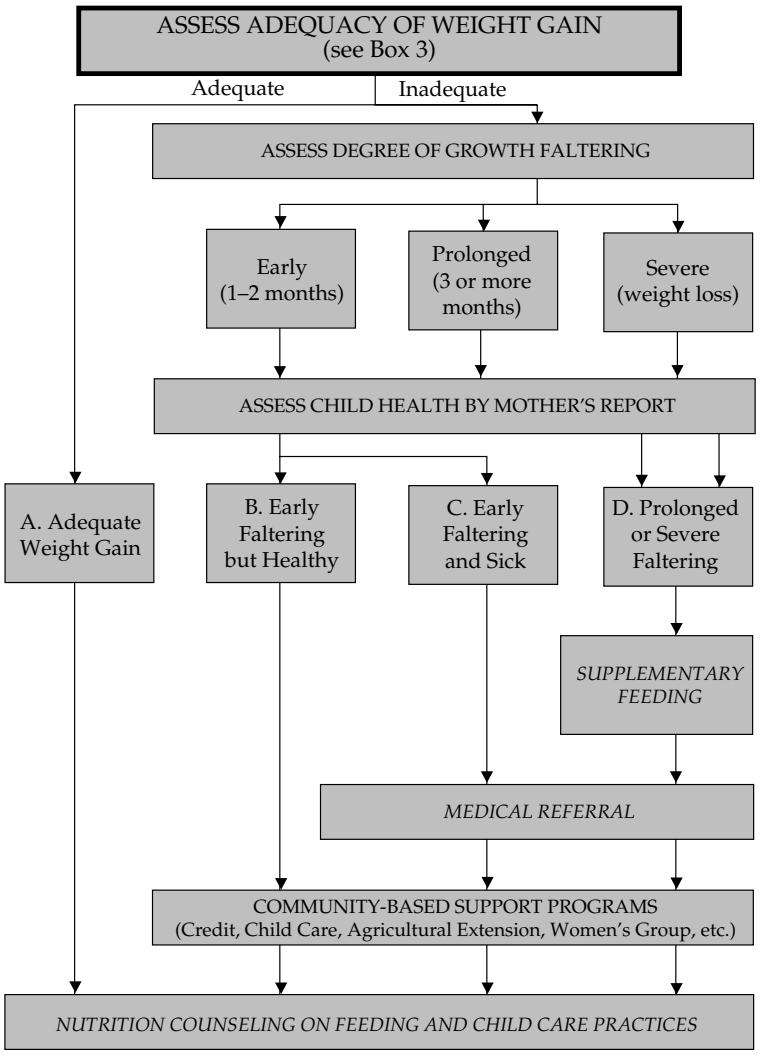
Age (months)	Minimum weight gain per month (g)
Tamil Nadu	
6–11	500
12–35	165 (500 in 3 mos)
Dominican Republic	
0–8	500
12–23	200

Developing a program-level decision guide that links the services and resources to the criteria for targeting each is an important process. To develop the guide, program planners must identify: (1) the options available to address the common causes of growth faltering; (2) the stringency of the criteria for eligibility to participate in certain activities; and (3) the costs for the necessary resources, given the potential demand and how the services fit together in a package to improve child health. Planners will preferably work with groups that will be involved in program implementation to develop the basic decision guide that will be applied at the community level. Once developed, the guide serves as a useful starting point for more detailed planning by making the overall decision process clear and concrete.

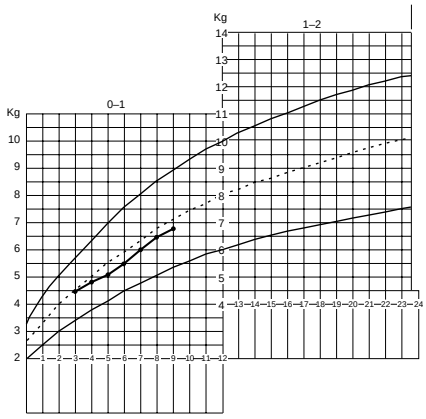
The sample decision guide in Figure 1 shows how information on a child's growth and health status can be used to target a variety of actions. The guide is generic, a composite from several actual programs. Starting from the measurement and interpretation of rate of growth (see Box 4 for samples of the growth charts), the pathway leads through "diagnosis" or classification to a range of different approaches to nutrition improvement, serving to target and integrate the components of a program by specifying how referral decisions should be made. The nature of the actions and referrals, of course, varies by program, and the decision guide needs to be modified to reflect specific program objectives and resources. For example, if the program includes measuring developmental milestones, actions to improve child development can be added. The guide should also be updated during the course of a program, based on feedback from those using it and the demand and supply of services.

The decision guide targets the expensive or more intensive services to those most in need, so that, for example, only those children considered to have prolonged or severe growth faltering ("D") receive supplementary feeding, an expensive and curative intervention that is difficult to sustain. Integration is achieved by specifying that certain children are referred to other services or programs. For example, of children with early growth faltering, those who are reported to be ill ("C") are referred for medical care, and all

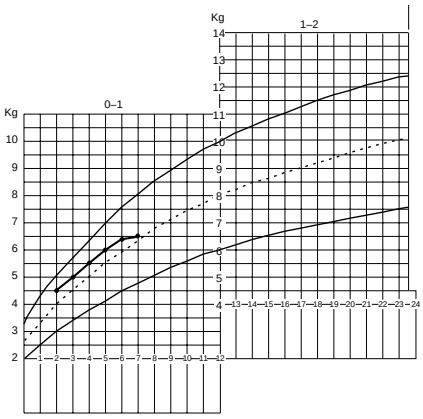
Figure 1: Sample Decision Guide for Integrating and Targeting Actions



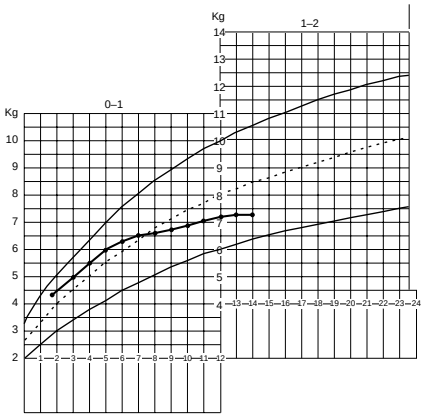
Box 4: Sample Growth Charts and the Assessment of Growth Status



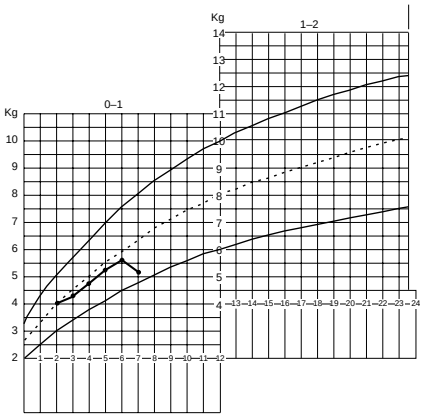
Adequate weight gain



Early growth faltering in presence or absence of illness



Prolonged growth faltering



Severe growth faltering—weight loss

("B" and "C") are referred to community-based support programs that address some of the family conditions that may be contributing to the child's poor growth. All children's families receive counseling, even those whose children are growing well ("A"). Under a system like this, if a child is classified with mild growth faltering, which may not be a problem because of individual variation in growth, at most the mother would receive extra counseling and might be referred to a community group. This is a small "price" to pay for false positive.

An integrated program may also need more detailed guides for the decisions to be made by staff within each component or at different centers (health center vs. community), and again the process of developing the guides is a crucial planning exercise. These component guides should be designed to spell out for workers how to interpret the growth data and specify the actions to be taken based on that interpretation. For example, in Figure 1, mothers of all participating children receive nutrition counseling. However, the nature of the counseling varies depending on growth status, as described in Figure 2 in the section on individualized counseling.

Growth promotion offers an excellent opportunity for communities to understand and take action to prevent poor growth.

Community participation has been found to be an important factor in the success of nutrition and health projects (Jennings; USAID, 1989). Shrimpton has discussed the range in level of community participation and developed a scale for measuring it. At the highest level, community members and organizations do needs assessments, make decisions, raise and allocate funds, supervise community workers and disseminate information. Growth promotion programs offer excellent opportunities for communities to understand their nutrition situation, make decisions, take action and evaluate that action. It is a perfect example of "using information for decision-making at the level it is being collected" (Hendrata, 1992).

A community's analysis of how the nutrition and health activities offered are addressing their children's growth faltering can be a good incentive for action. Periodic community meetings—where the number of children participating in the program and the number gaining or not gaining weight are evaluated—have helped community members see seasonal nutrition problems, identify families whose children have chronic problems, and need special care, identify parts of the community with poor environmental conditions, see that children always falter at a particular age, etc. This type of analysis allows communities to plan their own adjustments to a program plan such as the one in Figure 1, particularly in the "community-based support program" element.

Programs should make a conscious effort to help communities to refine their action plans. Community additions can be in the form of changing the feeding component, adding community child care (Jonsson et al.), seeking resources to clean up a foul water supply, demanding measles vaccination (Arole), etc. Communities can also help ensure adequate support for the workers undertaking the counseling, group education and home visits. These activities cannot be prescribed: they must come from community analysis. The community review of growth monitoring and promotion information can both generate demand for action and help evaluate those actions.

Growth promotion can enhance the impact of education to improve household practices by providing a framework for individualizing nutrition counseling.

Nutrition education is a key component of growth promotion programs because improvements in child nutrition so often depend on changing feeding and care-giving behaviors in the home. However, sometimes programs do not make clear that there are a number of different options (e.g., increasing nutrient density, feeding frequency, or quantity of food consumed at each meal) that could all lead to similar improvements in the diet. Given constraints such as mother's time, family budgets, seasonal and regional food

availability, cultural and personal food preferences, and poor appetite, it makes sense that no single recommendation will be best for every child, even within the same age category.

Although a nutrition communication strategy may include mass media messages, community consciousness-building and group education, individual nutrition *counseling is the cornerstone of an effective and efficient program.* Working with a mother to find one or two actions she can implement is a much more effective tactic than the more traditional approach in which she participates in a group discussion from which she must extract recommendations relevant to her own child.

Health workers may be trained in general principles of nutrition and basic recommendations for child feeding, but unlike their training on most other health problems, they are not often trained to assess the nature and severity of nutrition problems before prescribing treatment. Mothers of well-nourished children are likely to receive the same standard advice as those whose children are not growing well—so opportunities are missed to reinforce positive practices, specify practical improvements in inadequate practices, and learn from mothers about problems and solutions. The approach of regular child weighing and charting not only provides the opportunity for individual nutrition education on the importance of growth and its links with health, food intake and child care, but also the information about the child that allows for targeting of the counseling messages (see Box 5: What It Means to Target Messages).

Experience has shown that the key to success in nutrition education is precision: providing a specific message to the right person at the time she is receptive, ready and able to take action (Manoff International; Griffiths, 1988). Individualized counseling based on growth status is effective because it provides enough information for precision and because it communicates concern and empathy. A mother is more likely to follow advice if she feels that the nutrition worker listened to her, understands her problems and constraints, and is giving suggestions for her specific case. Nutrition education

Box 5: Examples of What It Means to "Target" Advice

These examples show that well intentioned and technically correct *general* nutrition messages are not enough. Messages need to be tailored to each individual situation—how well children are growing, how healthy they are, what and how often they eat, and mothers' resources and motivation. Weighing and charting can provide the focal point for this activity; stimulate discussion of growth, health and feeding; help target special assistance; and give an indication of the impact of new behaviors.

Adele is a community health nurse who recently attended an in-service training on nutrition education. Having paid attention to the guidelines, she is aware that it is not useful to give too many pieces of advice to mothers at one time. She has decided that the two recommendations most useful in her community are to feed children under two years of age five times a day and to add milk to the local gruel. At a group nutrition education session for the mothers who bring their babies for immunization, she stresses these two behaviors and their importance for child health. Here are the backgrounds of three of the women in the audience, their reactions to the nutrition lecture, and how individualized counseling might have helped.

(1) Bola is a very intelligent and creative mother, who comes from a low-income household, but makes good use of the resources she has. She feeds her 12-month old son only three meals a day, like the rest of the family, but uses a special gruel with groundnuts and sugar added, as she learned from the radio health program. She thinks her son is healthy and strong, but now she is worried because it will be difficult to prepare five meals a day and she can't afford milk. She doesn't think her son is even hungry enough to eat two more *meals,* because the older children are always feeding him fruit from the trees in their compound and he is still breastfeeding. Now she is concerned and wondering if she should stop breastfeeding and try to buy some milk, so that her baby won't get sick.

If Adele had monitored the weight of Bola's baby boy, she would have found that he is growing very well. If she had then asked some questions to find out what Bola is doing right, she would have had a chance to praise Bola for the excellent care she is providing and reassure her that three meals plus two snacks of fruit is enough, and peanuts in the gruel give the same results as milk. In fact, the health worker could have learned a lot <u>from</u> this mother about practical steps to improve feeding in the local setting and could have asked Bola to give a cooking demonstration to share her recipe with other mothers.

(2) Cora is the mother of an 8 month-old girl who often has diarrhea. Cora is not worried about the baby's feeding because she gives her the traditional gruel that her own mother fed her. She mixes it with plenty of water so the baby can swallow it easily, and usually gives gruel five times a day because her baby often cries with hunger. She doesn't add milk and doesn't listen to that advice because that is only for city women who aren't following the traditional ways. She decides not to come back to the clinic, but to take her baby to the faith healer for charms to prevent diarrhea.

If Adele had weighed Cora's daughter regularly, she would have seen that the child was not gaining weight as fast as the curve on the chart. Information on the child's feeding and health would have identified the dilution of the gruel with water as the primary cause of low energy intake and probably also as a source of infection causing the diarrhea, both of which limited the baby's growth. Adele could have explained proper home care for diarrhea and that it would be better to give a thick gruel, suggested alternative ways to enrich it, asked the mother to try one and to return next month for another weight check to see if the diarrhea had stopped and if the new feeding practice was helping to improve weight gain.

(3) Doti has a sickly child of 14 months and comes from a very impoverished family. She struggles to feed her family twice a day and can't imagine how she could ever give the baby five feedings or afford any milk except breast milk. She feels guilty and overwhelmed by the health worker's suggestions and wishes she had not even brought the baby for immunization. She is afraid that someone will point out how ill her baby looks, and she will be embarrassed in front of all the other mothers.

A growth chart for Doti's child would have shown that the child was not growing and was already malnourished. Adele would know from interacting with Doti that this was a very needy case that required special attention. The action taken would depend on the program, but perhaps she could arrange a home visit to be supportive of Doti and counsel her that even one more feed a day would be helpful to her child. She could build confidence by praising Doti for bringing the child for immunization and for continuing to breastfeed. If possible, referral could be made for further medical care, supplementary feeding or an income-generation project.

can be conducted without growth monitoring; however, there will be much less scope for tailoring the messages and recommended actions to the individual situation.

A record of a child's pattern of weight gain is a powerful tool for the nutrition counselor, whether at the clinic or in the community, because this one measure sums up the complex balance of food intake and various nutrient demands. A single indicator, child growth, will provide a status report, obviating the need for a clinical or complex dietary assessment of whether dietary needs are being met, which requires detailed history-taking or measurement of diet over a period of time, plus an estimation of nutrient needs based on body size, activity pattern, and health status.

Whatever their level of training, health workers need guidance on how best to apply insights from the growth chart, because knowledge about growth status should then guide the questions a counselor asks the mother; the type of information, recommendations, and referrals the worker provides; the possible behavior changes she recommends; and how she tries to motivate the mother. Finally, it can be used to determine how often, when, and what type of follow-up and referral should occur so that the next contact can be planned and discussed, hopefully improving the mother's cooperation with the program, because she will see her child improving. A guide for such counseling is offered in Figure 2.

Using this guide, a health or nutrition worker can classify a child's growth status (see Box 4—Growth Charts) and determine if the child is sick. The worker can then carry out the key steps noted in the first row: interpret the growth curve for the mother, give praise or warning depending on the adequacy of growth, and ask questions to gain greater understanding of the situation. Counseling and follow-up can be more or less "prescribed" for each client. The content of counseling on age-specific feeding recommendations can be tailored, yet standardized, by referral to a counseling chart similar to Figure 2 and, ideally, to a set of counseling cards linked to the

growth status and age. Examples of counseling materials are provided in Chapter 4.

The counseling guide could be national if the population's health and dietary patterns are homogeneous. Otherwise, the guide should be adapted to address common health and feeding problems, relevant age groupings, and appropriate foods for the region where it will be used. One effort currently underway is the tailoring of the "food box" (the advice section on feeding in the WHO sick child algorithm). Although at this time the advice varies only by age, the process of tailoring is similar. The adaptation process for completing counseling guidelines requires formative research, and certainly the recommendations should be carefully tested with the intended audience. Manuals exist on how to do this testing (Dickin, 1996; Dickin, 1994). Once developed, the guide should be used during training, and the skills of the trainees should be refined until they feel comfortable with its contents and with the process of counseling. All program workers should have a guide, whether in the community or at a facility, and use of the guide should be supervised.

Figure 2: Sample Guide to Discussion with Mothers after Weighing

1. Assess Growth Status (see Figure 1)		
	A. Adequate weight gain	B. Early Faltering but Healthy
2. Provide Feedback on Growth and Assess Health and Feeding		
	Praise, show growth pattern relative to reference curve, counsel on ideal practices (below).	Show that growth increment is less than reference curve, discuss need for action, ask about feeding, counsel by age (below), negotiate improved feeding.
Age Group	**3. Counsel on Feeding and Child-Care Practices**	
Up to about 6 months	Breastfeed on demand, at least 8–10 times during day and night; give no water or any other liquids or foods; give no bottles.	Breastfeed more frequently than usual (minimum 8 times); check technique; advise mother to drink more fluids.
From about 6 months to 11 months	Continue breastfeeding frequently; introduce purees, then mashed foods, then soft family food; gradually increase by 2–3 teaspoonfuls for each month of age, 3 times a day; include fruits and vegetables.	Breastfeed more frequently; improve caloric density of food; give one extra spoonful at each meal and/or give a snack (4 meals per day).
From 12 to 24 months	Begin solid foods, giving full variety of family foods; feed 5 times a day (3 meals & 2 snacks); continue breastfeeding.	Serve child separately and gradually increase serving size; add energy sources and vitamin A foods to child's serving; continue breastfeeding (or usual milk feed in a cup).
4. Provide Follow-up and Referral		
	Schedule next weighing.	Schedule next weighing; check understanding of action to be taken; refer to community programs, if available.

1. Assess Growth Status (see Figure 1)	
C. Early Faltering and Sick	D. Prolonged or Severe Faltering
2. Provide Feedback on Growth and Assess Health and Feeding	
Show that growth increment is less than reference curve, refer for health care, ask about feeding and home health care, counsel by age (below), negotiate improved home care for illness and improved feeding.	Explain danger of growth pattern; ask about feeding, health, and family situation; counsel by age (below); negotiate and follow up on improved feeding and care. May require medical referral for "hidden" problem.
3. Counsel on Feeding and Child-Care Practices	
Breastfeed more frequently than usual (10–12 times—day and night); give ORS with a cup during diarrhea, if dehydrated; know when to seek immediate care; advise mother to drink more fluids.	Breastfeed more frequently, every time child fusses or every few hours; wake child if necessary; breastfeed until breast are empty, using both breasts; advise mother to drink and eat more.
Breastfeed more frequently (avoid other milks in case of chronic diarrhea); follow home care for illness (and know when to seek immediate care); prepare soft and favorite foods and coax child to eat; for diarrhea, give ORS or home fluids. When *recuperating*, give one-two extra spoonsful at each meal or give an extra meal or a snack; add energy sources and foods with vitamin A to child's serving.	Breastfeed more frequently (or usual milk feed, if appropriate); feed small quantities (as much as child will eat) more frequently, 5–6 times per day; add energy sources and foods with vitamin A; prepare favorite foods and coax child to eat.
4. Provide Follow-up and Referral	
Schedule next weighing; check understanding of action to be taken; refer to medical care and if available, community programs.	Schedule follow-up home visit and check understanding of action to be taken; refer for supplementary feeding, if available, and medical care and community programs, as appropriate.

4 Experience demonstrates that growth promotion increases program efficiency and effectiveness.

When officials of several successful, large-scale primary health care and nutrition programs (UPGK in Indonesia, Thailand Nutrition and Primary Health Care Program, Iringa in Tanzania and TINP in Tamil Nadu, India) were asked about the contribution of growth promotion, they agreed unanimously that it was key to success. While none of these programs have used growth promotion optimally, the success they have had with only partial implementation offers substantial promise for any program that uses growth promotion to: (1) build confidence and spur critical improvements in practices by families, (2) motivate community action, (3) integrate and target health and nutrition services, and (4) raise awareness of health and nutrition problems for policy advocacy. This chapter describes experiences in these four areas to provide examples of what can be done and to support the guidelines for action outlined in the previous chapter.

Program experience shows that families will respond to identified growth deficits by improving practices.

Multiple program evaluations have demonstrated that when programs target specific advice to families using growth and health status as the defining criteria, families are able to make improvements in practices that lead to improved nutrition status (USAID, 1988; Manoff International; Balachander; YIS). By providing a structured process for achieving sustainable improvement in practices at the household level, growth promotion enables programs to use of their resources effectively.

In the previous chapter, a decision guide was offered as an example of how a program could target recommendations that affect health care and nutrient intake based on a child's growth status. While the lack of similar guidelines is a glaring omission in most programs, full implementation of this system for individualized problem solving requires more than just preparing guidelines. Based on lessons from multiple experiences that achieved significant impacts on child nutrition, the following list of essential "technical" elements of growth promotion can serve as a guide for designing a new program or assessing existing operations:

- ✓ Programs should be community- or neighborhood-based and aim for universal coverage.
- ✓ Monitoring of weight for the individual should begin at birth and be done frequently (monthly) for the first 18–24 months.
- ✓ Child caretakers should be involved in the process of monitoring.
- ✓ Adequate growth (weight gain), rather than nutrition status, should be the indicator for action, by itself or combined with other easily obtained information on the child's condition.
- ✓ A growth chart should be used to record the child's growth progress and to make his/her growth status visible to the child caretaker.
- ✓ An analysis of the causes of inadequate growth is required and should lead to a clear and feasible options for action.
- ✓ Negotiation should take place with families, guided by tailored recommendations for what they will do to improve their children's growth.
- ✓ Follow-up should be done.

Below are examples of implementation experience related to each of these lessons.

Frequent (monthly) monitoring that begins early in life allows families and nutrition workers to detect growth faltering when it first occurs, when motivation may be high, and when improvement is easier to achieve.

To achieve optimal functioning, a program must place a premium on early, frequent monitoring for each child. The general pattern is that children begin to falter between 3 and 9 months of age, so beginning monitoring near birth allows good practices that promote growth to be reinforced. Then, when

growth falters at month 4, for example, it will be easier to isolate the cause, since it may be inadequate feeding uncomplicated by illness or food deficits. The resources required to recapture proper growth velocity for babies are less intensive for families—more frequent breastfeeding, extra rice, or recuperative feeding following illness than for older children. Also, for older children it is more difficult for the mother to control child feeding and hygiene factors, so mothers may be more frustrated when trying to make improvements.

"Early" also means detecting a problem when it first begins, no matter what the child's age. Even for a child who is 10 months old, it is easier to correct a situation that is only a few weeks old than one that has perpetuated itself over several months, leaving the child ill and anorexic. Detecting problems early means frequent monitoring. Although the definition is often contentious, the consensus that has emerged is that frequent and regular means every month for children between birth and two years of age. These are the children for whom the actions discussed in this paper are most relevant. The decision on what to do between ages two and three should depend on where children's growth patterns seem to be stabilizing, i.e. at what age deterioration slows, and on program resources. Generally, for children more than 24 months old, weighing may be done less frequently. However, if less frequent weighing is instituted for young children, even if their status is normal, the opportunity to detect problems early is lost.

Achieving monthly weighing is not difficult if:

(1) there is good promotion for the activity among families, and they are aware of the benefits;

(2) obstacles such as transportation and time are reduced for families;

(3) the number of children to follow monthly can be kept to a minimum so the worker is not overburdened; and

(4) the worker can organize his/her duties to easily include weighing or can receive help with the weighing activity.

Each project must decide on the type of community-level organization required and if and how coordination will be done. These decisions should depend on the proximity of the houses, the type of workers available and their workload, and the distinct moments when it might be appropriate to combine activities to save time. What seem to be universal rules, however, are that the activity should be brought near the families, in their neighborhood, and that education and counseling should be the centerpiece. For example, one clinic-based growth promotion program achieved only 30–50% coverage of the under-two year olds. Nurses spent one or two days per month in growth monitoring, with only minutes devoted to counseling each mother. Mothers spent as much as four hours, mostly in transit due to long distances between communities and centers. While the program produced results, they were not widespread or significant (Grijalva and Griffiths). This example is offered for comparison with community-based programs.

- In Indonesia, community women's groups organize a weighing day once a month on the same day that health workers organize to provide other health services such as immunization at the post (posyandu). The health and weighing post serves a neighborhood. The notion here is that the mother is attending an event—other mothers are present and there are food demonstrations, etc. Some program personnel have questioned whether this type of "event" keeps the poorest women away and if the flurry of people decreases attention to counseling. The goal in this case has been to achieve broad coverage and frequent weighing. In Indonesia, coverage is between 40 and 60 percent. Workers spend about three quarters of a day per month and mothers about 90 minutes, including travel time (Hendrata, 1992; Rohde, 1993).

- In ANEP in the Dominican Republic, growth promotion was done from house-to-house. This allowed the time and privacy needed for good, effective counseling by dedicated volunteers. In ANEP, coverage was 75–99 percent for monthly weighings of children under the age of two. Workers dedicated 3–5 days/month to home visitation. They spent 20–30 minutes per house (USAID, 1988; Del Rosso).

- In India, in the Tamil Nadu Integrated Nutrition Program, children are weighed in the community on special weighing days each month. If a child does not attend during the first day at the community center, s/he is visited at home by a community nutrition worker. The program has achieved over 90 percent coverage of monthly weighing. The worker spends approximately three days per month on these activities. No information is available on the amount of time spent by mothers (Balachander).

When mothers have a role in monitoring growth, possibly doing it themselves, they gain a fuller understanding of child growth and its importance.

Mothers are the most likely community members to be directly involved in the process of weighing, plotting, and interpreting weight gain. Their active participation is essential. Although some authors have questioned mothers' ability to understand the process and the growth charts, this has usually been in programs where health workers alone use the charts and mothers are not taught how to use them (Ruel).

There is ample evidence that mothers not only can understand charts but that they can also do the weighing themselves.

- In Kenya, Masai mothers who weighed their own children, using the Direct Recording Scales developed by TALC, had a much greater understanding of their children's growth patterns than mothers whose children were weighed in a more conventional way by a health worker from a mobile van (Meegan). This was due in part to the scale but also to the mothers' preparation and continued reinforcement through their involvement.

- After providing training and equipment to existing women's groups, a community-based pilot project in Senegal found that mothers were able and enthusiastic implementors of growth promotion activities. In fact, these women's abilities to improve the health and well-being of young children greatly enhanced their standing in the community and their own confidence and willingness to take action (Diene).

- In TINP, the National Nutrition Program of El Salvador, and a BRAC pilot program in Bangladesh, groups of mothers have formed to assist the community worker in weighing. They, in turn, encourage participation from other mothers. Mothers' assistance saves the workers as much as half of their time and has not affected the quality of the activity (Karim). In fact, mothers' assistance gives workers more time for counseling.

Well-designed growth charts make growth visible to mothers and other family members, helping to educate them about the significance of growth for their child's health and for their own actions.

Better nutrition for young children may not be a "felt need," particularly where undernutrition is normal, chronic, and mostly mild to moderate. Growth is a slow process and small changes are not easily detected simply by observing a child. A growth chart gives an immediate picture of the child's progress over time and a target to aim for. A well-designed chart can help parents visualize their child's growth pattern relative to the reference growth pattern, increase their awareness of why growth is important, and help them understand the relationship between growth, illness and feeding.

Because the design of the chart is so important, both communication experts and health and nutrition experts should participate to ensure that visually it makes changes in weight clear. While it may be a major undertaking to redesign a growth card already in use, the current chart should be evaluated (see Box 6). Program managers should consider the benefits of a redesign to long-term program success. If no card is available, one should be developed.

Some programs that have taken to heart the need for a "user-friendly" chart have done the following:

- Project personnel of PEM-PAAMI in Ecuador wanted to be sure that the colors used for "zones" on the growth chart were those that mothers associated with wellness and illness. Mothers said that red was the color of the

Box 6: Characteristics to Look for in a Growth Chart

The size of the card and of the writing spaces and the clarity and positions of the weights and months: Large, clearly marked boxes will make recording and interpreting easier. Numbers to guide plotting should be clear and repeated across the curve so that workers can easily determine where to plot. Remember that many health workers do not have good writing skills or eyesight, so enough space should be left so it is easy to write in months and years. All cards should be tested with workers.

Culturally relevant details: Cards tend to be valued more when they are in the local language, are attractive to the family, have a picture(s) depicting local children, use meaningful colors, etc. All cards should be tested with families.

Accentuation of the vertical axis: This makes it possible to more easily detect changes in weight and allows for 100 gram increments to be marked on the chart, eliminating the need to estimate where a specific weight might fall and making it easier to determine if weight gain has been adequate.

Nutritional status categories replaced with growth channels either indicated with thin lines or shading: This change will help mothers and workers see if the child is staying in his or her own channel rather than whether the child is high or low on the curve.

Reminders of key behaviors for particular ages: On one panel of the chart, it is helpful to have key counseling points or cues for the worker about what caretakers should be feeding a child of a particular age to aid in problem diagnosis.

cheeks of healthy children, yellow signified illness and pallor, and green represented a very sick child. So the card was printed with a reversal of the usual "traffic light" colors and their connotations. Mothers also decided what would be printed on the cards, so text was kept to a minimum (Grijalva and Griffiths).

- The UPGK in Indonesia developed a chart with range of thin channels in a graduated colors from bright green to yellow. The colors represent the variation mothers see between healthy rice fields and those in need of fertilizer. Each channel represents five percent of the standard weight, and mothers are encouraged to help their child "grow along his or her channel" (or move up one channel). The use of growth channels meshed well with the program's emphasis on promotion of growth by focusing the attention of mothers and program personnel on growing each month, rather than classifying children by degrees of undernutrition (Rohde, 1993; UPGK). The UPGK growth card is featured in Box 7.

- The "bubble chart" was developed to aid workers in marking weights more accurately and to clearly distinguish changes in a child's weight from one month to the next (Griffiths, 1987; Griffiths and Berg). It was used first in a pilot ICDS program in India that wanted workers (non-literate in some cases) to assess adequate weight gain, not just look at the direction of the child's growth curve. This chart has rows of open circles in place of a grid. It also shows growth channels similar to the Indonesian chart. UNICEF adapted this chart for wider use in India, coloring growth channels like a rainbow. It has also been adapted in Mexico, where the bubbles, when filled in, are referred to as "tortillas" to emphasize the link between food and growth (Martinez; Burns). The ICDS Bubble chart is shown in Box 7.

The growth chart should be a record kept by the family, so it has the potential to serve as an educational tool within the household. Loss rates are quite low when families recognize its importance. Having a growth card and being able to explain it to her husband and other family members provides

Box 7: Examples of Growth Charts Designed for Growth Promotion

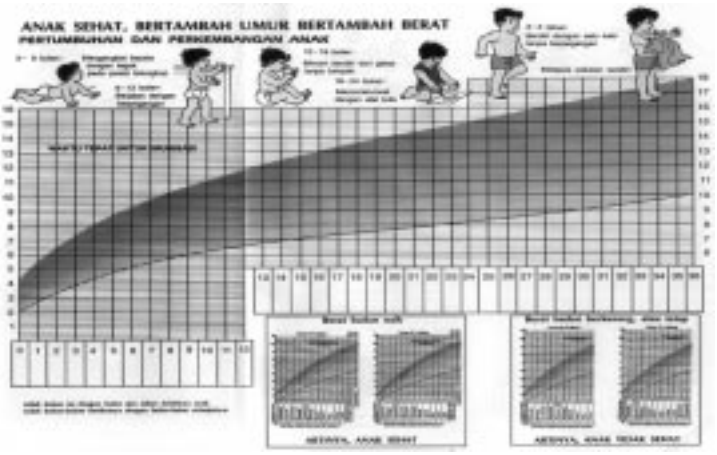
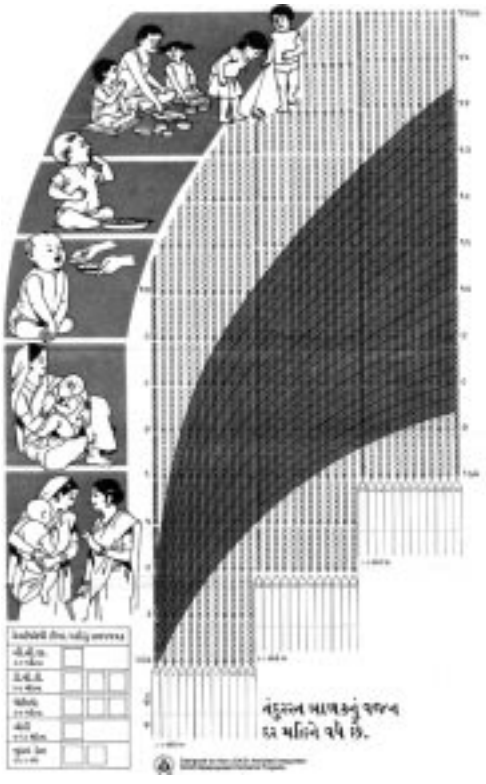


Chart side of UPGK child health card "A healthy child, as s/he gets older, gains weight."



Bubble chart used in ICDS pilot project in Maharastra and Gujurat provinces.

a woman with a starting point for suggesting actions within the household to improve the child's health. For example, George points out that in India a woman's lack of power within the household limits her ability to change practices, especially those related to food and income distribution. Although growth promotion cannot overcome such social problems as the low status of women, having documentation of the child's situation does provide the mother with demonstrable evidence that something needs to be done. If all that the mother has is her memory of words spoken by a health worker, the burden is completely on her shoulders, but a chart may symbolize recognition of the child's progress by others in the community or by the health center, helping her justify changes in feeding or providing evidence that changes she has made have had a positive effect (Diene).

Growth promotion offers the opportunity to tailor nutritionally sound advice to particular situations based on age and growth status.

There is universal agreement that advice should be offered to the mother following the weighing of her child. The issue is how to assist the health worker—given all the constraints of the worker's own education, training, and support, and the mother's lack of money, time, and other resources—to give the mother advice that is both effective and practical for her particular situation. One proven solution is to develop schema like the one in Figure 2 (page 28) and to refine them based on local research. Such tools can aid workers to tailor advice for specific growth outcomes at different ages and avoid the all too frequent interactions such as the following (PRICOR, p. 8):

First Visit (Nutritional Status of Child: 80% wgt for age)

Staff: What is wrong with your child?
Mother: He is ill.
Staff: Did you take him to the dispensary?
Mother: No. He had a fever, and the fever passed. I didn't not take him.
Staff: His weight is falling, so you must take him to the dispensary.

Second Visit (Nutritional Status of Child: 75% wgt for age)

Staff: Madam, what is still wrong with your child? He isn't gaining weight. Is he eating?
Mother: He eats a little.
Staff: And why are you late today? Must someone come and get you at your house? It is bothersome when you come like this.
Mother: (Nothing said)

Although many of the key messages begin with content in *Facts for Life* (UNICEF/WHO/ UNESCO), they should be adapted for the program's families. Guides exist on how to undertake consultative research for this adaptation. The most comprehensive and self-instructional is *Designing by Dialogue* (Dickin, 1996), parts of which are used in the guidelines provided by WHO for adapting the feeding counseling in the sick child algorithm. The method that has proved most useful in the adaptation process is trials of improved practices (TIPS). TIPS involve asking the mother to try a new behavior for a short time and then revisiting her to see the result. This exercise can provide useful insights into why certain recommendations are followed and others are not. Program experience has helped refine the process of locally adapting key messages and developing the aids to ensure their appropriate use in counseling.

- The national UPGK Program in Indonesia and a pilot project that looked at ways to strengthen UPGK (the Nutrition Communication and Behavior Change Project, NCBC) were among the first to develop counseling materials for village workers to use with mothers following a weighing. These materials were specific to the age of the child and, in the case of UPGK, to whether or not the child gained weight in the past months. This was an important innovation, although the execution was not optimal. A flip chart was developed to cover multiple topics, but it was a cumbersome tool for the community worker, who was not well trained for counseling, and messages were "too standard," not thoroughly tested with mothers.

- What the NCBC Project achieved was to: (a) keep the counseling concept, but (b) adapt the messages through a careful consultative research process with a small sample of mothers, (c) convert the heavy flip chart to some take-home sheets with reminders of the key behaviors for the age of the child (see the discussion of action sheets below), and (d) train community workers in counseling techniques and the use of the reminder sheets.

  The NCBC Project produced a significant improvement in the nutrition status of the children in the program with enhanced counseling over children participating in non-enhanced UPGK. Children in the program area grew significantly better after 5 months of age, and by 24 months 40% of program children were better nourished; there was an average of a half standard deviation of difference in the mean weights of the two groups. (Manoff International).

- Since the positive experience of Indonesia, counseling card sets have been developed for a wide variety of growth promotion programs: ANEP in the Dominican Republic, the PEM-PAAMI and CRS-Ecuador programs, the Vida Rural program in Chile, the Ministry of Health and Ministry of Agriculture's Program to Improve Young Child Feeding in Swaziland, CARE/Cameroon's primary health care program, ICDS pilot projects in India, and the National Nutrition Program of El Salvador. These counseling cards are developed so that the worker can select one or maybe two cards from a set once he/she knows the child's age and growth status, and whether or not the child is sick. The selected card, with pictures of the key practices on one side and counselling advice on the reverse, are used to talk with mothers about the status of their child and what they are doing and could do to maintain or improve growth. The selection of the card format was done to make the tool more flexible. Cards can be changed or added as problems change or a program integrates new health or nutrition concerns. While the advice on the card is the result of

research with intended program beneficiaries and has been tailored by age and growth status, it should reflect the "ideal practice" for a given area. A sample of counseling cards for one age group but different growth and illness patterns is in Box 8.

Growth promotion gives families a role in decision making for action to improve child feeding practices.

Allowing mothers to participate in decisions about their own behavior changes represents a great departure from traditional approaches to nutrition education because it requires a shift in the balance of power between givers and receivers of nutrition advice. If nutrition workers can be trained and motivated to negotiate with mothers and reach agreement on new behaviors to try, the process will increase motivation and confidence among both mothers and workers (Griffiths, 1984/85). Mothers will be happy because their opinions are considered and workers are happy because the advice may be practiced. This process, specifically related to improving feeding practices, is called *nutrition negotiation* (see Box 9) because it involves arriving at a mutually agreeable solution between mother and health worker on what action can be taken that will be feasible for the mother and that the health worker considers important for the child's health. (Note: the mother may not attain an ideal behavior or practice, but there is a good chance that her practices will change for the better.)

There are two points in nutrition negotiation: (1) Communication should not be the traditional, uni-directional health education lecture. There needs to be a dialogue—a counseling or problem-solving mode should be used. (2) Negotiation must be done for each child. Although the initial recommendation will come from tailored advice, this advice reflects near ideal practices for a given setting. Often these recommendations need to be adapted more to the realities of the family so that practicing them becomes achievable, and the mother is motivated and not overburdened by the change.

Box 8: Examples of Counseling Cards

A. Card for a child 10–18 months, growing well.
Reminds mother of basic activities: meals, breastfeeding and a snack.

B. Card for a child 10–18 months, growth faltering for 1–2 months. Prompts discussion about what and the number of times the child is eating, if the child is being breastfed, that the child should receive a small snack twice and is eligible for anganwadi food.

C. Card for a child 10–18 months, growth faltering for 3 months or is ill.
Prompts discussion of behaviors listed in B and referral to the nurse-midwife for a medical attention.

Box 9: Nutrition Negotiation

Many families, even those with severe economic constraints, do have the capacity to make changes in behaviors that impact on child nutrition. Making these changes a reality is the challenge that faces nutrition education. However, too often nutrition education provides information and advice from textbooks, often in a lecture format, neglecting to acknowledge the experience and abilities of the people who are responsible for child feeding—the mothers. There is a need to make nutrition education more participatory and motivational and to accept small changes even if they do not reach the ideal, because these changes can lead to others and to a willingness to try new practices. Also, even small changes, if numerous enough, will impact growth status (Griffiths, 1994).

The nutrition negotiation process begins with a set of recommendations (local "best practices") that have been developed from sound epidemiology and nutrition priorities but modified through a consultative research process based on what a sample of families can do and on their perceptions of the new practices. However, because family circumstances vary greatly and because there are alternatives in how to achieve dietary improvement, negotiation is needed. When the mother leaves the growth promotion encounter, she should be able to articulate what she will do until the next visit (even if it is maintaining her current good practices) and confident that she can accomplish it.

Individual negotiation has three parts: (1) mothers and program workers explore the problem together, discussing the standard recommendations and the feasibility of their implementation; (2) standard recommendations stand or new ones are proposed, and mothers choose one or two new practices they are willing to try at home that the worker believes will make a difference nutritionally; and (3) at their next encounter, the mother and worker jointly assess the success of the selected actions. This may feel like a loss of control to the worker, not to be able to tell the mother what she should do, but in reality the final decision has always been up to the mothers—they will not be forced to follow advice.

The term **negotiation** is used because it may not be the ideal behavior that is achieved but neither will it be feeding as usual. Perhaps the mother cannot give an extra meal, but maybe she can provide an

Continued

Box 9: Nutrition Negotiation

Continued

extra tortilla twice a day or 2–3 more spoonsful of rice per meal. Or, perhaps she will not give up supplementing breast milk entirely, but she will stop the cornstarch water and will breastfeed in its place. The advantage of negotiation is that mothers are voicing their thoughts. Often the change negotiated is small—for example, adding drops of oil to a child's food may be repugnant, but frying an ingredient for the food and then mashing it with the staple for a young child is not.

Growth promotion provides a structure for negotiation because it facilitates recognition of problems and decision making on action, and it facilitates evaluation of impact by detecting improvements in weight. The nutrition negotiation approach also contributes to the effectiveness and sustainability of growth promotion efforts because mothers like the feedback on their child's growth and like becoming a partner in their child's development. ProSalud, a provider of health care in urban Bolivia, has put a great emphasis on counseling with growth monitoring in a total growth promotion package and has seen overwhelming demand for weighing by the mothers. Instead of looking for such incentives as food to get mothers to growth monitoring and health services, ProSalud has found that the incentive is the counseling that enables mothers to learn about and improve the growth of their children (Putney).

Implementing nutrition negotiation will require re-orientation and training of program workers in counseling techniques and in making some nutrition judgments, and perhaps, will require longer *initial* counseling sessions. But mothers who learn to solve their children's feeding problems, rather then just follow orders, will become effective nutrition change agents in the family and community. In the long run, this approach will save time and resources.

The goal of nutrition negotiation is to avoid missing opportunities such as the one presented earlier in the dialogue between a health worker and mother. A dialogue using negotiation would go more like this:

Second visit (child's weight-for-age has dropped 5% relative to the reference curve from the last weighing)

Assessing the problem	Staff:	Cory, what do you see in your child's growth line on the chart?
	Mother	My Joshi is not doing well. The line is straight.
Analyzing cause of problem	Staff:	Why do you think Joshi hasn't gained weight this past month?
	Mother:	He eats too little. It is difficult to feed him.
	Staff:	What is difficult? Has he been sick?
	Mother:	No. He is fussy. I am too busy.
	Staff:	I know it takes patience. Lets look at some ideas about what a child 9 months old should be eating? He should still be breastfeeding six times a day.
	Mother:	Oh yes, he always wants to suck.
	Staff:	He should also be getting foods like those you eat but softer ones—well cooked—three times a day. How do you feed Joshi?
	Mother:	I give him rice porridge in the morning and when we eat in the middle of the day he eats some rice mashed with beans. In the evening just breast, or if he is with me, he nibbles a piece of what I reheat for us.

Negotiating solution	Staff:	It is good that you are still breastfeeding so much. But you can see that Joshi needs more food. You are feeding only twice, not three times. And, in the morning he is eating a baby food because it is a thin porridge. He needs something else because he's growing and changing so fast at his age. What do you think? Could you feed him in the late afternoon for example?
	Mother:	Yes, he could have the rice and beans we eat, but I am afraid it will be too "heavy" for him.
	Staff:	No, at his age it would be fine. What about giving him something different in the morning?
	Mother:	I don't know. We have only coffee and go about our chores. Sometimes there is bread that I could give him.
	Staff:	You can give him bread when you have it, but you can also make the porridge with less water so it is more like a pudding and not a drink. It should be easier to feed him and take less time if it is thicker.
	Mother:	I can try.
Confirming the practices and follow-up	Staff:	So what will you try to do during the next weeks so Joshi gains weight?
	Mother:	I will try to feed Joshi the rice and beans, or whatever I warm for us, in the evening. And in the morning I will make his porridge like pudding. I hope this will not make him sick.

Staff: He should be fine, he is old enough to digest this food. Try it, he may fuss less and be easier for you. I am going to give you this sheet to remind you that you will feed him one more time a day and give him a thicker rice porridge. Then let's see how he is doing next month when we weigh him.

While it is a challenge to find growth promotion programs with well tailored messages, it is even rarer to find programs that emphasize negotiation. However, there are a few programs that have developed materials to encourage counseling and negotiation following child weighing.

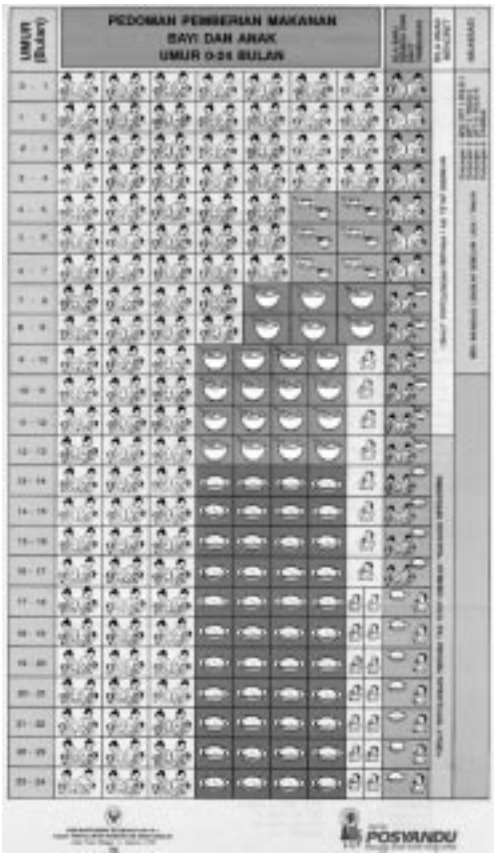
- Key to the success of a pilot project in Senegal was the negotiating done by mothers of young children with their peers. To get ideas for the counseling and negotiating, mothers shared experiences and came up with good suggestions for others to try. Selected mothers then used these ideas in direct one-to-one counseling, helping their peers find ways to implement the new practices (Diene).

- The ANEP Program, the Weaning Project in Indonesia, and the National Nutrition Program in El Salvador have stressed counseling and negotiation between community agents (often mothers themselves) and mothers in the community.

In these programs, the concept of truly negotiating with the mother to arrive at practices tailored to her has been developed into materials that remind both mother and worker of what should be done by the mother in relation to the advice on the counselling card (Griffiths, 1988). These reminders have taken various forms: a mimeographed "action sheet" in the Dominican Republic, a form like a doctor's prescription in El Salvador, and a feeding schedule that goes inside the growth card in Indonesia. (Examples of these materials are in Box 10.)

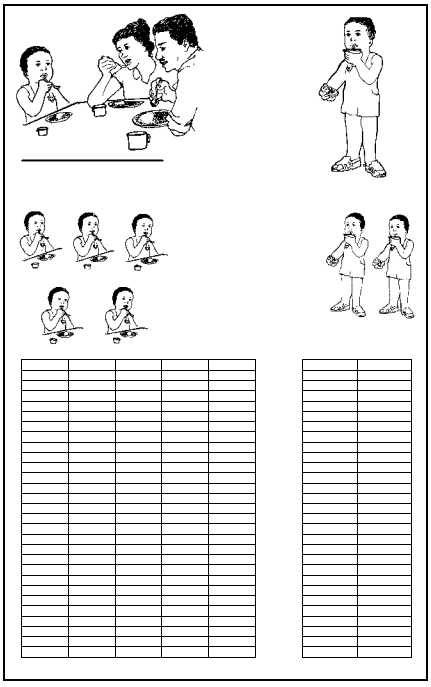
Box 10: Examples of Mother Reminders Used in the Negotiation Process

A



B

C



A. Child feeding guide–Posyandu, Indonesia (kept inside growth card)

B. Prescription for improved breast-feeding—National Nutrition Program, El Salvador

C. Action sheet on child feeding for 2–3 year old, ANEP, Dominican Republic

The idea behind these "negotiation/reminder" materials is that the ideal practice must be "humanized," as one program worker said. For example, what should a worker say when the ideal behavior is to feed a child not gaining weight five meals a day, but in reality the mother is at most providing two? Using nutritional negotiation, the need for five meals is discussed, but quickly the negotiation process determines what the mother can do: perhaps one additional meal and a snack. This "new" practice is noted by circling or marking the pictures on a reminder sheet that the mother takes home with her. The child feeding schedule can be marked in the same way as the sheet, but because it stays with the growth card it serves as a reminder to both mother and worker of agreed-upon practices and allows them to review recommendations from the past month, their trial during the month, and changes in the child's status.

Several programs have shown that nutrition counseling using tailored advice and a negotiation process is beneficial. Skeptics, however, question whether community workers or health care providers have the skills and time to provide individualized nutrition advice. But given the lack of evidence of significant impact from traditional education, and the continued success for the counseling and negotiation approach (Manoff International; USAID, 1988; Griffiths, 1988; YIS), the issue should not be couched as whether or not to adopt the counseling and negotiation approach but *how* to ensure that workers can engage in negotiation with mothers. With appropriate training, adjusted workloads, supportive supervision, practical guidelines and educational materials, it is possible for community workers to be effective nutrition counselors. In the long run, although not without costs, the cost is more sustainable [$2.05 per beneficiary (Ho) for the enhanced counseling of NCBC] than many other program actions such a feeding [$11.67–56.01 per beneficiary among several different program models (Berg)].

Community awareness and action stimulated by growth promotion activities have led to improvements in child nutrition and health.

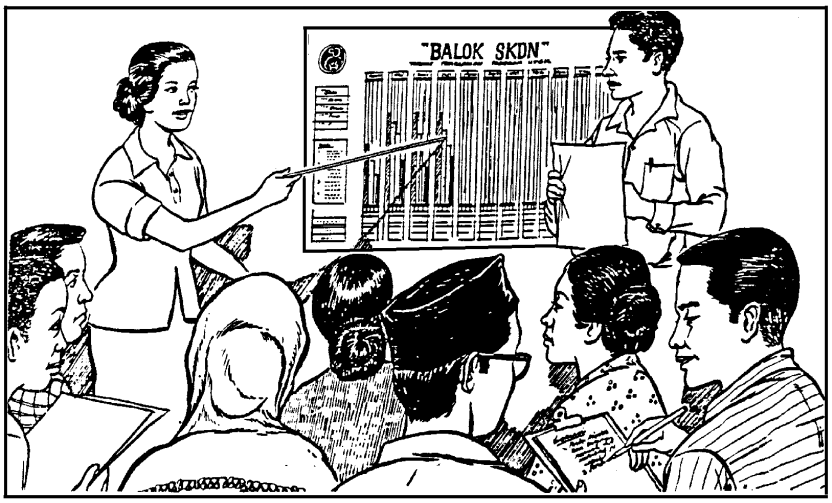
Although few programs have supported a process for the community to make decisions on actions to improve health based on growth information,

those documented experiences hold great promise for its potential effectiveness. In early growth monitoring programs, the community was not involved because weighing was viewed as a technique of medical diagnosis and kept in the health system, even when there was outreach to the community. In the 1980's, as nutrition schemes became more comprehensive and priority was given to community management, the use of growth information by the community for decision making about collective projects became important. In the development of these community programs, several models have emerged, all involving a problem-solving process in which growth information stimulates analysis and action for individual children as well as for all of the community's children. The program can help by providing a conceptual model to guide this analysis.

- UPGK in Indonesia is one of a few programs to use aggregate weight-gain information at the community level. For the community, the kader (volunteers at the posyandu) compile individual growth information using the SKDN system that allows for an analysis of participation and growth. Kader make a composite bar graph with four indicators each month (Fig. 3). The first column, "S", is total number of children under three years old in a designated area. This becomes the denominator or 100 percent. The second column, "K", is the number of under-three's registered, i.e. with a growth card. The third column, "D", is the total number of children weighed that month. The fourth column, "N", is the total number of children who gained weight during the past month. Presumably, if the program is running well, all the columns should be the same height, and S=K=D=N. Any variance between columns can be a subject for discussion. This chart, posted in the community, serves as a discussion starter (Rohde, 1993; UPGK).

- ANEP in the Dominican Republic used growth information to stimulate community awareness of nutrition problems and to motivate the community to begin projects that could make use of a revolving loan fund offered by the program. In ANEP the information that was used for decision making was nutritional status, not weight gain (even though weight gain was

Figure 3: **The SKDN Chart**



From Buku Pegangan Kader, 1982, second edition. UPGK: Indonesia.

used for decisions in individual counseling). Every six months the community workers plotted all village children under three on a large growth chart that was marked in colored zones by nutrition status (Fig. 4). The analysis, done at a community meeting, looked at the percentages of children not covered, and then the percentages in each nutrition-status category in general and by age. Community members discussed causes of poor nutrition status and made decisions about projects. Many projects were begun, including improved water systems when poor nutrition status seemed linked to diarrheal disease, although not all projects addressed child nutrition (Del Rosso).

- In Iringa, the nutrition status of community children was reviewed and the causes of the undernutrition analyzed using the conceptual model proposed by UNICEF and later adopted by the nations of the world at the International Conference on Nutrition. It identifies three major underlying

Figure 4: **ANEP's Community Growth Charts Being Analyzed at a Community Meeting**

causes: (1) insufficient household food security, (2) inadequate maternal and child care, and (3) insufficient health services and unhealthy environment (UNICEF, 1992). Having a conceptual model to stimulate community analysis was crucial in Iringa. Lack of a model for community agents to use has weakened their ability to analyze local situations, and thus prevented needed community work.

In Iringa, communities initiated activities based on what they felt were their major problems and what they could do. This community process of problem assessment, analysis, and action for improved nutrition is called the triple A cycle. It is now central to UNICEF's nutrition strategy (UNICEF,

1992) and is being employed in increasing numbers of programs. In Iringa this process led to such community actions as: women's income-generating programs, cooperative child care to ensure proper young child feeding, support for better immunization coverage, home gardens and food preservation, and promotion of sanitation through the use of pit latrines. For communities, growth monitoring not only set the stage for analysis and subsequent action but it also led to continued assessment of activities undertaken. Communities felt empowered as they watched severe malnutrition being eliminated (Jonsson, 1993; Mwikongi). Now that severe undernutrition is controlled [it declined from 6 percent to 2.7 percent (Miller)], it has been suggested that the goal should shift to keep community interest high—the goal could become the regular, healthy growth of each child (Pelletier, 1991), i.e. growth promotion, not just the elimination of severe malnutrition.

- The comprehensive Rural Health Care Project in Jamkhed, India provides another good example of how growth information, when truly understood by the community, can trigger constant analysis and action to keep children healthy. Arole describes that after watching child malnutrition rise during a severe drought and subsequently decrease with the provision of emergency food, villagers understood that by monitoring the growth of their children they could have an indication of the adequacy of food stocks. They formed community kitchens to provide food for the poorest families in pre-harvest months when stocks are low. She also describes how a woman's group that had given a loan to some of its members to buy cows noticed several months later that the children of these women were not gaining weight. This prompted an analysis of the cause (women were selling all of the milk and having to take from their scarce resources for fodder) and the action of helping the women sell the cows and buy goats that could forage. In another example, the community demanded measles vaccine after noting the devastating effect of measles on child growth. The effect of this type of community responsiveness, even in an area as poor as Jamkhed, has produced significant reductions of child undernutrition over a 10-year period. Not only are mean weights 1–1.5 kg

higher at all ages, but moderate and severe undernutrition fell from 30% to 6% (Arole).

Use of growth promotion as an integrating strategy by programs has been limited primarily to the health sector.

Growth promotion lends itself well to an integrated approach because the causes of poor growth are numerous and solutions often must come from multiple sectors—health, education, agriculture, labor, etc. Managers of growth promotion programs should try to link services from different organizations to the counseling provided by the growth promotion worker so that even if he/she does not provide the service directly, the family can be referred. Providing the worker with a framework for determining which services are appropriate for the child's and family's situation will facilitate referral to these services. Just as advice for improved practices can be tailored for children who falter in their growth, so should a package of other services.

While integration of activities is critical to resolving growth problems, it also must be done carefully. Program experience indicates that integration is best when the growth promotion activity is run by a non-governmental organization or, if governmental, by women affairs or community services. Growth promotion as a preventive and educational strategy can easily be overwhelmed by medical, curative activities or those of feeding/food distribution. It is critical that in the detailed planning for integration, particularly if multiple services are offered at the growth promotion session, the basic educational work of growth promotion should be given sufficient attention.

While it is ideal to offer a comprehensive package of advice at the time of counseling and to have linkages with a variety of social support and development programs, this will not always be possible. At a minimum, basic child survival activities related to illness prevention and basic home care of illnesses, child feeding (breastfeeding, complementary feeding and micronutrients) and hygiene activities should be integrated in both the counseling and the services immediately available to the family. If the program is linked

to early childhood development expertise, assessing and counseling about development can also be added.

For curative care, health personnel should be involved, whether to offer services or to refer families. With the new focus of many health programs toward implementation of Integrated Case Management for the Sick Child, as proposed by WHO and UNICEF, the integration of child health and nutrition should become easier because health facilities will be offering integrated services. Continuity in advice between the facility and community and the ability of the community to provide follow-up will become higher priorities. The community-based growth promotion program is the perfect extension of facility-based case management focussed on prevention.

- The integration of nutrition and health services at the time of growth promotion is typified in the posyandu movement in Indonesia, probably the largest attempt to integrate preventive nutrition activities with health service delivery. Posyandu were created when the community weighing posts of the UPGK were converted to integrated health service delivery posts offering immunization, MCH services, family planning, integrated health care and diarrheal disease control (Soekirman). High coverage was achieved, but there is little evidence of improved effectiveness in tackling undernutrition (Jennings; Hendrata, 1992), in part because the child's growth pattern was not the key link with other services. Hendrata has pointed out that unfortunately the integration of the community-based growth promotion component, run by village volunteers, with the more "prestigious, professional-based delivery component," consisting of services such as immunization and family planning, tended to marginalize the growth promotion effort, which indicates that linkages with clinic-based or professional services must be carefully crafted.

- One of the objectives of TINP was to better integrate health services with community nutrition work. A review of TINP found this aspect to be less than optimal, primarily because offering particular health services was not integrated with the decisions about what to do for growth failure; rather,

the services were offered by another worker, on that worker's schedule. The nutrition worker only refers a mother to the service (Shekar).

- In the Integrated Child Care Program (AIN) of the Ministry of Health in Honduras, growth promotion has been established at the facility and community level to focus attention on children failing to gain adequate weight and to consider, in a integrated fashion, the following causes: diarrhea, respiratory infection, sub-optimal breastfeeding and complementary feeding practices, and poor household hygiene. This program has designed a form to prompt workers to inquire about these causes when they encounter a child who has failed to gain adequate weight. Although this analysis form has not yet been adapted to AIN's community work, it establishes the important precedent of an integrated causal analysis for growth failure that can lead into tailored actions that address both health and nutrition (Ministerio de Salud Pública), something that is missing in most programs seeking integrated actions.

Use of growth promotion to identify beneficiaries for supplementary feeding has dramatically improved the efficiency and effective use of this expensive intervention.

For decades the link between supplementary feeding and growth monitoring has been that foods are distributed to entice participation at the growth monitoring session. This use of food has not been efficient or effective in improving young children's nutrition or health because: (a) the food distribution overshadows the promotion of improved practices, (b) the food itself is usually shared among all family members, (c) the food often replaces the home diet, and (d) it can create a dependence on non-local foods. These problems have led some programs to halt supplementary feeding altogether in favor of an educational strategy. ANEP in Dominican Republic is one example of this. In ANEP areas, there was a 43% reduction in undernutrition over areas that had only the normal government health program and over ANEP areas with a food program (USAID, 1988).

While this is encouraging, there are cases where food will be needed by families to stimulate action and their child's growth. In these cases, the program should facilitate access to food for these children. The two examples below illustrate the use of on-site feeding and food coupons.

- TINP provides an example of carefully targeted food supplementation that avoids many common pitfalls. Children who have inadequate weight gain for three months or who are severely malnourished are selected for short-term, on-site supplementary feeding. The food provided is regarded as a snack rather than a meal because it does not contain rice, so there is less chance that it will replace meals given at home (Greene). Providing the feeding on-site avoids "leakage" to other family members or to other uses for the food.

  In order to minimize the risk of long-term dependence on program feeding, the program gives children the supplement only until they begin gaining weight at an adequate rate. This occurred within 90 days for 65% of the children and within 120 days for another 15%, and the remainder required longer-term supplementation (Balachander). The expectation of a successful "graduation" from the feeding program helps to motivate mothers to maintain and improve feeding at home. Growth data are used to target not only the supplement but also counseling to ensure that the mother is aware of why her child is selected, the effect of the additional food on her child's progress, and ways to take follow-up action at home. Evidence of improved growth, the criterion for graduation from the feeding program, creates another opportunity for nutrition education when the worker praises the work of the mother (Shekar).

  Although TINP provides supplementary feeding, this has not become the primary focus of the program. Coverage of the population is reported to be about 90% for growth monitoring activities, but only about 25% receive food supplements at any given time (Berg, 1987). These coverage figures point to success, as effective screening depends on reasonably high coverage, and it also shows that even those not receiving food continue to

participate. Rates of undernutrition were reduced in project areas, and the portion of children requiring feeding dropped by 57% after the first two years of the program, indicating clearly that dependence on food supplements did not develop (Berg, 1987). In fact, in addition to saving money, "the selectivity…is itself the most strong reminder to mothers about feeding practices, and the fact that children get better when fed…and graduation from the programme is an important reinforcement of the idea that growth can be promoted with simple measures" (Rohde, 1996).

- In Thailand information from growth monitoring has been used for several decades to target feeding programs in an effort to eliminate severe malnutrition. Of note is how the feeding activities, to achieve higher effectiveness and efficiency, have undergone refinement from the distribution of a centrally processed supplementary food in the 60's and 70's, to a locally produced food, to, in 1988, the introduction of a food coupon for moderate and severely malnourished children's families (in addition to the locally produced food). The coupons can be redeemed at the rate of one per day at local stores for specific foods. Since the introduction of the coupons, moderate and severe malnutrition has declined from 2.3 percent to under one percent (Kachondham). Now, to further bolster effectiveness, the targeting criteria could be refined from the focus on malnutrition to one on growth promotion—i.e. any child who has prolonged or severe growth faltering can receive the coupons and, as in Tamil Nadu, could graduate from the program when weight gain resumes.

Growth status statistics have been powerful tools for program monitoring and for advocacy with policy makers.

Although information collection should not be the primary motive for monitoring child weight gain, once the information is collected it can facilitate programming decisions and monitoring of impact at different administrative levels. Also, data showing the magnitude and distribution of the problem and the effectiveness of the interventions are powerful tools for advocacy to increase resource allocation for community-based nutrition and health pro-

grams. It is important, however, to avoid overburdening workers with reporting responsibilities. Emphasis should be on compilation of a few meaningful indicators and strong visual presentation.

The experiences described above showed how some programs have compiled and used growth monitoring information at the community level. The discussion here concerns the use of this information at the district, regional and national levels. At these levels, there is limited experience. Usually, due in part to the enormous task of compiling and then interpreting all the data, information is dutifully passed up the system with other reports, aggregated at each level, but never used. One obstacle to its use is that if a growth promotion program does not have good participation rates, the information is difficult to interpret, particularly if participation is thought to be skewed to the better-off families. Because of these difficulties, many programs have chosen not to use monitoring information for decision making but instead to use separate nutrition surveys or nutrition surveillance systems, losing what could be an important warning system of potential problems.

Although unusual, there are a few programs that have successfully used growth information for advocacy. T*hese are programs that have made growth* (Indonesia and ANEP) *or nutrition status* (Iringa and Thailand) p*art of the definition of health and well-being and good quality of life.* Growth or nutrition-status statistics then become important to politicians. Programs that have been successful in their advocacy efforts have found it helpful to focus on a single indicator.

- In Indonesia the SKDN system described earlier in this chapter is compiled and used as a management tool at all levels. This system reports children gaining weight each month or the converse—the number who faltered. This number is used to judge how developed a community has become and is used to target resources and measure achievement. In Thailand nutrition-status information from monitoring activities is aggregated at every level. The Thais believe that the use of one indicator, the percent of children undernourished (moderate and severe), from the vil-

lage to the national level has helped make nutrition a popular cause, understood and discussed by all (Tontisirin).

- The Iringa project is another example of a focus on nutrition status, on eliminating severe undernutrition. In addition, it is the only example of how growth monitoring information from the community was truly used by the community for advocacy with programmers at higher administrative levels. The report submitted by each village contained not only nutrition statistics but also an analysis of causes, what actions the community had chosen to take, and what resources it needed from the next administrative level. Officials were accountable for responding to these requests (Jonsson, 1993).

In summary, various programs have demonstrated that growth promotion activities can improve implementation efficiency and effectiveness. However, few programs have been designed to tap the full potential of growth promotion: this will be reached when healthy child growth is the goal that motivates families to dedicate their resources to correcting growth deficits in their children and when communities and programs can respond with an integrated package of services that support families' initiatives and that address the underlying causes of growth faltering, carefully targeting actions and advice to need.

5 Employing good management principles is as important for effective growth promotion as it is for other program activities.

Until now, this paper has focussed on the mechanics of growth promotion. However, the application of good management principles is just as critical to successful growth promotion as the program's technical basis. As in any program striving to motivate household and community actions to improve health and nutritional well-being, if the worker has too many tasks, or does not receive essential support to organize his or her work well, efficiency and effectiveness will suffer.

This chapter will be devoted to the lessons learned about managing growth promotion programs to optimize their potential. The principles that will be discussed here draw heavily on Heaver's work for the World Bank that looked at lessons for improving outreach in family planning, health and nutrition programs (Heaver) and on the ACC-SCN's review of successful nutrition programs (Jennings). The principles are not specific to growth promotion but are common to all programs, although there may be refinements important to growth promotion. The following list can be used to assess the managerial aspects of growth promotion programs.

✓ Programs should have a dedicated worker(s) in each community for growth promotion.

✓ Workers' tasks should be limited and well defined.

✓ Detailed, area-specific plans should be made, but with room for local innovation.

✓ Training should be task oriented and "hands-on," covering the entire growth promotion process, with an emphasis on problem solving.

✓ Supervision needs to be supportive, continuing the training of the workers and addressing directly problems they confront.

✓ Continual monitoring should alert all administrative levels to developing problems.

✓ Commitment to program goals should be evident at all levels.

These points are discussed below.

A dedicated worker is critical for community-based growth promotion.

Growth promotion and other community programs require someone to initiate and oversee them in the community. Placement or identification of a community worker is essential to beginning a growth promotion program, as for any community program.

Planners must decide who is most appropriate to be responsible for growth promotion. Selection criteria should depend on the precisely defined tasks to be performed. These should be the basis for training and be understood clearly by the worker and community. If the decision guide for growth promotion actions has been written, the tasks will be evident. Using the decision guide presented in Figure 1, the worker's tasks would be to:

(1) maintain a roster of all children under two in the community—enrolling the children at birth;

(2) organize a monthly weighing of all under 2's in the community, ensuring 100% participation;

(3) assist each mother in weighing her child and plotting the weight on the growth card;

(4) help the mother to interpret the growth pattern and diagnose the problem, if there is one;

(5) depending on the result and a discussion with the mother about causes, refer her to the appropriate program activities, including health consultation and supplementary food;

(6) counsel her on one or two activities that she can do at home to help her child;

(7) make home visits to children not growing well to provide more encouragement to the mother;

(8) organize and participate in community meetings to analyze the growth of the community's children and motivate collective action by the community;

(9) help different groups organize specific activities;

(10) hold group education sessions on common problems that mothers face in caring for their children.

For some workers, managing records, food, cases of diarrhea, or coordinating with the health center might be part of the job description.

Most successful programs have recruited a community person, usually a woman, to be responsible for growth promotion, with the job consisting principally of community organizing and education. The person must be *from* the community (not someone who comes to the community occasionally) and respected for her experience with child feeding and child care. TINP and other programs have recruited successful mothers, i.e. those who are not well off, but who have well nourished, growing children. Whether or not the person is literate has not proven critical, as literate people usually can be found to assist if necessary. Even non-literate paraprofessionals or persons with low literacy skills have performed well in programs with supportive supervision. Moreover, using paraprofessionals/community members keeps

costs down since they will cost less than a clinic worker even if they are given a small salary or other "incentive."*

When an existing program that has community health workers decides to establish growth promotion, the tendency is to add growth promotion to that worker's tasks. This should be avoided unless there will be a substantial restructuring of his/her other tasks. In most circumstances it is better to recruit an additional person, because growth promotion is not equivalent to baby weighing—it is a system for promoting growth with the potential for multiple activities based on an analysis of what is causing poor growth.

Regardless of who becomes responsible for growth promotion, the *limitation of tasks and community support* become essential. Program experience shows that it is easy for the worker to become overburdened and for performance to suffer. If growth does not improve, the job definition should be changed. One common way that growth promotion workers are overburdened is when they are expected to cover too many children. Client-worker ratios must remain relatively low. While there are many factors to consider in establishing ratios, a *full-time* community worker might be able to cover 50 to 100 children (Heaver), particularly if only 20 to 25 of those children would need close follow-up.The operative concept here is follow-up. In growth promotion, follow-up is critical. Don't exceed about 20 children if the worker is a volunteer, working only a limited amount of time and expected to deliver the growth promotion package. It is better to limit the upper age of the children

* The issue of remuneration and incentives for community workers is an important one. The literature is extensive on experiences with various schemes. These decisions seem dependent on local circumstances. At this time most growth promotion programs are being implemented by volunteers who are motivated by community responsiveness and occasionally by benefits such as free medical care.

in the program to under 12 or 18 months (instead of 24–36 months) than to limit the follow-up needed for improvements in practices.

Another solution to workload fatigue has been to *seek support in the community.* Recruiting assistance from other community members has many positive results for general community participation and ownership, and for sustainability and cost-efficiency.

- In Tamil Nadu, Women's Working Groups were formed and later Children's Working Groups. The Women's Working Groups were thought to be essential to the high coverage rates achieved (Heaver). Formed by the community worker at the outset, they helped introduce the program to the community. The group then assisted at the weighing sessions, with cooking demonstrations and nutrition education. Each volunteer took on a small neighborhood, about 10–15 women who were usually friends, to visit and work with to improve their nutrition and health practices.

- In Honduras, the support is "build-in." Volunteers work as a small team. When growth promotion was being introduced and communities were asked to select volunteers, almost all preferred to choose more than one person. The opinion of people managing this program at the field level is that two to three people responsible for growth promotion are ideal for ensuring continuity, letting them support each other, and not overburdening training.

- In El Salvador, a paid Ministry of Health employee (the community health promotor) was given the job of growth promotion in addition to his/her other curative and preventive health jobs. It became clear that responsibility for the full growth promotion package was too much. To support the promotor, the Nutrition Department began a program of identifying and training volunteer nutrition counselors in the community. These volunteers (all successful mothers) assist with growth promotion, particularly the counseling and negotiation. They receive a pin and apron to identify them, and special materials and training for their job. Using these volun-

teers entails very little additional cost, since the promoters would require the materials and training now given to the counselors and the supervision system is the same (Núñez and Griffiths).

Training and supportive supervision are at the heart of a well functioning program.

Another important way to ensure that the workers' tasks do not become overwhelming and are producing the expected results is through training and supportive supervision. Both the amount of initial training and the continuity of in-service training seem to make a difference in worker turnover and performance. Across programs, there is a wide variation in initial training time: from six months in Iringa to only days in UPGK. While training time will depend on the worker's previous exposure to the concepts and tasks of growth promotion, and on the full complement of what they will be expected to do, even in the best of circumstances about 10 days will be required to cover basic training objectives (Box 11), assuming that in-service training will be available.

The literature is abundant with lessons on how to train community workers. In general these lessons are all applicable to training for growth promotion. Many of the lessons relate to a few points. First, the training needs to be as experiential ("hands on," job-related and community- based) as possible. The 10 or so days do not have to be done consecutively, and in fact the best success seems to come when workers receive their training in small doses interspersed with their work in the community so they can relate what they are facing in their community to the training.

For training to be as experiential as possible, it should consist of a series of structured practice sessions in which trainees: a) become familiar with the instruments or materials by having them in hand during an explanation; b) observe and discuss materials and instruments being used optimally and with common flaws; c) role play with other trainees, and d) try it "at home" and record the experience to share with the trainer. This sequence of practices

Box 11: Training Objectives

	Responsibility		Skill Objective
1.	Establishes a growth monitoring activity in the community	1.1	Knows value of growth monitoring and can exaplain it meaningfully to community members
		1.2	Interests and involves community leaders in the activity
2.	Weighs and measures children	2.1	Can structure monitoring procedure to minimize confusion
		2.2	Can set up and use tools correctly
		2.3	Can accurately weigh or measure children
3.	Completes growth chart	3.1	Can interview the mother
		3.2	Can calculate child's age or birth date if required
		3.3	Can graph or mark card correctly
4.	Offers advice, or education, or referral to mothers	4.1	Can correctly interpret chart
		4.2	Can communicate effectively with and involve mothers to define cause of growth faltering
		4.3	Can use negotiation to offer appropriate advice on diet or home care for child not growing adequately or who is ill
		4.4	Can refer child in need of additional assistance
5.	Stimulates community to work together to help malnourished children	5.1	Can discuss the community nutrition profile given by monitoring results and recommend community actions to alleviate the situation
6.	Keeps information that will help evaluate the program or the progress of the community	6.1	Can compile a community record for each session or keep a simple tabulation.

Griffiths, M. 1985. *Growth of Preschool Children. Practical Considerations for Primary Health Care Projects.* World Federation of Public Health Associations: Washington, DC, page 57.

needs to be done for four important aspects of growth promotion: 1) the growth monitoring segment of the process (weighing, plotting and interpreting); 2) the promotion aspect (determining causes for growth faltering, counseling and negotiating, and follow-up);* 3) the work with the community to stimulate community support and action; and 4) the management and organization of the total package in the community. Given the four step training process and the four key content areas, a modular training program can be constructed that will allow certain content to be standardized, while its implementation can be left to the local scheduling realities.

Second, the training needs to have built-in self-assessment and trainer assessment of the level of competency each participant has achieved and to allow time to correct weaknesses and offer additional help to those who require it. The assessment need not be lengthy or take away much time, but a self-appraisal after which questions and refresher practices can take place helps those who have understood the task to help clarify it for those who still have doubts. Often, other trainees' guidance is most relevant. The assessment done by the trainer can be done simply with a checklist of proficiency for each of the four areas specified above. This record of each worker's skills will be helpful during supervision and in planning any follow-up training.

There seems to be no standard advice on who should do the training, except that those who will supervise workers should participate in the training. Some programs such as TINP opt to have a mobile team of skilled trainers. The other extreme is Honduras where the decision has been taken to have

* For this segment of the training, workers need a good grounding in household activity and need to learn what mothers are willing to try and why. Exposing workers briefly to the consultative research process, particularly the trials of improved practices (TIPS) method is useful and can often change their outlook about the importance of counseling. A guide for this training is in *Designing By Dialogue* (Dickin, 1996).

the auxiliary nurse from the local health center train the workers community-by-community in the surrounding communities. There are pros and cons for each approach. However, what they have in common is that training is done locally. Workers are not transported to distant training centers. Training in or near the community of the worker helps make it practical and adapted to local constraints. The best organization and trainers will vary and should be the subject of early program monitoring to ensure that a cost-effective scheme is found, since training can be a substantial program cost.

Of equal importance with initial training is in-service training and on-site, supportive supervision which, if done well, become almost indistinguishable. The normal practice in most programs is that in-service training is infrequent, one week every 2–3 years at best for community workers, particularly if they are volunteers. Also, field supervision is rare in most programs (Stinson; Heaver). In those programs where supervision does take place, quality is often poor, with an emphasis on review of administrative rather than technical tasks. The PRICOR review of six programs places the success of growth promotion squarely on the shoulders of supervisors, not workers. They found workers performing to capacity in the face of poor supervision. Stinson states that what suffers with no supervision is decision making; the counseling and referral, i.e. the reason for the growth promotion program.

Similar to the initial training, in-service training and supportive supervision (which should always have a training aspect to it) should be competency based and focussed on the operational, rather than theoretical aspects of the growth promotion package. Supervision visits to individual workers should be structured to leave time for refresher training on tasks that are not being performed optimally. Refresher training can then be less frequent and can focus on topics many workers find problematic or want to explore in greater detail. ANEP in the Dominican Republic held a meeting of all community workers once a year that served for refresher training. Individual experiences were shared and new topics introduced. This format also allowed for substantial worker guidance in planning what would be discussed at the meeting.

Good frequency of contact conveys the program's interest in the community person's work and can motivate improved performance. While contact is enhanced through in-service training, it is regular supervision that is critical. The supervisor should understand the challenges that face the worker. Supportive supervision implies not only adding a training aspect to the visit but also engaging directly in problem solving with the worker, i.e. visiting houses, participating in meetings, and visiting community leaders.

- In Tamil Nadu, which has emphasized in-service training, every community worker received 10–15 days of in-service training at the nearest administrative headquarters center. This was supplemented by on-site training by the local instructor. Poorly performing workers received more training than those performing well, something many programs do not consider. In TINP, workers were visited for one day every two weeks. Supervisors in TINP had 10 workers to supervise.

- In ANEP, workers were supervised at least one day per month. Supervisors covered from 15 to 20 workers, giving priority to new workers. In ANEP (and TINP), the supervisor reviewed records to find children not gaining weight and would make home visits with the worker to observe the situation and to offer advice on counseling. Also, in ANEP the supervisor would help the worker prepare for community meetings where the community's aggregate growth information would be discussed. Often, the supervisor would attend the meeting.

- A scheme proposed in Honduras, where community-based growth promotion is relatively new, is to combine the initial training with supportive supervision and in-service training during the first year to 18 months that a community is in the program and then continue with supportive supervision. In this plan the nurse from the health center will train the growth promotion workers (usually three or four) in their community during afternoon visits twice a month. With the workers, a schedule will be established that allows the nurse to train during one visit and during the next to supervise the work that was the subject of the previous training. Refresher training

will be conducted if needed, before a new theme is introduced . Over a year's period, all of the basic training modules will be covered, but the nature of the sessions will change from primarily training to almost exclusively supervision and refresher training. Once a high level of competence and self-sufficiency is achieved by the worker and the community, visits will become slightly less frequent.

Detailed, area-specific operational planning, along with flexibility to incorporate innovation, is best for a smoothly run, dynamic program.

Programs that have been successful have had *detailed, area-specific field planning* (Heaver). This means that a great deal of attention has been given to logistics, to how each activity is going to function, and to how the worker is going to do her job. While some time is devoted to theory and policy in the design of activities, much more is spent on day-to-day operational details on how decisions will be made and services delivered. This helps the worker be more organized, feel more in control and supported, and see accomplishments. In Indonesia, for example, the operation of the posyandu has been carefully developed and detailed manuals distributed to all workers. In ANEP, workers' routines for home visiting, completion of records, and community meetings were carefully developed and disseminated to everyone working with the program. However, it is in TINP where routines were the most precise and the time involved for workers carefully measured to ensure a doable, high quality job. The consistent results across a large program attest to the value of detailed planning.

To develop meaningful, detailed plans, program designers and supervisors should have to walk in the shoes of the community worker and work with the community. When this happens, policies, norms and guidelines will be more practical. Detailed planning includes such issues as: 1) the type of scale to be purchased—bar or dial, in kilograms or pounds; 2) the design of the sling, pants or seat for the child during weighing; 3) the stock of scales so that broken ones can be exchanged for working ones while the broken ones are being repaired; 4) enough growth cards and counseling materials to en-

sure that workers will use them rather than store them away because of uncertainty about future supply; 5) the organization of the work so all children are reached who need to be weighed each month—at one session, home visits, or both; 6) the provision of an easily understood and manipulated casual model for the community to analyze the growth of its children. The success of the program will depend on the attention given to such details.

The need for detailed planning is not in contradiction to the next important principle: *flexibility and budgets for local innovation.* Particularly in the community, room must be left for change and innovation. As workers feel more confident with their tasks, and as the community takes more responsibility, there will be changes in the detailed plans. There will be new ideas for improving coverage, for engaging mothers and fathers, and for easing the workload or getting the attention of policy makers. These ideas should flourish, although the bottom-line of healthy child growth must remain visible and progress to achieving it should be seen. Iringa is perhaps the best example of flexibility. Communities essentially developed their own solutions to the local malnutrition situation. In addition there was money to support local planning. Too often the budget is entirely allocated to those activities deemed essential by the program, leaving no money to support ideas from the community. Money should be set aside in program budgets to support local innovation and local decisions, even if program managers in more centralized positions question their usefulness.

Continual monitoring should signal any weakness in the process.

Of all the management tools, monitoring of activities and their impact has probably been the weakest, or at least the most poorly documented. Building monitoring indicators into a national health monitoring system is critical to keep interest high. The elements of the Indonesia SKDN system, described at the end of the preceding chapter, are the standard ones to use: coverage, monthly participation and growth. When any of these indicators fails to improve for a community, the cause must be investigated and corrected. The assessment guides in Chapter 6 can orient such an investigation.

Commitment is a feature of successful programs, but it is not inherent: it must be built.

Good management builds solid commitment to a purpose or goal among staff at all levels. A sense of commitment was a feature of the programs discussed in this paper but it was not inherent. How was that commitment achieved? First, by setting a goal that was non-controversial: elimination of severe malnutrition (Iringa, Thailand) and healthy growth for all children (ANEP, TINP and UPGK). Then the program ensured that staff saw their role in achieving the goal and could take credit for progress. Work performance was clearly linked with the goal, not with secondary indicators.

Second, the worker and community were in control of their jobs and their program. This was particularly true in Iringa where local authorities mobilized resources for their own plans. In other programs, although resource control was perhaps less, workers and the community were encouraged to institute new activities. Program management took seriously the ideas that came from workers and clients.

Third, it is indisputable that the programs highlighted in the paper had external assistance and additional resources. While this might be important for their initial success, these programs have been sustained, in most cases through several changes of personnel and the whims of international assistance. Other programs have received the same external assistance, but have not succeeded or been sustained. These less successful programs are often characterized by a lack of vision and low commitment by project personnel to improving the health and nutrition of underserved populations. In addition, these programs have not employed the management or design principles discussed here. It is the combination of commitment and good operations management that builds success.

6 Cost data, although limited, support growth promotion's value as a cost-effective tool for targeting interventions.

In the debate over growth promotion, one critical issue is whether it is worth the expense and effort to monitor growth in order to detect problems early and categorize specific children for appropriate actions. It has been proposed that no targeting is necessary and that whatever interventions are provided by a program should be available to all (Gopalan, 1987). There are two main arguments against this viewpoint, at least for in non-emergency situations:

- Individualized interventions facilitated by targeting (whether feeding, counseling, or other services) are more effective than general interventions.

- The benefits of early recognition and effective local prevention of the development of malnutrition cannot be realized outside of growth promotion. Families can be motivated to action because they can see the problem and can see progress, which leads to more sustainable changes in behavior that have a better chance of becoming the social norm.

Effective growth promotion that has guided the targeting of interventions has been associated with many of the most effective and cost-effective nutrition programs.

- Using growth to carefully target food supplements, TINP in India achieved declines in serious and severe malnutrition of 30 to 50 percent, while comparable Integrated Child Development Scheme (ICDS) areas, where growth monitoring was not used to target food, achieved 10 to 20 percent declines and at greater direct costs (Berg, 1987).

- UPGK, with growth promotion but weak targeting of advice on improved practices, has consistently been able to reduce moderate and severe malnutrition to about 14 percent from a high of 25 percent. However, when growth promotion was carefully applied to target education messages in NCBC project villages, at most 10 percent of children were classified with moderate or severe undernutrition, showing added improvement over UPGK. NCBC families differed positively and significantly from an UPGK

comparison sample in mothers' participation in nutrition activities; mothers' knowledge; mothers' and children's consumption of key foods, calories, and protein; and infant nutrition status as measured by weight-for-age, height-for-age, and weight-for-height (Rohde, 1993; Manoff International).

- ANEP in the Dominican Republic used strong targeting of counseling based on growth to achieve a 43.4 percent reduction in the rate of moderate and severe malnutrition: 33 percent for children enrolled for one year, 44 percent for those enrolled for two years, and 60.5 percent for those enrolled for three years. ANEP communities had 37.8 percent less moderate to severe malnutrition than matched non-ANEP communities where children were weighed occasionally at the health center but there was no community activity (USAID, 1988).

- In the Iringa Nutrition Program, where growth promotion was used by communities to analyze problems and plan actions, severe malnutrition declined from 6 percent to 2.7 percent, and overall undernutrition declined from 56 percent to 41 percent (Miller).

Effectiveness combined with cost is discussed below.

Costs of growth promotion depend significantly on population density and the extent to which an existing program already provides effective services.

There have been few serious attempts to analyze the entire range of costs associated with monitoring and promoting growth. A worldwide UNICEF review of growth monitoring states: "Discussions on cost are virtually absent from the technical literature on growth monitoring" (Pearson). Actual costs found in the literature will be described below, but first, for guidance to program planners and managers, it may be useful to discuss the components of cost and factors influencing their budgeting. Clearly, one major factor is the population density, dispersal, and general ease of contact and logistics.

Another major cost determinant is the status of a program and program resources before growth promotion is added or expanded, as summarized in the following questions:

✓ Are there already trained clinic and community-based health workers or volunteers?

✓ Is there already a good supply and logistics system?

✓ Is there already regular, supportive supervision?

✓ Is there already good utilization of available facilities?

✓ Is there already a system of regular, effective home visiting?

✓ Has active community participation already been generated?

✓ Does the program and or institution supporting the program already have good credibility among the population?

✓ Is there already effective nutrition education that is at least broadly targeted and sensitive to the resources and attitudes of families?

✓ Are there plans or are there already services being offered that address the causes of malnutrition?

The more positive the answers to such questions, the less costly the start-up of growth promotion is likely to be.

If one is essentially starting a new growth promotion program, major cost components could include those listed below. In the absence of much community infrastructure, as indicated by negative answers to the above questions, these costs may be increased by the need to create missing infrastructure.

Program Design

- Designing of the growth curve and a card for families.

- Planning basic program organization (who will weigh, when, with what scale, where, how the program will respond to different levels of inadequate growth among children of different ages). This may require operations research or evaluation studies of projects.

- Conducting consultative research as the basis for designing the interventions that will respond to inadequate growth. Such research should achieve an understanding of what people presently think about growth, about child health, about child rearing, and a whole set of cultural features that go into the reality of child feeding practices and child care.

- Designing or modifying services (food, health services, other activities such as child care, hygiene, credit, etc.) to respond to different levels of inadequate growth. This will include preparatory community work so collectively families begin to develop their own responses.

- Designing and pretesting promotional and educational materials for health workers and the public.

- Developing operational guidelines for health workers or volunteers.

- Developing the training.

Program Start-Up

- Purchasing of scales, counseling aids, and other needed supplies and commodities, especially for the community aspect of the growth promotion program.

- Printing growth cards.

- Training of health workers, volunteers, supervisors.

Program Operation

- Paying salaries, benefits, or incentives, transportation, per diem, reporting forms.
- Replenishing cards, educational materials, scales and other supplies and commodities as needed.
- Co-funding community plans to address malnutrition.
- Supervising and monitoring.
- Evaluation.

In considering the cost of improving growth promotion activities, the additional travel, training, materials, workers' pay, workers' time, mothers' time, opportunity costs, etc. need to be balanced not only against nutritional improvement or impact, but also against other intangible benefits such as: 1) the level of participation of mothers in other health care programs; 2) the benefit to women by enhancing their problem-solving abilities, helping them share goals and experiences, and giving them confidence to take on new problems in the community; 3) communities that are capable of solving their own problems through an assessment, analysis and action process; and 4) the benefit to future generations when practices improve and when a cultural norm changes to value good growth. Such benefits should be considered even though they cannot be quantified.

Costs of growth promotion vary substantially, even in the same country; while the cost of effective growth promotion is not insignificant for many countries, it is within the capability of most.

Cost comparisons of growth monitoring across programs are difficult because of lack of good data, country variation in costs, differences in program coverage, whether activities are community or clinic-based, etc. When cost comparisons are done of growth *promotion,* the difficulties mount, because the nature of the services/activities that are appropriate and selected are so different. The range of actions includes education, food distribution, public health measures, or even broader development actions such as credit programs to be undertaken in connection with community programs. While all these activities should be strategically planned to improve child growth, they may also have other objectives, so it is difficult to attribute program costs. No program has been able to satisfactorily apportion the costs of adding only the monitoring and tailoring or to assess the effects of the targeting. The most systematic attempt to put a cost to growth monitoring and promotion was a series of UNICEF evaluations. Major findings are the following:

- The costs calculated varied substantially not only among countries but also among programs within the same country. The annual cost per child ranged from US$0.11 to US$9.26 but varied by a factor of 7+ within three Malawi programs, 4+ in three China programs, and 2+ in three Ecuador programs.

- Capital (investment) costs ranged from 13.4% to 90% of total costs (these included buildings, scales/forms, cars and motorbikes, furniture, and training). They varied from $0.15 to $2.54/child. Training accounted for more than half of the capital costs in four programs.

- Recurrent costs were above 69% of total costs in 6 of 10 programs but less than 50% in the other four programs (these costs included retraining, supervision and monthly meetings, salaries and bonuses, transportation

and maintenance, growth charts, stationary, and health education materials). Annual costs/child (some of which do not include promotion) varied from under $0.05 to over $8.00. Salaries and bonuses accounted for more than 50% of recurrent costs in 8 of 10 programs.

Other cost analyses support the high variability in cost.

- Three growth monitoring programs in Zaire found annual costs/child of $1.06, $0.38, and $0.10 (Gerein, 1992).

- A program in Ghana that used a TALC Direct Recording Scale found a comparable annual cost per child of $2.90 (Meegan).

- Total ANEP costs were calculated at $25.91 per child beneficiary per year. However, it must be considered that these were total program costs, and 59.3% of costs were salaries. Also, this was a "research and development" pilot project with a limited number of beneficiaries, home visitation and community loan funds (USAID, 1988).

- UPGK/posyandu: Costs to start up a post are $2.00 to $4.00/child and recurrent annual costs are $0.33 to $0.75 per child per year. From 5 to 25 percent of these costs are capital investments of scales, parts, growth cards, etc., and 60–65% of the costs are wages, travel and administrative costs of the intermediate and central bureaucracies (Rohde, 1993).

- The Iringa Nutrition Project had costs of $14.00 per child in the start-up phase and $5.30 for expansion and $8.05 for continuation. Staff costs account for 40 percent and vehicles and transport an additional 26 percent. These are certainly not costs to be assigned solely to growth promotion, but indicate the costs for an effective package (Miller).

- TINP: Annual costs were $7 per child weighed and screened and whose mother received nutrition education; and $12 per child who also received food (Berg, 1987).

- NCBC: The cost calculations for this project were thorough and included all project development costs (training of program managers, vehicles, office equipment, etc.) for an integrated growth promotion program with intensive community nutrition counseling. In the initial phase, they were $3.94 per child and in an expansion phase, $2.05. Although costs were not negligible, expansion nationally was considered well within the national budget (Berg, 1987).

Costs also vary by the quality of the program. Pearson notes that "the cost of setting-up and maintaining good growth monitoring programs has been underestimated," but these costs depend on the cost attributed directly to growth promotion or more generally to running a community-based program with good training, supervision, and follow-up. In addition, for quality programs, while costs are a factor, the benefit must also be calculated.

Berg points out that many low-income countries currently spend 6 percent or less of their budgets on health and nutrition but also notes that food subsidies often account for two or three times this percentage. His analysis of the two nutrition programs with growth promotion (one with supplementary feeding) shows that the annual cost of operating these on a national level would be between 0.15 to 2.1 percent of the national budgets. It seems likely that growth promotion is affordable to most countries.

Available data on cost-effectiveness of growth promotion support its value as a tool for targeting interventions.

Very little assessment of the cost-effectiveness of growth monitoring has been done, in spite of considerable attention to other aspects, and this represents a serious gap in the information needed to make reasoned decisions about its programmatic application. However, if it is true that growth promotion results in greater effectiveness through individualizing interventions and/or reduces costs by targeting, it seems logical that by using it to organize program operations, health and nutrition programs will become more cost-effective.

Much of the evidence for improved effectiveness has been presented in earlier sections, but quantitative answers are not available because the few programs that have used growth data to individualize nutrition services have not been designed to compare effectiveness with and without growth data. The one study that set out to make this comparison was flawed in design because the investigator himself delivered much of the nutrition education (George, 1993). This kind of intensive education would be too expensive for normal programs.

One area that has been reviewed is the cost effectiveness of using growth monitoring to target food supplies. In a review of nutrition projects sponsored by the World Bank, Berg found that while the costs of providing 1000 calories were higher for closely-targeted programs such as TINP, total food costs were lower because a smaller proportion of participants received food. Broad food subsidy programs in Brazil and Colombia cost about $4 per capita, whereas selective feeding programs in India and Indonesia cost about $1 per capita.

To estimate the savings related to targeting, it is necessary to have data broken down to specify (1) the cost of screening and targeting per beneficiary (2) the cost of the intervention per beneficiary (3) the populations served by screening and by the intervention. Such data are not available for many programs, but Berg's data on TINP and the Nutrition Intervention Pilot Project (NIPP) in Indonesia separate the costs of screening and feeding. Figure 5 shows that targeting resulted in a savings of about 33 percent in TINP and 177 percent in NIPP, compared to what the cost would have been if all those who were weighed received supplementary feeding.

Estimating the cost-effectiveness of growth promotion programs involves the further complication of measuring benefits. A comparison of TINP with ICDS provides an opportunity to look at similar programs in the same country (India). Berg's estimates found that annual direct costs per community nutrition center for ICDS were $1,129, almost double the cost of comparable but targeted services of TINP at $579. At the same time, TINP reports reduc-

tions of serious and severe malnutrition of 30–50% as compared to 10–20% reductions achieved by ICDS, suggesting that the targeted program was considerably more cost effective (Berg, 1987). Rohde (1995) points out that, by stimulating mothers to take better care of their children and proving to them that feeding was indeed a critical way of improving their children's growth, TINP's selection process contributed to cost-effectiveness both by targeting and also by serving as a powerful teaching tool.

Figure 5: Comparison of Screening and Feeding Costs for Two Programs

	Cost/ Beneficiary	Number of Beneficiaries	Total Cost	Cost without Screening (Difference saved)
TINP			$5,887,860	$7,826,280
Screening	$7.02	484,000	$3,397,680	($1,938,420)
Feeding	$16.17	154,000	$2,490,180	
NIPP			$303,120	$840,000
Screening	$12.74	15,000	$191,100	($536,880)
Feeding	$56.01	2,000	$112,020	

7 Guidelines for assessing growth promotion program design and implementation can identify strengths and weaknesses in activities.

Persons responsible for designing or re-designing growth promotion activities, or for monitoring an existing program, should pay close attention to both the implicit and explicit pathways for decision making and resulting actions, and to how the operational management facilitates achievement of program objectives. Focussing on these important questions should contribute to program effectiveness by alerting planners to weighing activities that will not lead to improvements in health and growth. Optimally, a program should promote growth for all of the communities' youngest children (0–12 or 24 months) through improving program responsiveness (either by integrating more actions or by better targeting), stimulating community action, and motivating households to undertake practices that will make a difference to growth.

The guide presented in Figure 7 is a tool for assessing the degree to which growth promotion activities are designed and implemented using "best practices." The scale ranges from negligible use of a concept to excellent use. The prediction is that a project with a higher score will be more effective, all other things being equal. This guide serves to summarize the ideas presented in this paper.

Figure 7 is divided into two parts. Part A assesses how well a program responds to growth failure. Once programmers have answers to the questions below, they can rank a program using the guide. The following questions about participation and decision making for action are related to the list of essential "technical" elements at the beginning of Chapter 3.

- ✓ Are all eligible children identified at birth and their families participating monthly?
- ✓ What *indicators* (nutrition status, weight gain, health status, etc.) are used to make decisions?
- ✓ Is there a visual record or cue about the growth of a particular child and about the growth of the community's children?

- ✓ Does the response to a particular child *vary* as a result of the information gained from weighing and charting?
- ✓ Are clear pathways or causal models for decisions based on growth written down, disseminated, and used?
- ✓ What kinds of decisions are made? Decisions on targeting? On referral? On community action? On content of counseling?
- ✓ Are the decisions and actions taken by communities and the program supportive of needs at the household level?
- ✓ Who is involved in the decision-making process?
- ✓ Are actions followed up?

Part B of Figure 7 helps a programmer assess the operational management aspects of a program. However, before using the guide, it is useful to answer the following questions that are related to the essential managerial elements listed at beginning of Chapter 5.

- ✓ Are there workers dedicated to growth promotion with a clear job description and feasible workload?
- ✓ Has their training prepared them for their job of carrying out the entire process of growth promotion? Are training and supervision mutually reinforcing?
- ✓ Has attention been given to the details of getting the job done? Have logistics, equipment and procedures been carefully thought through to help simplify and make the work more effective? In this planning, is attention given to local innovation?
- ✓ Is the monitoring system for growth promotion a part of the monitoring system for national programs, and does it capture the key elements of program impact?
- ✓ What is the level of commitment to growth promotion, and therefore how sustainable is the effort?

Figure 7: Guide for Assessing the Quality of Implementation of a Growth Promotion Program

Part A: Response to Growth Failure

	Response to Growth Failure				
Issue	**1. Negligible**	**2. Minimal**	**3. Fair**	**4. Good**	**5. Excellent**
Participation of mothers & families	Mothers attend only if receive some incentive; attend sporadically; not asked to be involved; chart not made for or kept by family.	Most mothers attend times per year and are passive participants; keep child's chart but have little understanding of it.	Mothers attend 6 times per year; participate in weighing and want to know weight; express motivation to change practices so child will gain weight; ask questions; keep chart.	80% of mothers attend regularly; interpret growth pattern; plan to try specific behaviors; use weight gain to indicate success; growth chart tailored for family.	Mothers help weigh child, interpret growth pattern; with worker, choose actions to improve growth; offer experiences to other mothers; all materials developed for mothers.
Guidelines for decision making based on child's progress	No guidelines for decisions.	Guidelines use nutrition status only; status used for supplementary feeding decisions at service delivery point.	Guidelines combine nutritional status with health or weight gain criteria; interpretation not clear; action plan suggestive, not specific.	Guidelines for decisions by gaining, not gaining, or losing weight, but are only developed for one aspect of program, e.g. food or for one level, e.g. community.	Criteria for adequate and inadequate growth combined with health status; used at all program levels, with clear guidelines for decisions and action.
Targeting & integration of program components	Children weighed but weights not used for targeting or integration.	Weighing linked only to decisions such as feeding; or frequency of weighing based on nutritional status.	Targeted referral within health system, based on nutritional status and/or growth.	Use growth for referral to other services in community & some targeting of program actions such as health care, but no follow-up.	Close coordination with program and community services; good targeting & follow-up.

Continued

Figure 7, *Part A (Continued)*

Issue	Response to Growth Failure				
	1. Negligible	2. Minimal	3. Fair	4. Good	5. Excellent
Community awareness and decision making	No community-level use of data (health system only).	Health system provides some feedback to part of community.	Community worker compiles nutrition-status data periodically and shares results with community, but information does not trigger actions.	Community organization receives and discusses aggregate growth and status information regularly; analyses causes of problems.	Community compiles, discusses and frequently bases decisions/actions on data; takes pride in having few undernourished children & in children who grow adequately.
Individual nutrition counseling	Either no counseling or messages concern only attendance at weighing.	Group nutrition education talks for mothers; topics are generic.	Individual nutrition education for those targeted, but messages are general, not tailored.	Counseling tailored to individual child who is not growing; counseling more intensive, as needed.	Adequacy of growth determines content and intensity of counseling; nutritional negotiation used; targeted materials used.

Part B: Level of Operational Management

Issue	Level of Operational Management				
	1. Negligible	2. Minimal	3. Fair	4. Good	5. Excellent
Worker and workload	In a fixed facility; growth promotion is one of many responsibilities; no incentive to give attention to growth promotion tasks.	In fixed facility with occasional outreach; auxiliary assigned resp.; no incentive to give attention to growth promotion except to food distribution.	In community, extension of health center, multi-purpose; overworked; few incentives.	Community worker with responsibility for nutrition, may work with multi-purpose worker; not overworked; some performance-based incentives.	Community worker has help and will make home visits; percent of children gaining weight is part of job performance.

Issue	Level of Operational Management				
	1. Negligible	2. Minimal	3. Fair	4. Good	5. Excellent
Training of workers	Emphasis on weighing and charting; one-time occurrence; didactic, theoretical.	Emphasis on weighing and charting, plus nutrition education and rehabilitation are discussed, but low priority and are non-specific; still theoretical but divided into shorter sessions.	Emphasis on weighing and charting, plus analysis of causes and how to target feeding, general nutrition advice, recipes, etc.; task oriented; cases presented; short sessions.	Emphasis on weighing and charting plus analysis of causes and how to target and give general nutrition advice and recipes, plus community dynamics, counseling, using materials and giving targeted advice; task-oriented cases and practices; short sessions with follow-up of training in community.	Previous accomplishments plus teach to negotiate with mother; emphasis on community motivation and counseling; previous characteristics plus methods devoted to practice, self-assessment and community follow-up.
Supervision of nutrition worker and activities	Check only monthly reporting forms, at best growth charts; visits are at best sporadic.	Check records and frequency of education or receipt of food; visits infrequent; if a problem, blame placed on worker.	Previous accomplishments plus observes growth monitoring session and asks about child nutrition; visits are at least twice a year and attention given to improved performance.	Observe sessions, assess targeting & decisions on actions based on growth data; visit worker quarterly; work with community; emphasis on improved performance.	Previous accomplishments plus visits mothers to help solve problems with worker; initial visits monthly—continued training.

Continued

Figure 7, *Part B (Continued)*

Issue	Level of Operational Management				
	1. Negligible	2. Minimal	3. Fair	4. Good	5. Excellent
Detailed operational planning	Only a few general norms available.	Norms developed with general guidance but not for all aspects of program.	Guidelines developed for implementation of all aspects of program; some response to local needs in purchase of scales, etc.	Full set of operational guidelines and tools available to respond to local needs.	Full set of operational guidelines with options and examples of local initiatives; materials respond to local needs; budget for local innovations.
Program-level monitoring	Data not compiled, although can be sent through system.	Data compiled, but not used to affect program.	Compiled only for nutritional status; decisions taken on supplies of commodities only.	Data on growth and nutrition status compiled, presented, and discussed, but not at all levels.	Data on growth used for program decisions (design, expansion) and advocacy at all levels.
Commitment to sustain program	Undernutrition part of dialogue only at national level among program personnel.	Commitment to reducing undernutrition seen only in general terms, not in local action.	Commitment at all levels to reducing undernutrition.	Adequate growth is used at household and community levels but does not have commitment outside of program personnel at other levels to sustain resource allocation.	Adequate growth is a national development objective; commitment to achieving this is seen at all levels; local resource allocation.

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