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CHAPTER 4

CATCH-UP GROWTH

A. Hernán Delgado and Víctor Valverde

Infectious diseases, especially diarrheal diseases, have a great impact on the metabolism and utilization of nutrients. Not as much food is consumed. There is interference with the absorption of nutrients. Virtually all normal metabolic and endocrine functions are disturbed. And there is direct loss of protein in the gastrointestinal tract.

After an infection, nutrient-dense foods are needed for catch-up growth in children. Achieving good growth recovery is most critical in infants and preschool children, since so high a proportion of their energy intake is allocated to growth and physical activity. Due to inadequate nutrition, the children in developing countries cannot recover from infections, and the probability of new infectious episodes is high. The result is child growth failure.

The INCAP study tracked physical growth and mental development and their various biological and socioeconomic determinations in four small agricultural villages in Eastern Guatemala. The basic hypothesis of the study was that mild to moderate protein-calorie malnutrition adversely affects the mental development of infants and preschool-aged children.

To test the hypothesis, a high protein-calorie supplementation drink called "atole" was made available to two of the villages. The remaining two villages were provided with "fresco", a fruit-flavored drink containing no protein. Both supplements contained vitamins and minerals and were given twice daily, seven days a week. Participation in the study was voluntary and free.

As the project progressed and a need for medical care became apparent, a health care program was implemented, which, in addition to managing common diseases, was responsible for maternal and child care activities, including vaccination programs. The health care was integrated with the food supplementation activities of the project.

Data collection began in 1969. Examinations included anthropometry and were done every three months during pregnancy and lactation and in children less than 24 months of age and every six months thereafter. Morbidity surveys were done fortnightly.

The integrated food supplementation and health care programs had important effects on infant and child mortality rates and on physical growth. The food supplementation project led to an increase in birth weight and in weight and length in older children. This was more obvious in the beginning of the project. In addition, food supplementation had its greatest impact on children with low weight and length as well as on those who had suffered from diarrheal disease.

Health care and food supplementation can be integrated in a variety of ways. Food aid resources should be used to strengthen government efforts to bring primary health care services to the most deprived and isolated communities. This strategy was used successfully in Costa Rica in the last decade in the Rural Health and Community Health programs, and the health and nutritional consequences of linking food aid to an integrated health care program geared to those most in need have been well documented. Moreover, food aid can be used as a tool to promote the extension and use of medical care services in rural areas, particularly those whose inhabitants have not been exposed to modern medicine and are reluctant to take advantage of the services.

Food aid can be linked to integrated medical care services primarily through two types of programs: supplementary feeding schemes through the maternal and child care programs and Food for Work activities. However, in Latin America at least, Food for Work programs have seldom been linked to integrated efforts to deliver health services to deprived and undernourished populations. Most of the programs have involved road maintenance and construction and some agriculture-related activities. Food for Work efforts need to be directed towards strengthening the health infrastructure in dispersed rural communities. Potential activities include not only the construction of health posts but also, more importantly, the design of projects (including introduction of potable water, improvements in garbage and sewage disposal systems, and so on) to prevent the diseases which plague children in rural communities.

Better targeting of programs can also enhance catch-up growth. The means for this exist, particularly in Central America and other Latin American countries, where permanent information systems provide mapping and monitoring of the prevalence of malnutrition in even the smallest political-administrative units. Thus, better targeting of food aid and other nutrition and health programs by regions, subregions, communities, and within communities by families and individuals is feasible.

In addition, certain seasonal factors need to be taken into account in program design. In many developing nations, the peak of diarrhea and other diseases usually coincides with the months when less food is available. Both the coverage and amount of foods per participant in a program should be modified with this in mind. At the individual level, this would accommodate the additional demands of energy and nutrients of children suffering from diarrhea and other diseases during these lean periods.

There is a need to revise existing norms and procedures of food aid programs, including the criteria for selecting eligible children; instruments and interpretation of growth-monitoring curves; type, quantity, and quality of foods; length of participation in a program; criteria for graduation from a program; and follow-up of graduated children. The resulting increase in program efficiency would be reflected in catch-up growth in some chronically malnourished children, as well as in those who had recently suffered from acute infection.

B. Conclusions and Recommendations

- Catch-up growth is defined as the process of recovery following an acute episode of infection or malnutrition and the longer-term process during which a poor previous history of growth is compensated for, resulting ultimately in a "normal" or near-normal body size. These processes can be followed in terms of weight, height, or body proportions (weight for height).
- Achieving good recovery growth is particularly important for the very youngest children, aged two years or less. The objective should be to insure that children regain at least their previous growth status after each infectious episode.
- Achieving compensatory growth would also be particularly beneficial to adolescent girls. During this period, accelerated growth is possible, given adequate food, and could lead to fewer complications during pregnancy, increased birth weight in their offspring, and more successful lactation.
- Working adults, both men and women, can also benefit by regained capacity for physical labor or by regaining weight lost, specifically muscle mass, after episodes of illness, food shortage, or seasonal imbalance between food supply and energy expenditure.
- Adequate food supply is not the only thing necessary for achieving catch-up growth. Food distribution schemes must be designed to complement other programs--health care, education, income generation, etc. Food aid can be seen as a catalytic and supportive element in a variety of schemes designed to improve family health and nutrition.
- A recognition that food aid is part of the development of the larger health system in the recipient country should be implicit in the donor-recipient agreement. A mutual recognition that potential food programs need to be ranked according to need with the highest priority being the provision of basic services for the very poorest is also necessary. Food donations can also act as an incentive to increase attendance at education programs for women and can be a means of increasing women's control over resources in the household.
- Special formulations of foods should be avoided. Although such factors as bulkiness and nutrient balance are important advantages of special formulas, they do not outweigh the disadvantages, including cost, level of technology, and the good chance that they will be usurped by wealthier sections of the population. Instead of special formulations, households should be provided with enough food so that the needs of under two year old children are met.
- The speed of catch-up growth depends upon the level of feeding, so it is necessary to know what level and duration of extra feedings will be most cost-effective. This will vary with the frequency and type of infectious episodes. It is not yet possible to define such dose-benefit relationships or to say how much more food needs to be made available to the household to insure a minimum acceptable level of benefit. Such levels need to be established in order that food aid not be spread too widely with small rations, resulting in a diminished nutritional impact.

- After illness, children need to be offered food more frequently and sometimes in a greater variety of forms and flavors than normally. This means that consideration must be given to the economic costs to the family of an increased level of child care during illnesses. Such costs would include loss of working time of women and a temporarily higher expenditure of income on a wider variety of foods as well as on fuels for cooking. All these suggest that some degree of income transfer is likely to have a positive effect on the nutrition of children.
- Program operators need to be more imaginative in using food aid in conjunction with other programs in order to bring about catch-up growth. Catch-up growth should neither be assumed nor left to happen by chance.