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Managing For Results

a nutrition program experience from Peru

Lima – Perú, 2003

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Foreword

Every now and then a creative initiative successfully translates policy into practice and, in so doing, generates a spark of optimism that the improbable is, indeed, possible. Such an initiative is carefully recorded in the work of Josephine B. Gilman, *Managing for Results: A Nutrition Program Experience from Peru.* The compelling nature of the 15-year experience described was both the strength of the conceptual framework proposed and the collective charisma of the people committed to its implementation throughout Peru, in the diversity of its rich and often challenging geographical, social and cultural settings. This group commitment was complicated further during the past two decades by the disaster-prone nature of Peru's land and climate and the man-made crises of its politics and societal conflicts. It was within this unstable environment that the experience described contributed to combat one of Peru's most capacity-draining problems: child malnutrition.

How best to combat the chronic malnutrition of successive generations of potentially productive citizens? This persistent question has challenged practitioners and politicians of a host of countries, including Peru, for many

years. How appropriate and wise have the responses been? I highlight the aspect of wisdom because the flaws of practice have often less to do with the knowledge we possess and more to do with the choices we make. That is why, all too often, "good" programs are bad strategies; or, more correctly stated, programs intending to do "good things" can be terrible strategic interventions.

When the merit of an activity is measured by an intended benefit to the targeted population, virtually any intervention can be justified as good. Examples abound, as they do in Peru. The "*Vaso de Leche*" or "Glass of Milk" program is a case in point. Founded in the early 1980's by the progressive political leader, Alfonso Barrantes Lingán, it set the noble goal of providing a daily nourishing glass of milk for every poor child. Well intentioned and politically attractive, it soon developed an unquestioned social inertia that would prove difficult to overcome. Who could question the value of such a program in benefit of the poor? For me personally, it was so reminiscent of the milk and crackers supplement that we received in elementary school in the States during the 1940 war and post-war years. Why question their value? The answer was not long in coming.

In the late 1980's, when studies in Peru revealed the magnitude of malnutrition and identified those sectors of the population most at risk, it was clear to many, certainly to some leading practitioners, that hard choices had to made,

and urgently. The country's scarce resources had to be more carefully focused on those who were most vulnerable to the severest consequences of chronic malnutrition. At that time and in subsequent years, the tensions impinging on crucial budgetary choices and decision-making would seriously affect the quality of public sector social services. While generalized feeding programs absorbed upwards of a quarter billion dollars annually of scarce public budget resources, proposals to focus attention on those infants and children suffering life-long, irreparable damage to physical growth and cognitive development went begging. The strategic need, in the real world of limitations, to set clear priorities and make the hard choices among alternatives of relative importance, to sacrifice doing much of what was "good" when the highest priority was doing what was most urgently "necessary", was an unwelcome and unpopular challenge to decision-making politicians.

It was in such a social and political setting that the "*Experience*" described in this book emerged. The fledging non-governmental organization, PRISMA, proposed a strategic methodology to combat child malnutrition which would identify high-risk families in a cost-efficient manner and provide an essential cluster of integrated health/nutrition services in close partnership with the vast country-wide network of public health establishments. In the fifteen years that have elapsed, the process of design, implementation, evaluation and re-planning was a *modus operandi* accepted

with seriousness and enthusiasm by all program team members. It made the lessons learned analysis a component not so much of required reports as the guiding criteria to take corrective action and to improve activity design. While many aspects of the program are worth noting from a careful reading of the text, I would like to highlight just a pair of personal impressions of the program's contributions which I would not want to be lost among its many significant accomplishments.

Firstly, during the past fifteen years in Peru, credibility of public sector institutions suffered greatly, especially in terms of efficiency and integrity. During the same period PRISMA leadership insisted that long-term sustainability of quality services required working as close partners with the government network of health and nutrition services and with its central level planners and policy makers. In the face of enormous skepticism, time has validated the wisdom of this position. Secondly, the program experience described here has also underscored the importance of community involvement and responsibility and of working with program leadership at the local level. Among other results, this effort has contributed to the formation of a critical mass of community promoters whose official certification by the health sector appears imminent.

Every human intervention can be improved upon, and this is equally true of the PRISMA Nutrition Program. In

testimony to the people behind the program, however, I must in conclusion praise their many contributions in the struggle to combat malnutrition in Peru; the consistency displayed between theory and action, between institutional policy and practice; in effect, those elements of integrity and commitment which distinguish the leaders of the field.

George F. Baldino *

* *Mr. Baldino was a Food Security Officer with the United States Agency for International Development (USAID) in Peru from [illegible] and holds a similar position with USAID in Angola.*

Prologue

The available body of theoretical knowledge on malnutrition is vast but there is still a wide gap between that existing knowledge and our response to reducing malnutrition through nutrition program development and implementation. This book is an attempt to reduce that gap through a compilation of experiences, observations and lessons learned from fifteen years developing and implementing nutrition programs with PRISMA, an NGO partner of the USAID PL480 Title II Program in Peru.

Many times during the last 15 years of nutrition program implementation in Peru, we thought that we had come up with all the answers. What we learned was that, for every problem, there are at least five solutions and for any given set of circumstances we need to come up with the best solution at that moment, but we always need to be ready for those circumstances to change. In other words analyze the problem, collect the data, re-analyze the problem, take into consideration new variables or circumstances and go back to step one. In this book we do not pretend to have all the answers, and in fact we may provoke more questions than answers.

We experienced almost all the adverse circumstances a child health and nutrition program can encounter in a developing country, - drought, flooding, terrorism, strikes, corruption, social and political unrest and economic crises - but we survived. This survival was due to an amazing network of committed community, NGO and government health workers in the field, who believed in the future of the children of their country.

When we started out in 1988 the first question we asked was; "What is the best way to reduce the levels of child malnutrition in such a culturally and geographically diverse country as Peru?" The most obvious answer was, "We need to set up a food distribution program to feed the poor and needy." We also asked, "How do we find and identify the poor and needy? Is food all that they need? What health interventions are needed? How much education is needed? Given its cost to a program is food even important? How do we know if our programs are working, and what is the best way of measuring the results?" Although there is a strong link between poverty and malnutrition, not all poor people are malnourished, whereas most of the malnourished are poor. We learned that the link between poverty and malnutrition is far more complex than just measuring income.

From the beginning of the PANFAR Program (High Risk Family Program), we decided to use a risk score for the detection of families at risk for malnutrition. This risk score

was made up of social and biological indicators. The use of this risk score allowed us to systematize our program throughout the country, in spite of the geographic diversity of the sierra, coast and jungle. Another important decision we made right from the beginning of the program was to include graduation criteria, meaning that at the end of six months participation in the program a family would graduate when certain health, education and nutritional goals had been met. If those goals were not met, the family would stay in the program for another six months.

Some areas of the country had higher risk levels than others, many of those were in the rural sierra. In these areas because there were many children under three years of age who were already malnourished, we implemented a complementary program that actively involved the community and trained women as volunteer health workers or promoters as they are called in Peru. This program, KUSIAYLLU, worked with all families of children who were acutely malnourished to rehabilitate them and provide food supplementation and integrated health care to all children under five years of age in the family and their mothers.

We were fortunate to have good countrywide data to design and develop our health and nutrition programs. The variables we used were mainly height, weight and age of children less than three years of age. We were able to use

data from the National Survey of Health and Nutrition (1), that had data on children less than five years and we also used data from a school height survey of first graders, when it became available in 1993, to help with geographic targeting(2).

Designing the program before the food arrives is vital. If food is available for distribution before a good program design is ready to be implemented, there may be pressure from political sectors and the public to distribute the food. It is important that politicians and the general public understand that there is a difference between a *food distribution program* and a *nutrition program.* The goal of a food distribution program is often no more than just delivering the food. The goal of a nutrition program is to improve the nutritional status of the most vulnerable groups in the population, namely pregnant and lactating women and children under three years of age through education, health interventions and food supplementation. Governments tend to prefer the short-term gains of food distribution programs. The rewards for a politician interested in food delivery are short lived, food is consumed rapidly and the demands for changes or more handouts are common. A nutrition program should have a lower profile, clear goals and measurable results; this will reduce the likelihood that the program can be manipulated for political gain.

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[1] INE- MINSA, Encuesta Nacional de Nutrición en Salud, 1984. Informe general.
[2] Pajuelo J., Censo Nacional de Talla en Escolares, 1993.

Probably our most important achievement as an NGO was being able to maintain a partnership, with a government organization for the implementation of the program in health centers and health posts throughout the country. Although our counterpart entity in the Ministry of Health changed names, locations and chiefs more than once, agreements were respected and the program continued to move forward.

We were fortunate in our visits to the field to meet such noble and courageous people as the health promoters who served their communities daily. Ana, Maria Esther, Fortunata and Rosario to name a few, from different places but all with the same goal to help families less fortunate than themselves. For them and us, many of the PANFAR children are forever etched into our memories, Rosanna from Piura, Anthony from San Juan, Edith from Ayacucho and hundreds more whose futures we are proud to have participated in.

Introduction

A map of the book

This book describes the implementation of two national level health and nutrition programs, *PANFAR* (High Risk Family Health and Nutrition Program) and *KUSIAYLLU* (this means Happy Community in the Quechua language). Both programs were implemented in Peru by PRISMA, a Peruvian NGO, as part of the United States Agency for International Development PL480 Title II Program in collaboration with the Peruvian Ministry of Health. The Programs were implemented from 1988 to 2002.

Nutrition intervention programs are designed to improve the nutritional status of a target population suffering some type of malnutrition. In our case the program included food and micronutrient supplementation, nutrition and health education and health interventions.

The term malnutrition can mean under or over nutrition. It is most often used to denote individual deficits in protein, energy and micronutrients. In this book we will talk specifically about nutrition programs that address under nutrition due to inadequate intakes of protein, energy and

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micronutrients. In Peru, and this is true for most developing countries, the single most affected group is children under the age of three years and the results of malnutrition are seen as a smaller than normal child body size with growth faltering.

I have arranged this book in what seems to me to be the most logical order for nutrition program implementation. If, however, someone needs a quick start today, I would suggest that they go straight to Chapter 4 that covers all of the key points of nutrition program design and implementation.

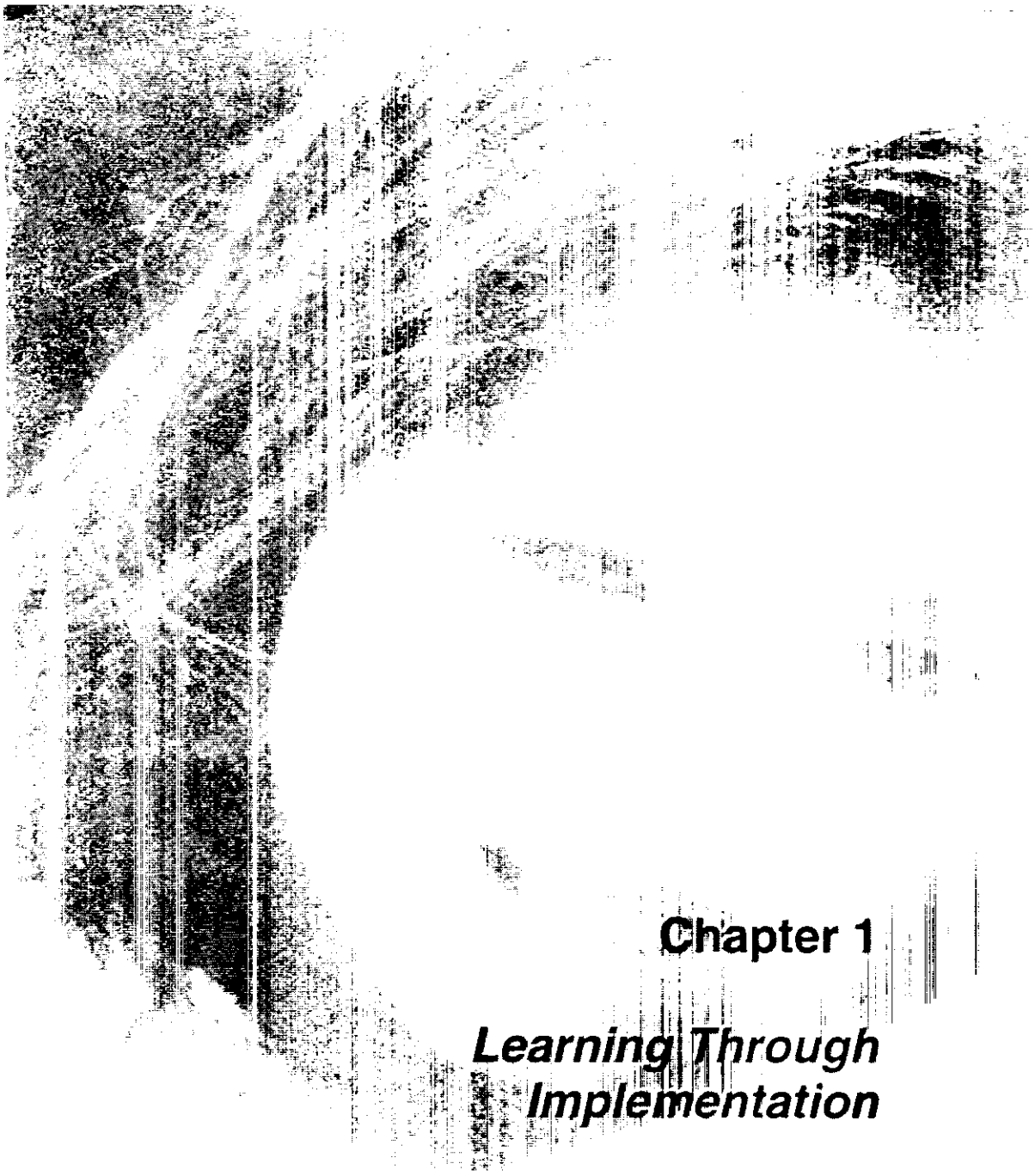
Chapter 1 describes some of our most important learning experiences with the two programs, PANFAR and KUSIAYLLU, that were implemented in Peru on a national scale in 24 departments of the country. Although numbers of participant families varied, the yearly average of all program beneficiaries was around 100,000 families. Chapters 2 and 3 provide important background information for a complete understanding of malnutrition. Some of the information in these chapters is from published authorities but it also comes from our own observations and experience in the field. Chapters 5 and 6 focus on geographic and individual targeting. Both issues are often discarded as impractical or too costly but they can be invaluable for program implementation in a country with a diverse geography and enormous gaps between wealthy and non-wealthy populations, as is the case of Peru.

Chapter 7 describes in more depth the importance of the management information system as a tool for program management and accountability, not only to donors but also to local authorities and communities. In Chapter 8, the treatment and prevention of malnutrition is discussed. In 1988, in our first survey of health center nurses working in a growth and development program we asked what did they do when they found a malnourished child. Frequently the reply was " send him to the doctor". When doctors were asked, they said "send him to the hospital". Yet only about 5% of mothers of malnourished children, in our first nutritional surveillance, actually took their children to the hospital. This caused us to look more carefully at home-based strategies for nutritional rehabilitation to ensure parent compliance.

Chapter 9 discusses the importance of graduation criteria as part of a food aid program and Chapter 10 discusses strategies for community involvement and also emphasizes the importance of community-based volunteers, who constantly provided us with important insights and were our faithful allies while working in some of the more difficult terrorist and drug growing areas of Peru.

In Chapter 11 there is a discussion of other development programs that can integrate nutrition and health goals. In our experience we found that our health and nutrition program beneficiaries were not ideal candidates for micro finance programs and vice versa. The final Chapter 12

includes some of the most important conclusions that we have reached throughout the last 15 years of program implementation.



Chapter 1

Learning Through Implementation

Chapter 1

Learning Through Implementation

a. The PANFAR Program

When the program began in 1988, we were confronted with problems typical to a developing country, widespread political and economic crises, pockets of Maoist terrorist groups in some of the poorest areas of the country and 15,000 metric tons of donated food arriving at inadequate port installations all at one time. We wanted to design and manage the PANFAR Program as effectively and efficiently as possible so we spent a lot of time analyzing and understanding nutritional indicators in Peru. The terms used, - stunting, chronic malnutrition, wasting, acute malnutrition and global malnutrition - were confusing. We found that many politicians would add to the confusion by taking the highest number of any of the above and call it malnutrition, leaving the public to imagine villages full of extremely skinny children with swollen stomachs. In 1988 there were still debates about the genetic predisposition for short stature but the importance of stunting, as a public health problem had not been recognized.

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A few years prior to the start of PANFAR we had conducted a case control study in two locations, a Lima shantytown and Cajamarca in the rural sierra, to study the risk factors for malnutrition and death in young children. We knew that the most cost-effective way to combat malnutrition would be to use a targeted approach to those families most at risk. Surprisingly enough, the risk factors we detected in our study were not very different than risk factors found in other parts of the world. Among the most important were a child breast fed for less than two months of its life, a low birth weight baby, mother and father had not completed primary school, a serious illness lasting for two weeks and an already acutely malnourished child. A risk score was devised and points were given. Four points or more on the risk scale and the family would receive a monthly food basket, education and health care for six months. If any child under five in the family was either still acutely malnourished or had not completed the immunization schedule appropriate for his or her age, or four or more educational sessions had not been received then the family would remain in the program for another six months. These end of program screening criteria were termed "graduation criteria" and participant families understood that there were other families who needed the program more than they did and would enter when they graduated.

PANFAR Graduation Criteria

After six months in the program families were evaluated using the following graduation criteria:

No child under five years in the family was acutely malnourished during the last three months

All children in the family have completed their age appropriate vaccination schedule

Mothers have knowledge of at least two methods of birth spacing and how to obtain them

Mother has attended three or more health education sessions

If mother is pregnant, she is receiving regular pre-natal care

The only national scale network through which we could implement this program in Peru was the Ministry of Health and its network of health centers and health posts. This meant that an agreement to implement the project had to be secured between PRISMA and the Ministry of Health. It was difficult to persuade government officials at that time that a targeted nutritional program would have more impact than a food distribution program in the urban areas. During 1988 the government literally ran out of money and was looking for ways to boost their popularity, because they had been forced to lift subsidies on basic foods.

Until 1988 there had been only two nutrition surveys in Peru, one in the 1970´s and a more recent nutrition survey in 1984. The latter survey showed that the problem of chronic malnutrition or stunting was more prevalent in rural areas rather than urban areas. Later surveys still show this to be true.

Previous Ministry of Health food programs had been erratic in their delivery of food and although there was a broad nutritional goal for pregnant and lactating women and children under five years there was no measurement of results. Most health professionals were unenthusiastic about implementing another program involving food rations because of their previous negative experiences. When the program was first presented to the Health Department Directors in the Ministry of Health, they rejected the idea that a national program could have common risk factors. The first year of the program was an experimental one for risk factors but at the end of that year all the directors agreed that a common risk score could be used for all areas. That risk score was used throughout the program and was further verified using Demographic and Health Survey data (DHS) data in fiscal year 2000(3).

[3] Suárez M. Determinantes de la Desnutrición aguda y crónica en niños menores de 3 años . Un Sub-análisis de la ENDES 1992 y 1996. PRISMA, Dirección de Investigación – Instituto Nacional de Estadística e Informática, Febrero de 1999

PANFAR Risk Score for Program Inclusion*

Parent's education less than 5 years
Unstable occupation
Abandoned by parent(s)
Low birth weight
Global malnutrition (weight/age)
Breast-fed for less than 2 months
Serious illness in the last 3 months
Birth spacing less than 24 months
Pregnant woman with arm circumference less than 22 centimeters
3 or more children under age 5

* All acutely malnourished children (weight/height) enter automatically

Entry Criteria:

4 points or more on the risk score or an acutely malnourished child and the family enters the PANFAR Program for a six-month period.

In the beginning, food distribution logistics were complicated because of the need to warehouse a whole year's supply of food. Seasonal rains, lack of secure warehouses, a shortage of reliable transportation and terrorist ambushes in some parts of the country further complicated the logistics. It took many years to build up a network of good warehouses, reliable transportation and an information system. The information system was the backbone of the logistics system; this was complemented twice a year by inventories in about 80% of the distribution network. Peru is a

geographically diverse country, with a coastal desert, a high Andean mountain region in the center and the Amazon jungle. Some of the 4,500 health centers and health posts in the program were difficult to reach and from the outset it was decided that the Department of Iquitos would receive funds from the government to purchase food locally as the logistics for donated food commodities would be too expensive.

Training of health workers was one of the most important investments we made. At the outset, most malnourished children were treated symptomatically for overlying diseases such as diarrhea or pneumonia. Hospitals and specialized nutrition centers were thought to be necessary for nutritional rehabilitation. Slowly we introduced the concept of home nutritional rehabilitation and community based nutrition education. This was introduced through the training of Ministry of Health workers. The majority of Ministry of Health trainees were nurses, social workers and nutritionists. They received training in all aspects of maternal and child health care, education, program planning and management.

The decade from 1988 to 1998 was important in Peru for the rapid development of information technology. In 1990, a PANFAR manual was printed and sent to all health posts and health centers, containing all the forms that needed to be filled out as part of the information system. However, the distance between health centers and their health posts and also distance from Lima meant that not all information arrived

on time or at all. In the early 1990's computerization of the PANFAR network began and in 1997 (Figure 1) workers no longer had to fill out forms but could enter their information on line. This went into a central database shared by PRISMA and the Ministry of Health. Analysis of this information could occur at all levels and training was given to improve local analysis of the information. PRISMA generated consolidated reports for the central level. The use of this new technology improved accountability because information was available to all who could access the Internet.

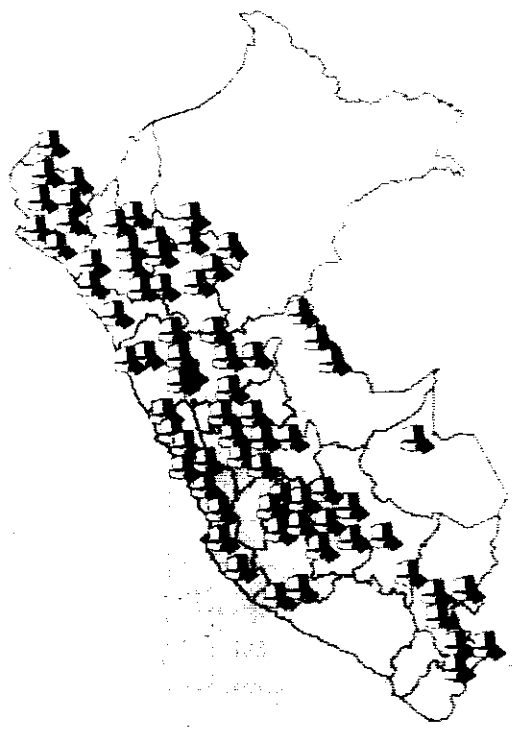


Figure 1. The PANSERV Information System linked peripheral computers to the system administrators in Lima.

This information system facilitated the monitoring and evaluation of PANFAR. Monitoring and evaluation meetings were held once a year in November or December in all 24 departments of Peru. The meetings were also used as a forum to plan the next year's program. The distribution of communities, and projected number of families for participation in the program were calculated based on levels of poverty, measured by unsatisfied basic need, and the prevalence of stunting. Once agreed upon by the Ministry of Health, these projected targets were published on the PANFAR web site to improve accountability by Program operators and managers. Figure 2, shows key components of the PANFAR Program.

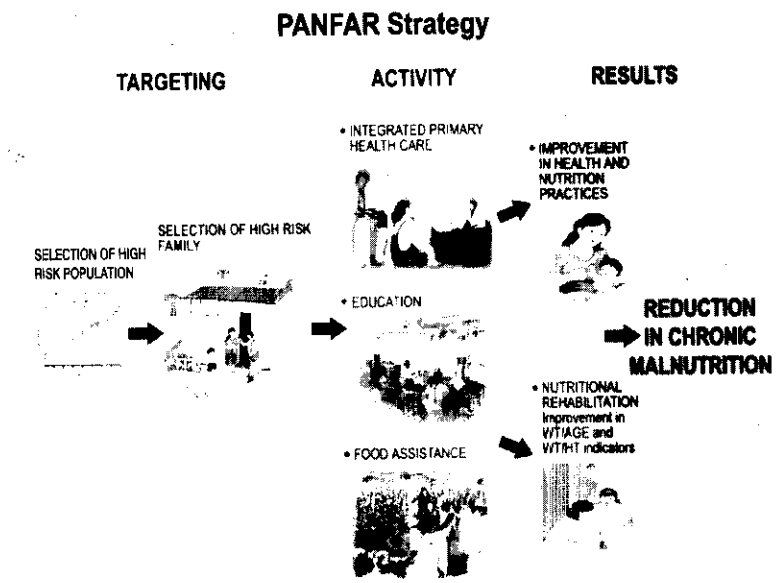


Figure 2. Key components of the PANFAR Program

b. The KUSIAYLLU Program

The Kusiayllu Program strategy is very different from PANFAR, although both programs had the same goal of reducing stunting in children under three years of age (Figure 3). The Kusiayllu strategy trained community based volunteers to detect children under three years of age who were acutely malnourished. Community health volunteers went door to door, in their own neighborhoods. Once detected, these children and their families then received intensive follow-up and education and a monthly food basket for six months.

Kusiayllu began in areas where stunting levels were more than 40%. An average of 12% to 23% of the population under three years were found to have -1Z weight for height. In these areas the Ministry of Health's services were strengthened by coordination with a group of community based health volunteers who helped with prevention and outreach.

The Kusiayllu program collected community level surveillance information, heights, weights and ages of all children under three years old. This longitudinal information was invaluable for our understanding of how malnutrition indicators interacted in communities in Peru. We learned how nutritional indicators interacted with other population indicators, such as mortality.

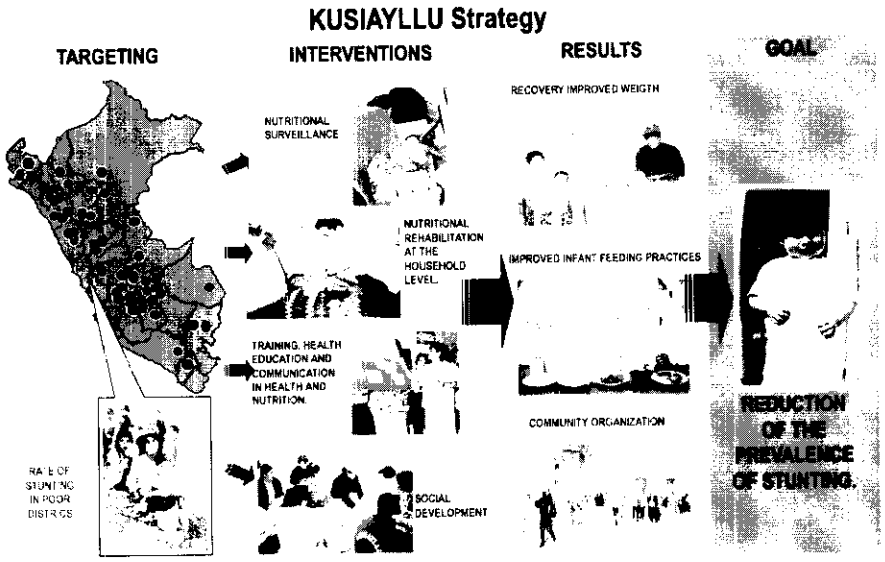


Figure 3. Key components of the Kusiayllu Program

By looking at our KUSIAYLLU data, we found that a child may have many episodes of wasting per year, often depending on episodes of diarrhea or other illnesses. There may be a spontaneous recovery from wasting; severely wasted children also often become stunted. Except during times of famine due to natural disasters or social conflict wasting appears to be an insignificant indicator at the population level. This is particularly true in Latin America. In Peru this indicator in children under five years of age is less than 1.1% for the whole country. However, when we look at smaller populations in Peru in high-risk areas, for instance, high sierra or jungle, we find that this indicator in children less than three years of age at -2Z was between 5.8% and 2.8% and at -1Z was 12% and 23%.

We found that the traditionally used cut-off point (-2Z) to describe wasting in a population is not practical when we are trying to prevent severe malnutrition in these children and reduce or prevent serious outcomes of illness such as diarrhea and respiratory infections. In our PANFAR and Kusiayllu Programs, we deliberately changed the cut-off point for intervention with these children and their families to -1Z. It did not seem logical to wait until children had further wasted to -2Z to then start rehabilitating them, especially when wasting -1Z was detected along with other PANFAR risk factors. In the Kusiayllu Program, early detection of families who could benefit from health education, immunizations and other interventions for the prevention of illness was also valuable. In fact we were using –1Z as risk factor for more severe wasting. This was feasible in Peru because, in a worst-case scenario, we were dealing with 23% of the children less than three years old in a community. In a country where the prevalence of wasting is much higher this may not be feasible due to an increase in the numbers of children who need attention and the cost of the resources needed to attend them.

We developed growth charts using weight for height that were easy to use, the Ministry of Health in Peru has been using them for the last eight years (Figure 4). These charts helped the early detection of families with an at-risk child and meant that volunteer and Ministry of Health workers did not have to calculate the weight for height ratio by hand when a

computer was not available. This meant that instant feedback could be given to parents.

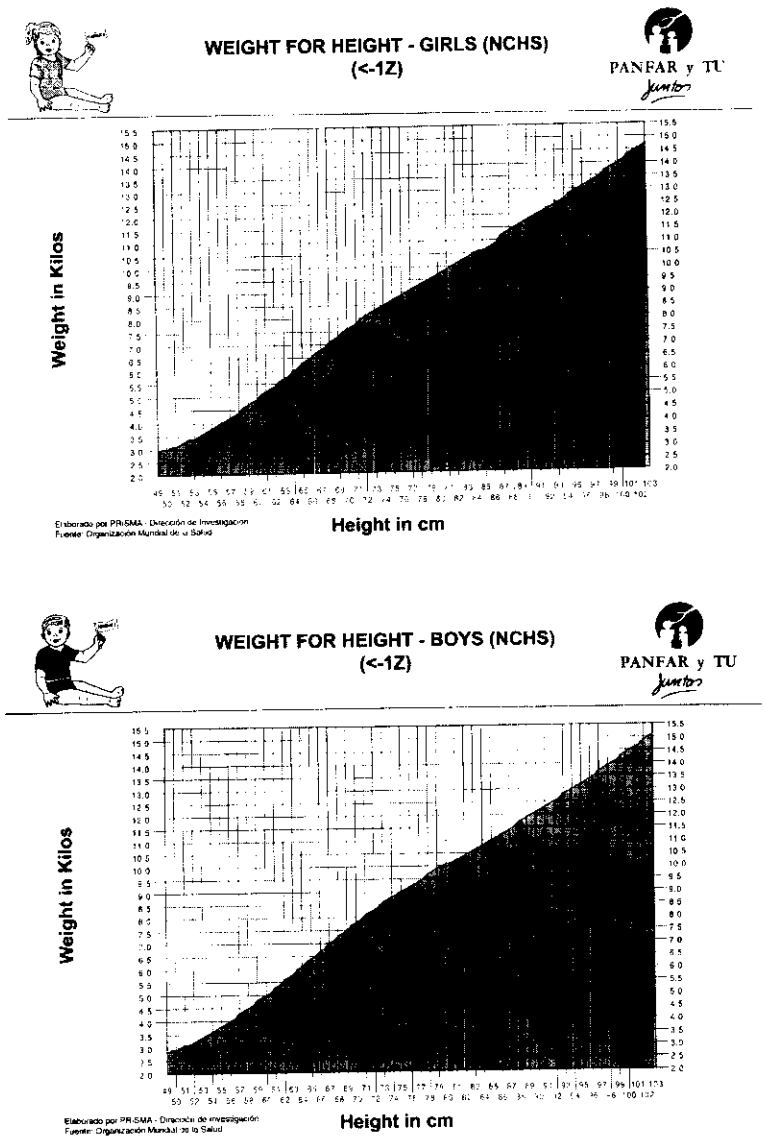


Figure 4. Weight for height charts for girls and boys developed and introduced to the PANFAR Program by PRISMA

The weight for height indicator is useful as an indicator for an early warning system, especially if the cut-off point is raised to –1Z. The El Niño phenomenon had just hit the northern coastal towns of Peru; the Kusiayllu Program had collected longitudinal data on 0-3 year olds. The data showed that in the month prior to the disaster, 14% of children were wasted; measured by a –1Z cut off, and when El Nino hit, this went up to 33%. Emergency resources were provided to the population, all families with children under three years were given extra food rations and during the next three months this went down to 18%. At that time, we postulated that this would be a useful sentinel site indicator for the government of Peru, as data was available, and published on the Internet, from more than 50 sites in the jungle, sierra and coast.

Some of the KUSIAYLLU jungle sites are particularly vulnerable to malnutrition as many of them are drug-growing areas; interdiction and terrorism have caused huge economic and social disruption for the population, even for those not participating in drug cultivation. There are high levels of both stunting and wasting in these areas. However, wasting was more prevalent in areas that suffered more interdiction. This was probably due to the fact that all families, either directly or indirectly and to a greater or lesser degree, benefited from an economy that was artificially inflated by the money made from drug production and sales. When the money and drugs were not available because of effective interdiction, cash for services was in short supply and this created localized economic crises.

A high prevalence of stunting, in two of these locations, can be seen in the most vulnerable age group from 12 to 23 months of age below (Figure 5).

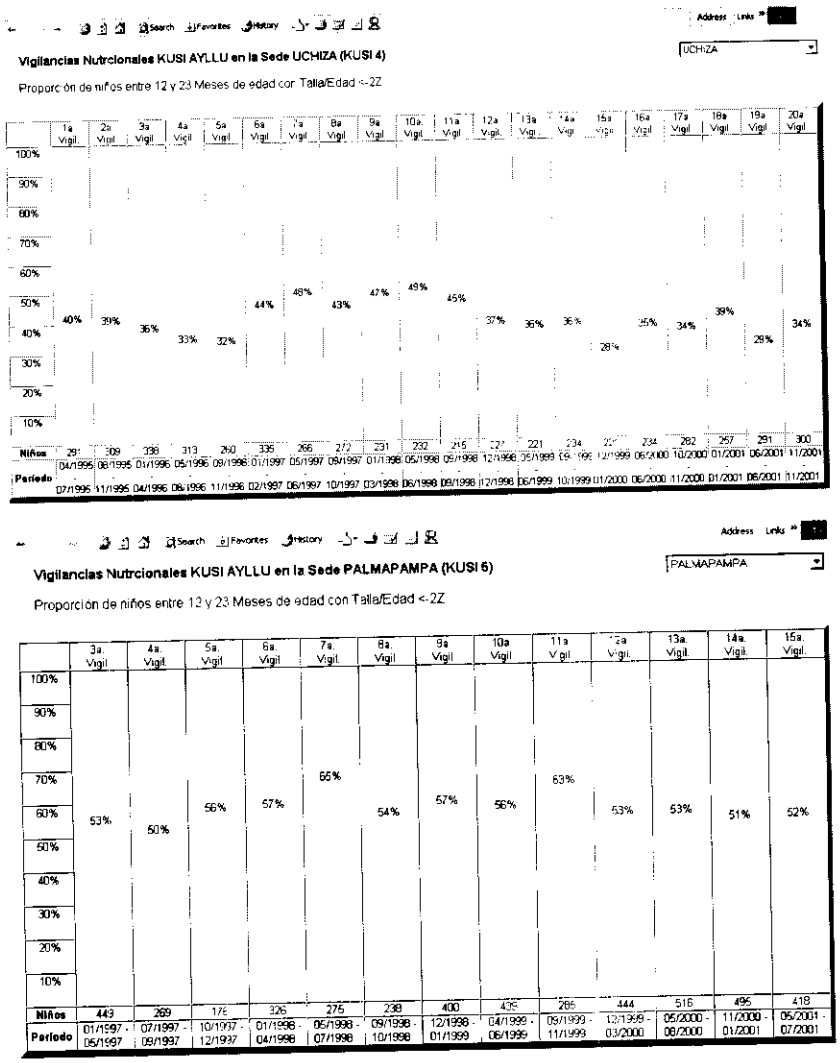
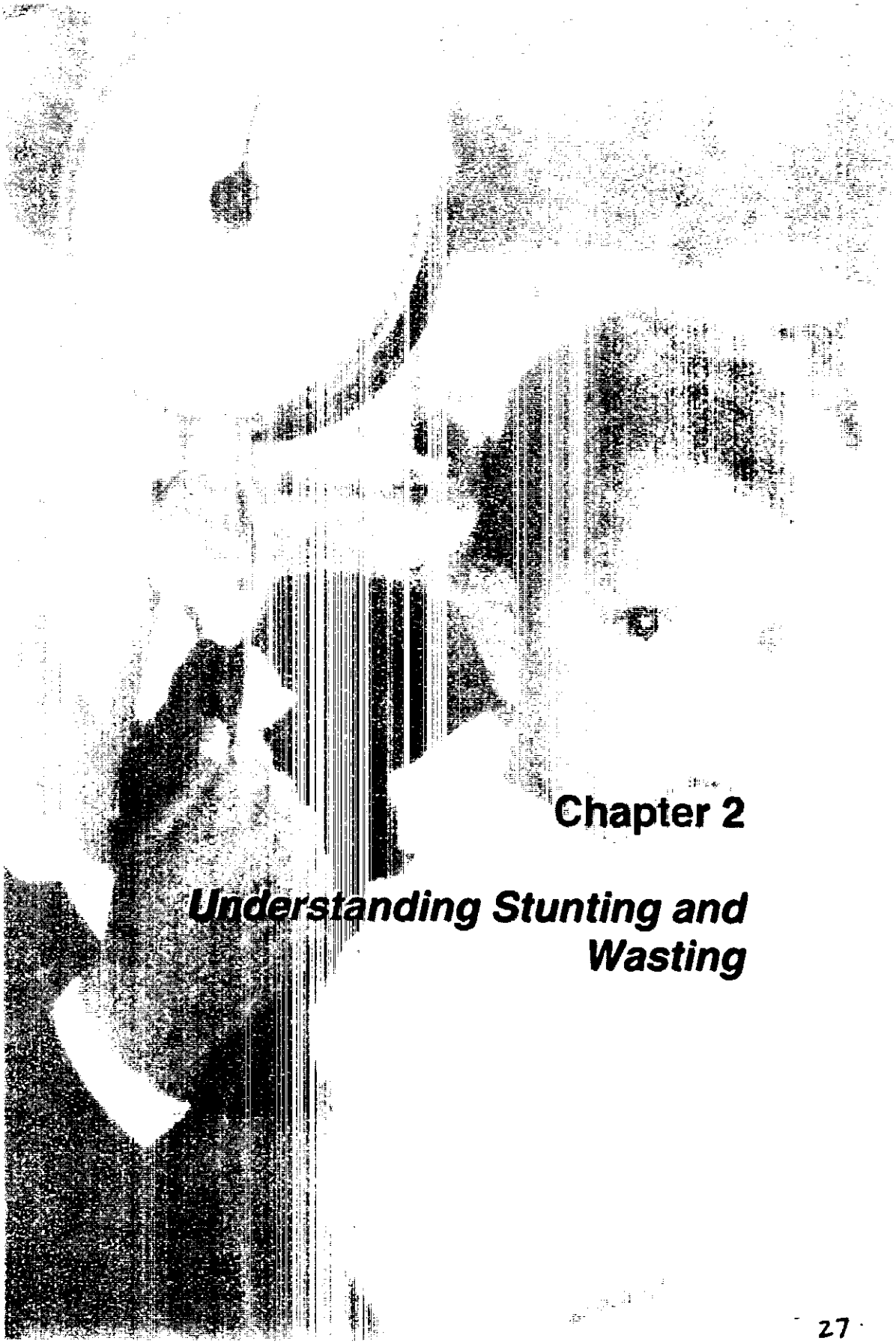


Figure 5. Stunting in children 12 to 23 months of age in Uchiza and Palmapampa in the Peruvian Jungle.



Chapter 2

Understanding Stunting and Wasting

Anthropometric Indicators

Low height for age, chronic malnutrition and stunting are often used interchangeably to mean the same thing. This expresses the stature of the child, where the child does not reach its potential for growth and consequently remains stunted.

Low weight for height, acute malnutrition or wasting are also used interchangeably. This indicator does not use age and is therefore a practical indicator in situations where ages are not available. This indicator expresses the thinness of the child compared to his/her height, regardless of age.

Weight for age or global malnutrition compares the chronological age to the body mass, without taking height into consideration. There may be both stunted and wasted children included in this category. This is a less useful indicator both at the individual and population level. Its one advantage is that height measurements do not need to be taken.

Anthropometric indicators are usually expressed as percent of the median, percentiles and standard deviations (SD) or Z scores (Z). A child's size is compared to a reference population and cut offs less than 80% of the median, the third centile or -2 SD or Z below the mean are usually considered growth retardation. The most commonly used reference population is the National Center for Health Statistics (NCHS) growth reference.

Chapter 2

Understanding Stunting and Wasting

Understanding stunting and wasting and the possible significance of these indicators in a population are an important part of the planning and design of a nutrition program. However, to understand these indicators and their significance at the population level, they must first be understood at the individual level (Figure 6).

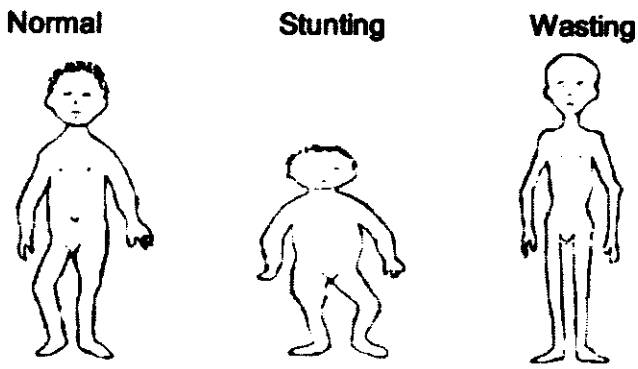


Figure 6. J.C. Waterlow. Malnutrición Proteico-energética. Publicación Científica Nº 555, Organización Panamericana de la Salud. 1996

a. At the Individual level

Stunting is a process that affects linear growth so that the child will not reach his or her height potential. The growth plate in the epiphysis of long bones is thought to be the organ responsible and the mechanisms that affect it are thought to be hormonal, growth factors, specific nutrient deficiencies and cytokine release during infectious disease episodes(4). The linear growth rate slows as the child reaches three years of age and once the growth plate fuses stunting can not be reversed.

Wasting on the other hand rapidly reduces body fat and other tissues, and the child becomes extremely thin. Wasting does not usually have a permanent outcome, it is quickly and often easily reversed, depending on the underlying causes. However, if untreated, wasting may lead to death. A child who has severe wasting may stop all linear growth and use body reserves as energy and available protein to maintain vital functions.

Stunting and wasting are different physiological processes and it appears that there is no direct link between them. Children who suffer from stunting may have had no observable prior wasting. Children who have wasting do not always go on to be stunted. Children can be both stunted and wasted at the same time. The complex relationships between

[4] L.H. Allen and R. Uauy. Guidelines for the study of mechanisms involved in the prevention or reversal of linear growth retardation in developing countries. European Journal of Clinical Nutrition (1994) 48,(Suppl.1), S212-S216.

stunting and wasting must be taken into account so that appropriate program interventions can be developed to prevent them.

Stunting is associated with poor socio-economic status[5]. Typically countrywide data will show that most stunting occurs in the lesser economically productive areas. In Peru stunting is up to five times greater in rural areas than in urban areas. Wasting is often associated with lack of food intake. This may be associated with famine, but is more commonly associated with diarrhea and other childhood infectious illnesses.

Wasting or Acute Malnutrition

- Child may have many episodes in a short period of time commonly seen between 6 months and 24 months of age.
- Spontaneous recovery possible.
- Measured by weight for height indicator.
- Often an insignificant indicator at the population level, except in times of famine.
- Is a good indicator for an early warning system.
- Increased risk of child mortality.

Stunting or Chronic Malnutrition

- Can begin before or soon after birth and continues to 3 years of age.
- Recovery is unusual after 3 years of age.
- Measured by height for age indicator.
- Can affect a large proportion of the population, especially in low socio-economic areas.
- Indicator changes over 3 to 5 years, not useful for early warning systems.
- Increased future risk of chronic disease such as cardiovascular disease [6 7 8]

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[5] Frongillo EA Jr, de Onis M, Hanson KM. Socioeconomic and demographic factors are associated with worldwide patterns of stunting and wasting of children. J Nutr 1997. 127:2302-2309

[6] Barker DJ. The fetal origins of coronary heart disease. Acta Paediatr Suppl 1997 Jul;422:78-82.

[7] Martorell R, Stein AD, Schroeder DG. Early nutrition and later adiposity. J Nutr. 2001 Mar;131(3):874S-880S

[8] Barker DJ. In utero programming of chronic disease. Clin Sci (Lond) 1998 Aug;95(2):115-28

b. At the Population Level

Stunting is a long-term indicator and therefore does not need to be measured in a population at intervals of less than 3 to 5 years. In Perú, there is a greater prevalence of stunting than wasting at the population level (Figure 7).

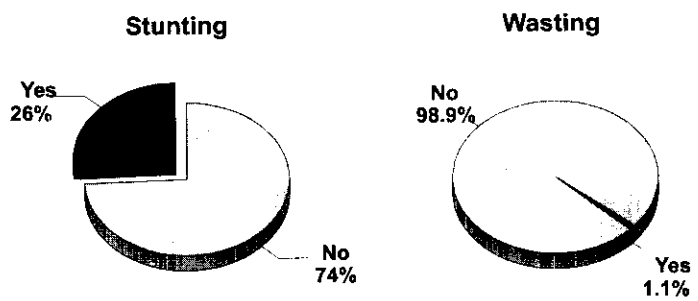


Figure 7. Nutritional Status of children under 5 years of age in Peru – Demographic and Health Survey National Statistics Institute Peru. 2000

Stunting may be present in population data from birth, although it usually begins from three to 18 months of age (Figure 8) and after the age of three years the curve will often run parallel to the reference (9).

[9] de Onis M, Blossner M, WHO Global Database on Child Growth and Malnutrition. Doc WHO/Nut97.4.Geneva: WHO, 1997

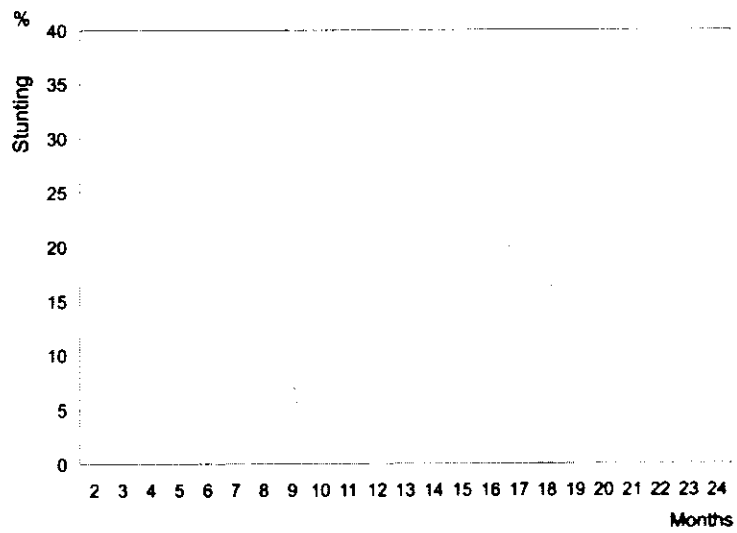


Figure 8. Prevalence of stunting in children from 2 months to 24 months of age in Peru. Demographic and Health Survey. 2000.

When we look at the prevalence of stunting in a population of children under five, we are actually looking at the effect of events that happened at least two years previously. Stunting is more closely associated with poor socio-economic status and, in poor communities, it is often difficult to pin point any one incident that may have contributed to the stunting. It is usually a complex mix of long-term social and economic problems.

An increase in wasting (weight for height) in a population of children under three can tell us that something is happening today in those communities and that if we

intervene immediately and find the probable causes, we stand a chance of reducing malnutrition due to wasting in those communities. Wasting is more closely associated with illness, lack of food and natural disasters. At the population level when the -2Z indicator is used this rarely rises above 5%. However, when we lower our cut off point to –1Z, we have found measurements of this indicator as high as 33% in a disaster situation during the El Niño phenomenon. As can be seen from Figure 9 on following page, it is easy to assess the seriousness of this situation because of the existence of longitudinal data.

The World Health Organization (WHO) provides some guidance on interpreting the severity of stunting and wasting[10] but we generally we found that the best indicators came from looking at our own longitudinal data and interpreting what was "normal" and abnormal for that particular population. WHO guidance is extremely valuable when surveillance begins in a community and we are not sure what public health importance to give to our results. All of our KUSIAYLLU sites had a growth deficit or stunting of more than 40% at the beginning of each program site, which WHO classifies as a high severity of growth deficit.

[10] World Health organization (WHO) Physical Status: the use and interpretation of anthropometry. Technical report series No.854. Geneva.WHO, 1995

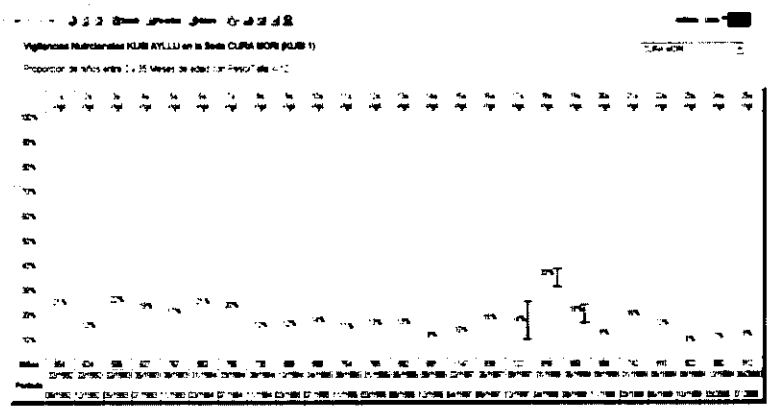


Figure 9. Wasting (-1Z) in children from birth to thirty five months in Cura Mori, a village on the northern coast of Peru in the department of Piura. Longitudinal data emphasizes the effect of the El Niño phenomenon in the eighteenth surveillance period in the first trimester of 1998.

c. Interpreting KUSIAYLLU Data

One of our initial observations was that during the first year of the program the prevalence of stunting increased in some locations (Figure 10). Project interventions included education for the prevention of child morbidity, growth monitoring in the general population and for families who had children below the - 1Z cut off weight for height more intensive follow up, education and food rations.

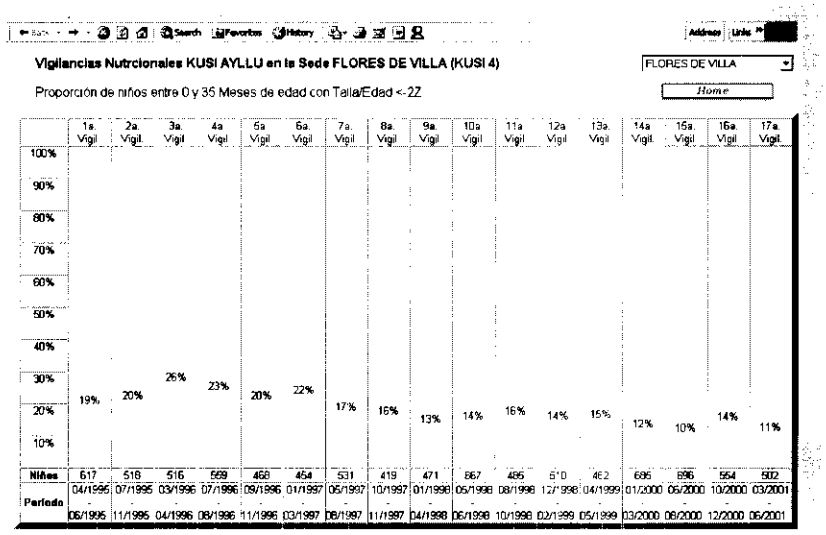
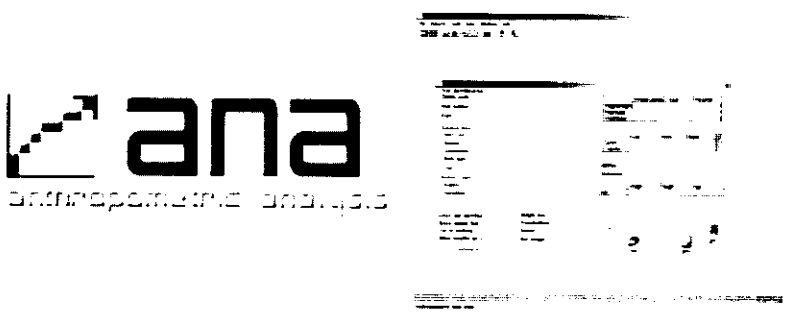


Figure 10. An increase in stunting during the first year of the program, followed by its gradual decrease over time can be seen. This is a common pattern found in many poor communities, as the effects of improved preventive health and health promoter activities reduce mortality.

While we were meeting with health workers and volunteers to ascertain what was happening in these communities one of the health workers mentioned that mortality had been reduced drastically in her community. Health workers and volunteers compared notes about mortality and anecdotally a local carpenter who made coffins verified that his business for the small coffins had been dramatically reduced. We believe what was happening was that in targeting children at risk for severe wasting we were actually saving their lives, even though these children remained stunted.

We learned a lot about the pattern of malnutrition and the relationship of indicators to each other, from analyzing the KUSIAYLLU longitudinal data. An illustration of the relationship of indicators to each other can be seen in Figure 11 on the next page. The software used to manage the KUSIAYLLU data allowed us to view all three indicators, - weight for height, height for age and weight for age - on any given population longitudinally or for just one surveillance point, and for any age group. A CD Rom with this software ANA™, that was developed in house by PRISMA, is included in this book.

Kusiayllu Information System ANA



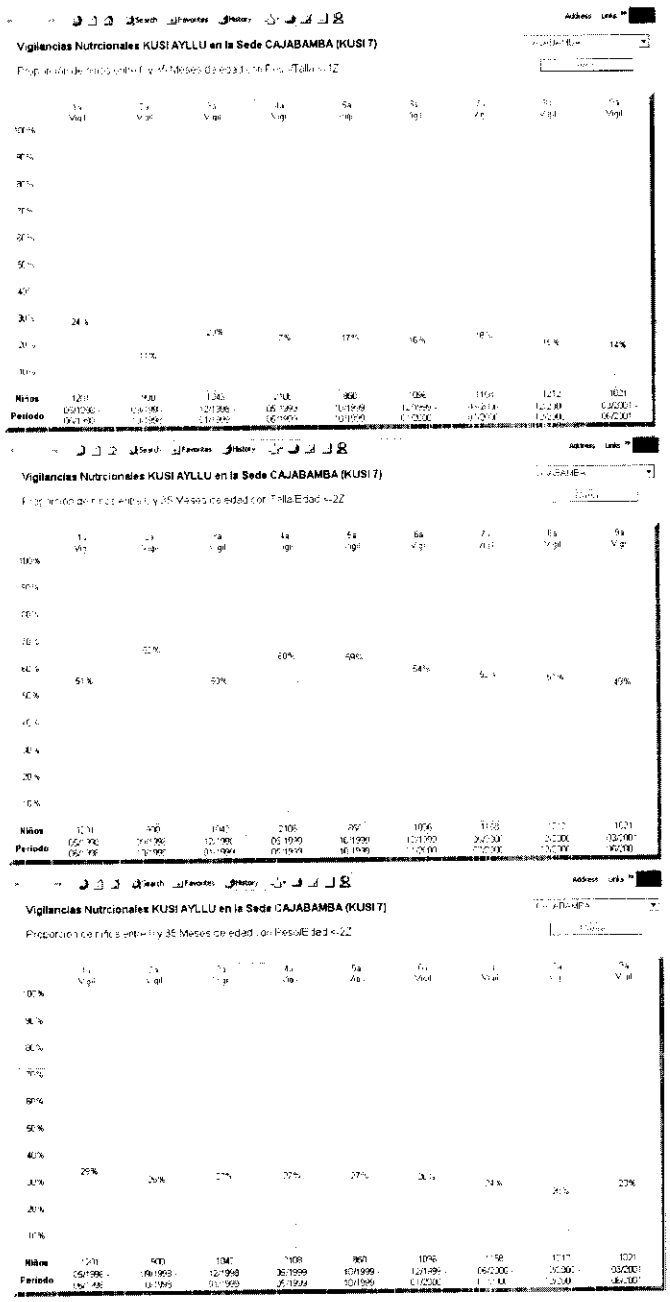
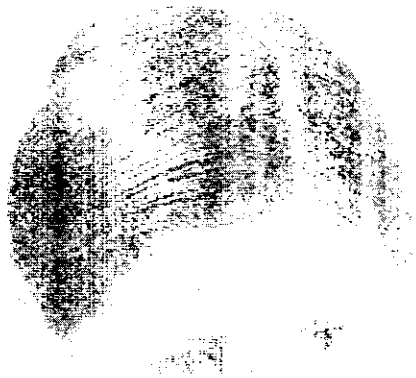


Figure 11. Examples of the Kusiayllu information system show both stunting and wasting in children from birth to 36 months followed longitudinally in Cajabamba



Chapter 3

Stunting as an Indicator of Economic Development

Chapter 3

Stunting as an Indicator of Economic Development

Stunting is an indicator of nutritional status that mirrors the socio-economic environment in which it is measured. As countries move from agricultural to industrial societies, changes occur and nutritional status improves, consumption patterns change and more fruits, vegetables and protein are added to the diet. Starchy staples such as rice and noodles become less important. When income increases, there is a decrease in vegetable fat, vegetable protein and carbohydrates and an increase in animal fat, animal protein and sugars(11,12). Thus, for higher levels of stunting in a country, we can conclude that the principal diet probably contains high levels of starch, vegetable fat and vegetable protein.

Consumption patterns, however, are not the only changes that occur with industrialization. Food preparation

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[11] Popkin B. M. The Nutrition Transition and Its Relationship to Demographic Change. Nutrition and Health in Developing Countries. Edited by R.D. Semba an M.W. Bloem. 2001;17:427-445

[12] Popkin B.M, Siega –Riz AM, Haines PS. A comparison of dietary trends between racial and socioeconomic groups in the United States. N Engl J Med 1996; 335:716-720

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technology also changes, as does the role of women and the time allocation pattern to the household and access to health care(13). Household composition is also another variable that has been seen to change as a move is made to more nuclear and less extended families.

a. Comparison between countries

Stunting in a large proportion of the population will impact negatively on the economic status of the country. Stunted males will have a lower earning capacity due to their size than non-stunted males(14). Stunted females are more likely to give birth to low birth weight babies and also have more childbirth complications. There is also some evidence to show that stunted individuals are more prone to illness and have a lower intelligence level than their non-stunted counterparts(15,16). Overall stunting has been diminishing throughout South America during the last 20 years (Figure12)(17). There was a time period in Peru from 1995 to 2000 where stunting as an indicator remained static. This was undoubtedly due to the economic, social and political crises

[13] McGuire J, Popkin BM. Beating the zero sum game: Women and nutrition in the Third World. Food Nutr Bull 1989; 11:38-63, 1989; 12: 3-11

[14] Haddad LJ, Bouis FE. The impact of nutritional status on agricultural productivity: wage evidence from the Philippines. Oxford Bull Econ Stat 1990; 53(1): 45-68

[15] Grantham-McGregor SM. A review of the studies of the effect of severe malnutrition on mental development. J. Nutr 1995;125:2233S-2238S

[16] Berkman DS, Lescano A.G. Gilman R.H., Lopez S., and Black M. Effects of Stunting, diarrheal disease and parasitic infection during infancy on cognition in late childhood: a followup study, Lancet 2002: 359, 564-570.

[17] de Onis M, Frongillo E., Blossner M.. Is malnutrition declining? An analysis of changes in levels of child malnutrition since 1980. Bull WHO 2,000 78:1222-1233

that occurred in Peru during the early 1990's. Children who were born during the economic adjustment crises of 1990 and 1991 would have been four and five years old in 1995.

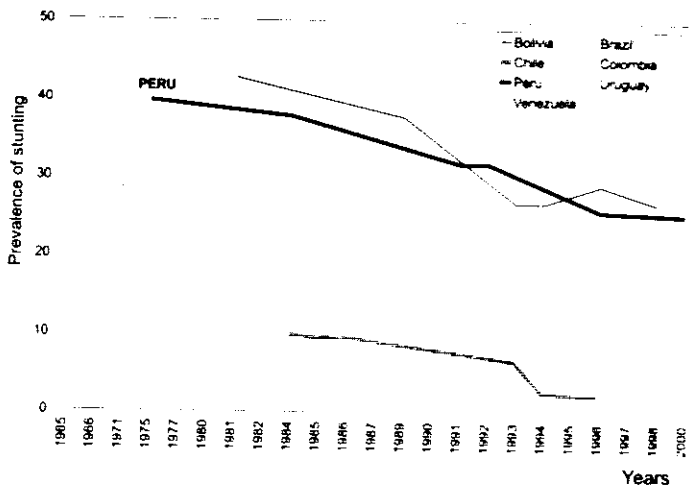


Figure12 Trends showing the prevalence of stunting in South America. Peru and Bolivia are the countries with the highest prevalences. Pan American Health Association 1998

b. Distribution within a country

Within a developing country there is a higher prevalence of stunting in rural areas versus than in urban areas. This is true for Peru where 40% of children less than five years who are living in rural areas are stunted versus 16% in urban areas (Figure 13). In some countries where large numbers of rural poor have migrated to urban areas because of natural disasters and famine, these slum areas will have a similar prevalence of stunting until the population

has settled and is receiving the same public services that the rest of the urban population have.

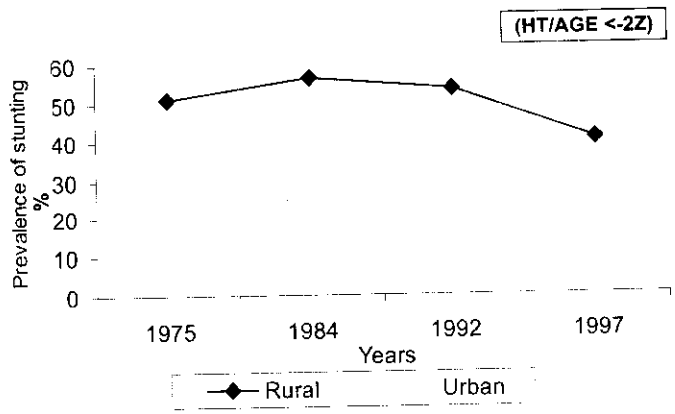


Figure 13. The prevalence of stunting in Peru from 1975 to 1997, showing the differences between rural and urban areas. National Statistics and Information Institute. Peru.

The main reason for this rural-urban difference is the economic base of the population; in most rural areas, agriculture is the main source of income. Education, health, sanitation, gender equity, child rearing practices and food intake are also contributing factors, and many of these factors change when incomes improve.

In the Peruvian highlands families who begin to acquire some wealth and who live in isolated locations aspire to send their children to secondary schools. When these schools are not available locally, they purchase a second house in a nearby town so that the children can complete their schooling.

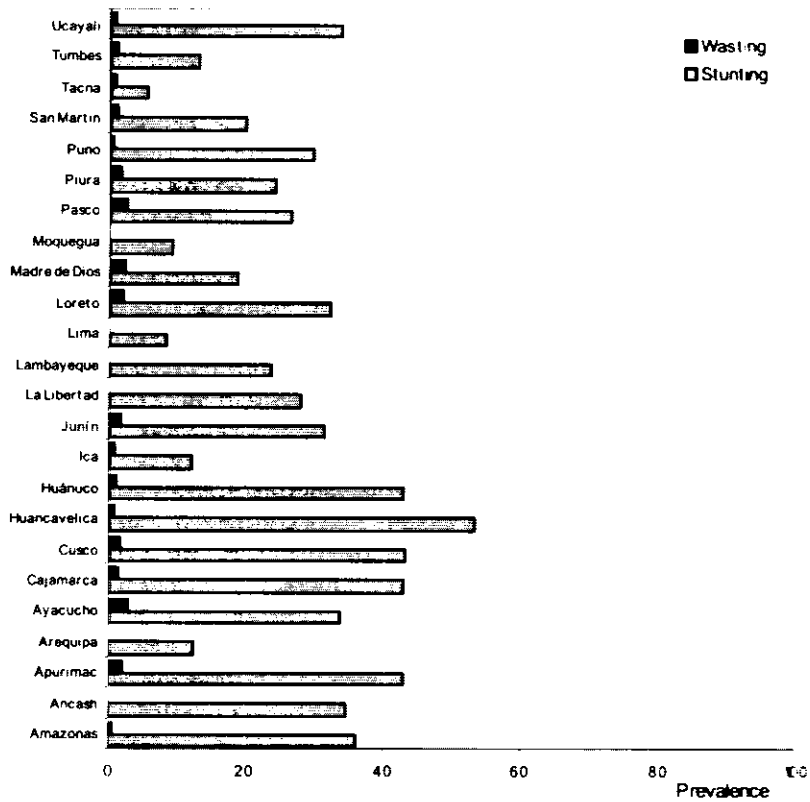


Figure 14. Stunting and wasting in Peruvian departments. ranked from least malnutrition to most malnutrition. Demographic and Health Survey 2000.

In Peru some geographic areas have higher levels of stunting and wasting than others (Figure 14).

c. O[illegible] asso[illegible]

Malnutrition has been associated with many common childhood illnesses, especially diarrhea and respiratory infections. A combination of infection and poor diet negatively affect growth(18). In both cases, there are important links to poverty and inadequate breastfeeding and weaning.

Mothers' education is an important factor relating to chronic malnutrition. The higher the educational level, the less stunting exists in their children (Figure 15). This variable is also influenced by place of residence, urban or rural and also socio-economic level. In Peru, mothers attending university had only 6.9% of children with stunting compared to mothers with no primary education who had 51%.

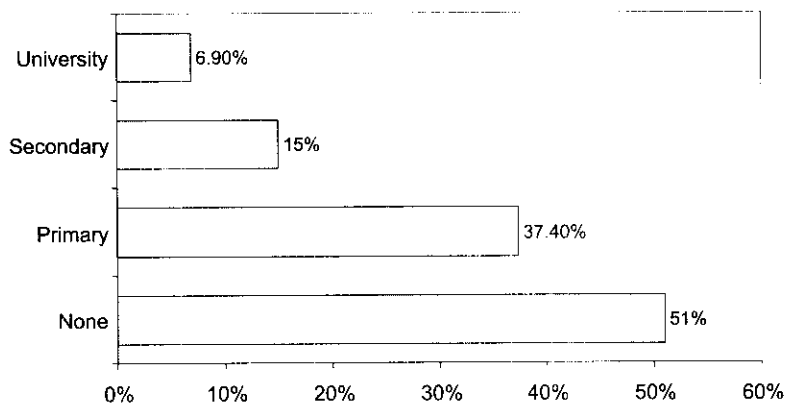
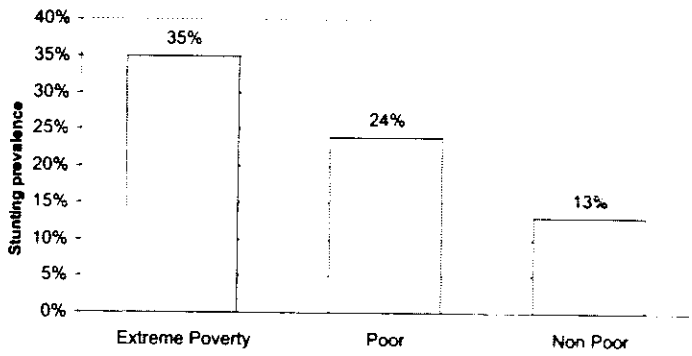


Figure 15. Stunting of children relating to their mothers educational level. Demographic and Health Survey 2000.

[18] Black R.E. Would control of childhood infectious diseases reduce malnutrition? Acta Paed Scan (Suppl) 1991; 374:133-140

Poverty is complex factor and a dynamic indicator. The usual measure of poverty, using a poverty line calculated by expenses as a proxy for income, does not appear to be a good predictor of families with malnutrition. Most malnourished children are poor however, most poor children are not malnourished.



ENNIV 2000 – from Reducoon de la Desnutricion Cronica en el Peru. Tufts University 2001

Figure 16. The relationship of stunting and poverty in Peruvian households. ENNIV 2000 – from Reducción de la desnutrición crónica en el Perú. Tufts University 2001.

The ENNIV 2000[19] survey showed a strong relationship between extreme poverty and stunting; 35% of stunted children lived in extreme poverty compared to 13% that lived in households that were not poor (Figure16). Stunting is a long-term indicator and it may reflect the status

[19] Instituto CUANTO. Encuesta Nacional sobre Medición de Niveles de Vida (ENNIV). Lima, 2000.

of the households in previous years; poverty is a dynamic indicator and can change quickly over a very short time period.

In a survey of microcredit clients, PRISMA measured the poverty levels of clients at the start of the program and after one-year. Changes in poverty status were documented in families surveyed within just one year (Figure 17). Extreme poverty was defined as families who could not afford a basic food basket; the poor could afford the food basket as well as other basic needs such as transportation and the non-poor could afford more than the food basket and their other basic needs.

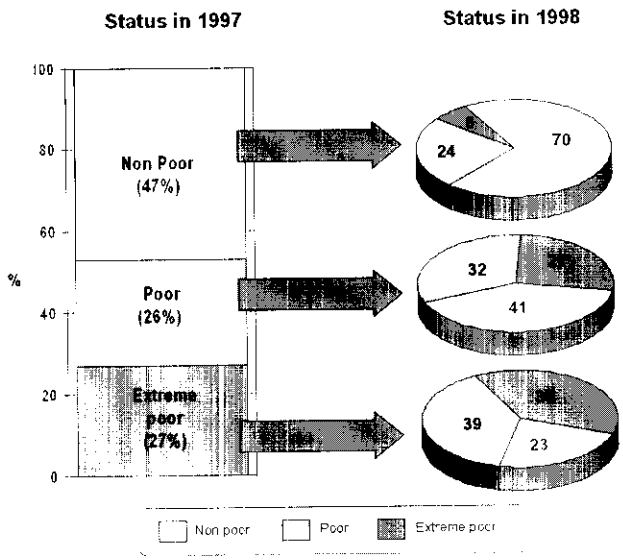


Figure 17. Changes in poverty status of credit clients from 1997 to 1998. PRISMA 1998.

There is, however, a clearer relationship of stunting and poverty when we look at data from national surveys over the last ten years, shown in Figure 18. There was a decrease in stunting from 37% to 25.4% that corresponds to a decrease in extreme poverty from 26% to 14.8% over the same time period.

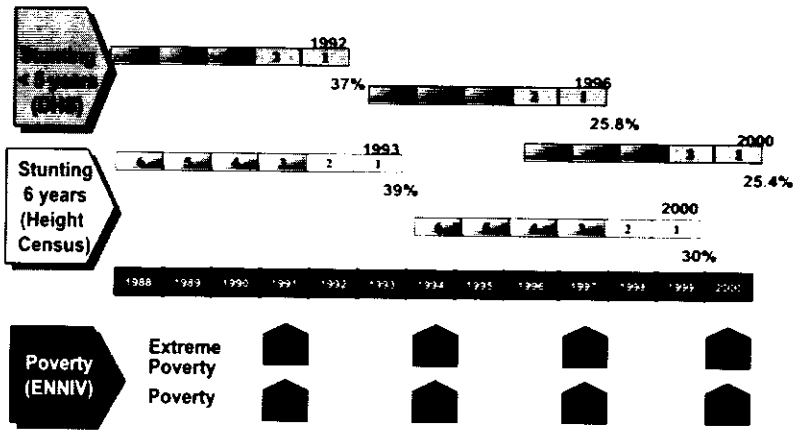
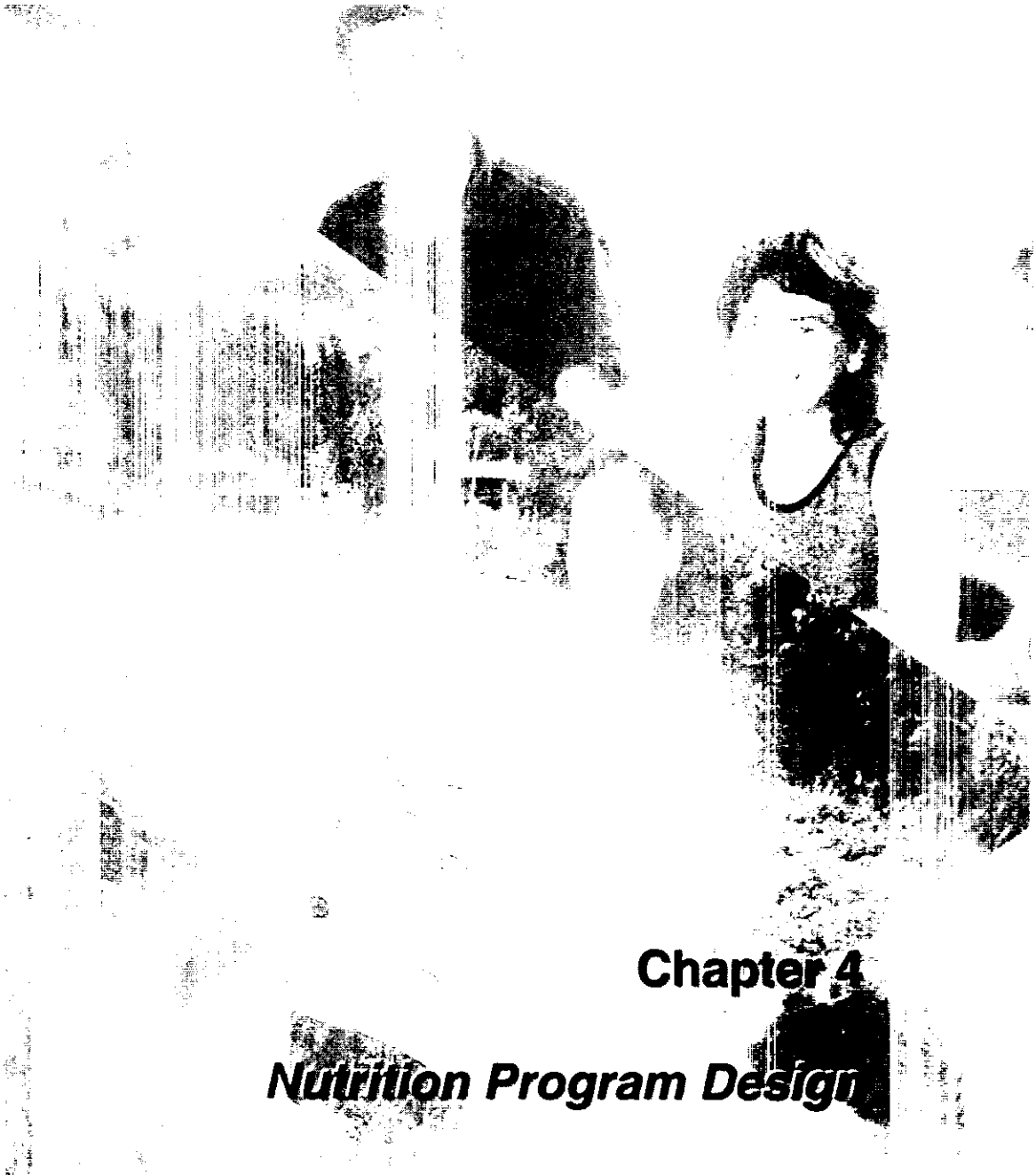


Figure 18. Stunting from 9 national surveys during a ten year period. showing a reduction in extreme poverty and a reduction in stunting. Demographic and Health Surveys 1992. 1996 and 2000. School Height Census Peru. Unicef 1993. Ministry of Education 2000. ENNIV Surveys. Cuanto. 1991. 1994. 1997. 2000.



Chapter 4

Nutrition Program Design

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Chapter 4

Nutrition Program Design

A nutrition program must have as its principal goal the nutritional improvement of a sector of the population. A program that distributes food is not necessarily a nutrition program, even though some of these programs often have as a stated goal the improvement of nutritional status. Results must be measurable. The measurement of results, such as weight for height and height for age in a systematic manner, with information stored in a database clearly shows the intentions of program managers. In the past, many governments have used food programs for political gain and the population has learned to manipulate the government through these programs. Goals and implementation mechanisms should be stated openly to the community and care should be taken that food is neither used as nor perceived to be, a coercive tool within a target population.

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a. Conceptual framework for malnutrition

A preparatory step for the design and implementation of a nutrition program is the development of a conceptual framework for malnutrition.

All stakeholders should be involved in a process to come up with all of the factors that affect nutritional status in the area of interest. They need to be placed in some order so that all program participants can logically understand them. The best way to do this is by using a diagrammatic presentation of the conceptual framework. UNICEF has used this tool for a child health and survival conceptual framework[20, 21]. The conceptual framework will help define all the elements needed in the design of a program and can also be used in the design of research projects. The conceptual framework used by both the PANFAR and KUSIAYLLU programs for the design of interventions is shown on page 56 (Figure 19).

Malnutrition is a complex theme, so we grouped the factors we had identified into three major areas for program intervention:

[20] The State of the World's Children Geneva: UNICEF, Oxford University Press, 1998

[21] United Nations International Children's Emergency Fund (UNICEF). Strategy for improved nutrition of children and women in developing countries. UNICEF Policy Review New York.1990

- Health status – includes infections such as diarrhea and acute respiratory infections and immunizations.
- Intake – includes quantity and quality of food and breast feeding and weaning.
- Childcare – includes growth monitoring, feeding practices, prenatal care and birth spacing.

Also included in our conceptual framework diagram were other factors on which our programs would not be intervening directly but could be included when opportunities arose or alliances with other programs could be made. These are as follows:

- Family income – includes resources, community organization and linkages, self-esteem and gender equity.
- Food availability – includes production and yield, transformation and sales.
- Sanitation - includes ground sanitation and water supply.
- Education – especially of girls.
- External factors – includes government economic adjustments, terrorism, political and social unrest.

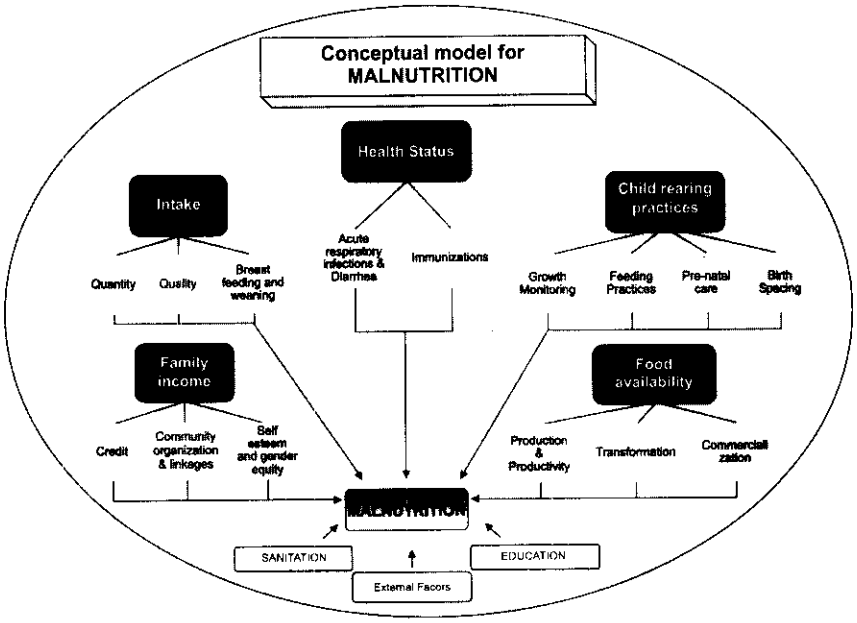

Figure 19. Conceptual model for malnutrition. PRISMA 1994.

b. Ten Criteria for the design and implementation of a nutrition program.

What follows is a brief description of each of the ten most important criteria we identified for inclusion into a nutrition program. Many of these criteria are treated in greater length in later chapters of the book.

- *Programming Plan* – This should clearly state, with exact numbers, who program beneficiaries are and where they will be located. The programming plan should be published and available to all stakeholders. The appropriate selection of beneficiaries gives a

program legitimacy and credibility in the eyes of the population. If the population perceives that favoritism or other biased selection criteria are being used, the program reputation will suffer. The PANFAR Program used the Internet for the publication of the exact numbers of program beneficiaries projected in a given year. This information was available at the population center level and further information on actual beneficiaries could be obtained from the nearest health post or health center with jurisdiction in the area of interest. The Programming Plan needs to be realistic and take into consideration both food commodities and financial resources needed to distribute the food. For instance, the PANFAR Program did not include in its programming some remote areas of the Amazon jungle, where transportation costs were prohibitive and food safety and viability may have been questionable and Ministry of Health infrastructure was limited. Some of these areas were included in the program with locally purchased food paid for by the Ministry of Health's counterpart organization.

- *Targeting Mechanisms* – These targeting mechanisms are important for the accountability and transparency of the program. There are different levels of targeting, at the country level, at the community level or at the individual level. The PANFAR Program used a two-

step process, geographic targeting followed by individual family targeting.

Geographic targeting helped select the total number of families who would participate at each health post or health center. Two variables were needed to select the population centers and numbers; basic unsatisfied needs, as a proxy for household poverty, and stunting. Data sets of both variables were available for use, so there was no need for primary data collection.

Individual targeting helped select the individual participating families according to risk factors they had for child malnutrition. These risk factors were from a case control study performed in 1988 and they were then validated in 1997 and found to still be viable. Individual risk factors can be found on page 17. Each risk factor scored one point and for entry into the program a risk score of four or more points was needed. Any child with wasting –1Z, automatically scored four points and entered the program.

- Community Involvement – This is probably one of the more difficult aspects of designing a program. It is difficult to plan ahead to decide who will be involved prior to acquiring on-site information from communities and yet it is important that priority and thought be given to this at the planning stage so that the

community interests are well represented during the implementation of the program. The PANFAR Program encouraged active community participation through volunteer health workers. They were selected by their neighbors and felt a strong commitment towards helping their communities. They were trained in all areas of maternal and child health care by the program health workers. A pre-designed educational package was developed for this training in which the prevention of childhood illness and mortality was stressed.

Care should be taken with interest groups who do not represent the majority of the population; they should be included but not allowed to take over. When a community based program becomes aligned to a special interest or political group, it can often have an undesired image in the community. For the same reason, it is important to be aware of the length of the term of office for elected officials, such as mayors and community leaders, so that courtesy visits can be made to newly elected officials.

The PANFAR Program worked with the local health posts or health center in each community and beneficiary families met there as a group, at least once every month for a six-month period. Many of them felt that meeting other families with some of the

same kind of problems gave them an opportunity to learn more.

The addition of Community Committees for the Support of PANFAR (COCOA) made this experience even richer for many. These committees made up of local leaders and ex- beneficiaries acted as advocates for the participant families.

- *Health and Nutrition and Education Packages* – Training themes should be decided upon according to major problem areas in the conceptual framework. In the case of PANFAR and KUSIAYLLU, a technical team prepared all educational modules and communication materials for the program. This team was made up of the two implementing organizations, PRISMA and the Ministry of Health. Current literature was researched, and interactive training programs were designed and implemented throughout the country. All themes had a published training manual. Training modules included such themes as Respiratory Infections, Immunizations, Malnutrition, Health Promoter Training, Logistics Management, Supervision, Monitoring and Evaluation.

- *Graduation Criteria* – A program that distributes a food commodity on a regular basis needs to determine an end point for beneficiary participation. This end point

should be clearly defined in terms of the expected achievements a family should make during its participation in the program. For instance in the PANFAR Program all of the graduation criteria needed to be met at the end of six months participation: if they were not met then the family continued in the program for another six months. One year was defined as the maximum amount of time a family could participate, if they were not able to graduate in this time then other needs and problems may have needed to be evaluated. There were five criteria, all of which were of equal importance for reducing the risk status of the family: during the last three months no child under five years in the family should be malnourished; all children in the family should have completed their immunization schedule according to their age; mothers should have knowledge of at least two methods of birth spacing and where to obtain them; mothers should have attended three or more health and nutrition educational sessions, and finally if the mother is pregnant she should receive regular pre-natal care.

The beneficiary carnet had the graduation criteria written on the back, they were available to both families and health workers. These criteria helped both parties to understand what their goals within the program were. It is important to note that *knowledge* of

birth spacing and not *use* was required as graduation criteria, thus leaving the woman and her partner to freely choose any or no method. In general, the PANFAR beneficiary population had a lower than average use rate of modern methods of family planning, both before and after their participation in the program. This was a young population and many of the women were breast-feeding or pregnant at the time of participation.

The most frequent criteria that families failed to achieve were not having a malnourished child in the household during the last three months and having a complete immunization schedule for all children in the family. The latter criteria was due in part to the social and geographic isolation of some of these families but also was due to health post and health center inefficiencies.

- *Management Information System* – The management information system facilitates continuous program improvement over the life of the program. A management information system should be transparent, easy to understand, standardized and should allow for information to be collected and distributed to stakeholders. The objectives of the PANFAR information system called PANSERV, were to measure program inputs, processes and

performance and allow for decentralized levels of decision-making. PANSERV provided reports for accountability to the USAID PL480 Title II Program and the Government of Peru. The definition of success for PANSERV was that it be useful to all stakeholders. To this end, training was given to Ministry of Health workers for the use of the system.

- *Monitoring and Evaluation Component* – A strong monitoring and evaluation component is key to the success of a program. Monitoring is defined as measurements through time that indicate movement toward an objective. Monitoring provides the data but evaluation puts the data to use. Evaluation is a learning process whose results are recommendations and improvements.

Both the PANFAR and KUSIAYLLU programs each began with a clearly defined logical framework. This logical framework outlined goals, objectives or desired results, and activities and linked those with indicators that these goals and objectives were being met. Indicators of goals are termed outcome indicators and those of results are termed process indicators. These indicators were collected as part of the information system. In turn, activities are also linked to a program budget and food commodity resources.

The PANSERV information system facilitated monitoring of the program, and although the pre-defined use of indicators is not necessarily participatory, we tried to involve a wide range of stakeholders in the evaluation process, recognizing that with participation, learning takes place, and that can contribute to sustainable program improvements.

An improvement in technology necessarily brings with it increasing demands for accountability, efficiency and improved management performance. This leads to more emphasis on monitoring and evaluation and includes feedback of results into the planning process.

- *Logistic Component* – Successful logistics management can make or break a program. Commodities need to be in the right place at the right time, and a nutrition program that delivers a food basket every six-months must ensure food arrival on or before the date needed. Food logistics are particularly difficult due to the perishable nature of the food and the possibility of contamination due to incorrect storage. At the beginning of the PANFAR Program in 1988, PRISMA received approximately a years supply, 15,000 metric tons of donated food commodities in 30 and 50-pound sacks and 10-gallon drums of vegetable oil. All 15,000 tons arrived at three Peruvian ports, Salaverry, Matarani and Callao.

The challenge was to identify warehouses that could be used to store the food before it was distributed. The Ministry of Health had many warehouses: however, the conditions need for food storage could not be met in many of them. A special activity for the identification of warehouse deficiencies was put in place and warehouses and logistics information systems were systematically improved over a number of years.

- *Legal Agreements to Support Programs* – Written agreements are key to a successful relationship between partners. These agreements are of particular importance when one of the parties is a host country government, as an election could affect the stability of a program if there is no agreement in place. When political changes occur this should not affect the program. During the course of the PANFAR Program, there were three changes of government and fifteen changes of Health Minister in Peru. Fortunately, because the relationship was based on a detailed legal agreement, there was no disruption of the program.

- *Sustainability Plan* – A sustainability plan needs to be decided at the start of any program: it cannot be decided during the implementation or at the end of the project because there may be some design features that could impact the sustainability of the program

either positively or negatively and these need to be taken into consideration from the start.

It was always our intention, stated in our first legal agreement, to hand over the running of the PANFAR and KUSIAYLLU Programs to the Government of Peru. A detailed plan for handing over the programs was written five years before the actual handover. Although some details changed over time, this plan was carried out. There were handover ceremonies at the central level and also at the departmental level. At each individual Kusiayllu site, a small handover ceremony was held. These ceremonies were symbolic of their future work together for the local Ministry of Health and community-based volunteer health workers.

Sustainability can be interpreted many ways the most common of which are:

- Institutional sustainability – handover the program to a more long-term organization with the financial resources to continue the program.
- Financial sustainability – over time the program. becomes self sustainable with resources from other sources or earned resources.

- Human sustainability – behaviors have changed to the degree that the old behavior is no longer present and this brings about a sustainable change.

Sustainability does not mean that nothing will change; changes are needed over time to keep programs on track and as long as those decisions for change are made based on data the original program goals will be met. Our concern for the future sustainability of the PANFAR Program is that it is one of the few nutrition programs in the country that has primarily targeted the most vulnerable age group of children under three 3 years old throughout the last 14 years. The Government of Peru is the principal implementer of this program and as such can change the name, targeting mechanisms and food commodities, but the goal should remain the same for the program to continue to be sustainable.

Chapter 5

Geographic targeting

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Chapter 5

Geographic targeting

Geographic targeting is a mechanism used to direct social programs to the needy. It uses economic, social and political data to determine groups of possible beneficiaries. Typical data used is illiteracy, children absent from school, inadequate housing, and the proportion of the population without access to water, sewage and electricity and the prevalence of stunting in children.

Political divisions of a country, departments, provinces, districts and even population centers are ranked by varying measures of deprivation. Geographic targeting is a simple mechanism to administer, and is especially attractive when the administrative capacity of the program implementers is not strong. Resources are allocated according to pre-determined factors relating to the deprivations of interest and the total population of that political area(22).

[22] Norbert R. Shady. Picking the Poor: Indicators for geographic Targeting in Peru. Princenton Universitty and the World Bank, 1999

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One of the limitations of the use of geographic targeting as a stand-alone mechanism is that it assumes that there is homogeneity of the vulnerability of interest in the defined populations. For instance, if data is available only on the departmental level, then the assumption is that all of the population of interest in that department suffers the same degree of vulnerability. Vulnerabilities that are generally targeted are poverty and malnutrition. In Peru, a typical department will have both urban and rural areas, and there are wide differences between the two, particularly for income and malnutrition data. It would therefore be impractical to try to use such a large area for geographic targeting. In Perú, there are 24 departments, 194 provinces and 1,812 districts and geographic targeting at the district level, while administratively more cumbersome and possibly more costly, makes more sense, as this is more likely to increase program efficiency.

In most urban areas, there are extremes of wealth and poverty, and aggregate data on poverty and malnutrition often hide large intra-urban differences. At the planning stage, survey data needs to take this into account for the information to be useful for geographic targeting.

Geographic targeting may reduce leakage of program resources compared to non-targeted programs, but even in poor areas where there are high levels of stunting, not all families, with the same socio-economic level, will have the

same problem. Even though some families live in unfavorable environmental circumstances, they are able to overcome problems by the use of favorable practices or *positive deviance* in the household. Positive deviance may include attributes and practices that are related to maternal education, family size and birth spacing, birth weight, maternal height and weight, parity, weaning practices and other behavioral and cultural aspect, of child care. One of the goals for prevention of childhood morbidity and mortality is to use the concept of positive deviance and educate families regarding key prevention activities.

Although geographic targeting alone has been criticized as being either ineffective at a macro level or too administratively cumbersome at the micro level, it is useful when combined with individual targeting, as we found in the case of the PANFAR Program. The administrative unit for this program is health centers and heath posts at the local level, therefore a two-step process can work. Geographic targeting gave us the right proportion of resources in each department; these were then assigned to health centers and health posts in the higher risk areas of those departments. Health centers and health posts selected the high-risk families in their communities with four or more points on the risk score. The process of resource assignation was a participative process based on the results of geographic targeting, conducted at the end of each year at the same time as the Monitoring and Evaluation Workshop.

Chapter 6

Individual Targeting

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Chapter 6

Individual Targeting

Individual, family or household targeting is as practical as the targeting criteria it uses. Targeting of households in poverty has been fraught with problems due to the inability to obtain accurate income data. However targeting for the risk of malnutrition or death requires the knowledge of the risk factors for a given area. PRISMA conducted a case control study in 1986 to determine risk factors for malnutrition in a peri-urban slum area and a high mountain area of Peru. These risk factors were verified in 1997 using Demographic and Health Survey data (DHS)

According to the World Bank article "What are the costs of Targeting" in POVERTYNET [illegible] the costs associated with targeting are related to administration, incentive costs, relocation, stigma and political considerations.

- The level of targeting determines administrative costs for a government that may have a limited budget.

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- Incentive costs are defined as disincentives to work.
- Relocation costs are related to migration of qualifying individuals to areas that may be geographically targeted.
- Stigma refers to a loss of self-esteem of participants and a negative impact on program uptake.
- Political considerations are that targeting will change the distribution of political power if resources go to areas where there are more poor; in this case, targeting may undermine the political support of a program and therefore its budget allocations.

In the case of the PANFAR Program a risk targeting approach was used. Targeting criteria were defined by a case control study and a risk factor check list was devised that could be applied in communities to families by either paid or volunteer health workers. The entry criteria to the program were four points or more on the risk score or an acutely malnourished child and the family would enter the PANFAR Program for a six-month period.

- Parent's education less than 5 years
- Unstable occupation
- Abandoned by parent(s)
- Low birth weight

- Global malnutrition (weight/age)
- Breast-fed for less than 2 months
- Serious illness in the last 3 months
- Birth spacing less than 24 months
- Pregnant woman with arm circumference less than 22 centimeters
- 3 or more children under age 5
- All acutely malnourished children (weight/ height) enter automatically

It is interesting that the beneficiary profile this risk score detected were families less likely to have childhood immunizations complete. We have assumed lack of immunizations to be a good indicator for families who have least contact with health facilities.

There were some administrative benefits to the government within this risk targeting:

- Once identified, families would access other programs such as the immunization program. Lack of childhood immunizations costs a government more in curative care and lost work.
- Health post and health center personnel would identify families. Because of the program design families would visit the health facility at least once each month for six months to receive education in primary maternal and child health and nutrition . This saved

health center staff time in seeking out these families and saved resources not spent on curative care.

- Monitoring costs, except for initial filling out of forms, were paid for by an NGO partner, all costs of data housing, computers, software, training and supervision were covered.

There is always a concern for targeted families regarding their labor-leisure choice. Theoretically, the monthly food basket could function as a disincentive to work. However in this case the family profile can be deduced from the list of four or more risk criteria. These are families or single parent families who have young children less than three years of age and are often not able to work due to the burden of young children. In cases like this, an extra food basket in the family usually does not act as a disincentive to work, but gives a mother more time to concentrate on her children and their welfare.

Because the PANFAR Program functioned in all districts, except for some isolated jungle areas, there was no reason for a family to migrate to access services. By 1997 information was available on the Internet so that local mayors and other elected officials could see what program resources were available for their areas.

Poverty, poor health and nutritional problems that affected the selected families resulted in families, especially mothers, with low self-esteem. Extra effort had to be

displayed with these families to elicit their cooperation with program goals. Many of the educational sessions with parents addressed this issue, particularly the volunteer health promoters were trained to recognize and address this problem. In fact participation in either PANFAR or KUSIAYLLU tended to improve the self esteem of participants because they were with other women who had the same kind of problems, and they were being provided with solutions to help them deal with these problems. One of the reasons for the graduation criteria was to give a sense of achievement to families who go through six months of program participation and are able to meet those graduation criteria.

It is true that a targeted program is of no use to a politician who wishes to use those resources for government popularity. When a population is targeted either for poverty or malnutrition, resources end up in the more remote, rural sectors and not in populous areas. The main disadvantage of this is that there is no one to provide political support for the program and to ensure sufficient budget allocation. Politicians tend to focus on groups that are more organized and have a loud voice. This was a reality of the PANFAR Program while we were trying to work towards sustainability. Constant budget cuts meant cuts in numbers of beneficiary families, in fact the program may not have survived at all if a few technical people from the Ministry of Economy and Finance and the Ministry of Health had not been vigilantly watching over the budget.

Food commodities make for an expensive program, because food logistics, monitoring and evaluations, audits and information systems become an important part of accountability. We felt that it was important that these scarce, valuable resources went to families, in need of them, where they would have maximum impact on the nutritional status of children less than three years of age. We can quite safely say that in the PANFAR and KUSIAYLLU Programs there was minimal filtering of resources to families who did not need them. In this case risk targeting worked very well and it ensured an efficient use of scarce resources.

Individual targeting in communities works when everyone understands what the criteria are, what the risks are and why it is important to target these families. Targeting would not work well if the criteria used for selection were highly prevalent in the population of interest, as that would leave out a smaller number of individuals who might feel slighted. In the case of PANFAR, a small number, on average 20 to 30 families per community, are selected.

The use of poverty, measured by a poverty line according to income, is not a practical targeting mechanism for programs as poverty is a dynamic indicator. It changes frequently in a given family within a short time frame. Income is usually measured by expenditures, and in surveys we have conducted we have seen mobility between poverty strata

move both up and down through three poverty strata: poor, extreme poor and non-poor.

Individual targeting does not have a practical use in an emergency situation where all families in a community are suffering from the same emergency. In this case the delay while individual affected families are been sought will delay the delivery of aid resources. In emergency situations, for example, mud slides onto a village, we have given food either to all victims or to all families with small children. This depends on the severity of the crisis and the immediate availability of resources.

The targeting criteria need to be validated from time to time if they are to be used over many years, as was our case.(3)

[3] Suárez M. Determinantes de la Desnutrición aguda y crónica en niños menores de 3 años. Un Sub-análisis de la ENDES 1992 y 1996. PRISMA, Dirección de Investigación – Instituto Nacional de Estadística e Informática, Febrero de 1999

Chapter 7

Management Information System

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Chapter 7

Management Information System

The management information system is the backbone of a health and nutrition program. Without it we cannot plan, execute our plans or evaluate our program. Accountability is also an important issue, particularly when we are using donated food commodities; the information system is vital to the transparency of information. Programs such as PANFAR and KUSIAYLLU require information for both partners and donors to verify that the desired program results have been achieved. Information is also needed for community authorities so that they can verify compliance with program resource allocation.

Health workers and volunteers must see that the information they collect is relevant to the success of the program. If information collection is looked on as a burden, and local use is not made of the information then the quality and quantity of information will suffer. That will lead to a lack of credibility of results.

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An information system requires three main areas of information:

- Inputs – the resources required to implement the program
- Processes – development of the programmed activities
- Results – effects of our work on the target population

a. Information Flow

The management information system implementation requires patience and persistence. First, the flow of the information needs to be designed and tested. Beginning in 1988, in the case of both PANFAR and KUSIAYLLU, this was a paper flow that went up through the levels of the Ministry of Health to be entered into central level computers. The biggest difficulty we faced were bottlenecks in the system where paperwork did not flow smoothly from one level to another. Lower levels of the reporting chain would report to the next level up, but the paper stopped there. Although an effort was made to give feedback in annual evaluation meetings, this was not a sufficiently important stimulus to improve information management. Then, in 1995, a sizeable investment was made in computers and software and reporting to the information system improved. However, the fact that a paper system had existed for a number of years

was a huge advantage in the design and installation of both software and hardware.

Annual evaluation meetings and bi-annual food commodity inventories were helpful in improving the quality of information. A column in a monthly PANFAR newsletter was also used to congratulate health workers who had their information in on time.

b. Hardware and Software

The use of computers and modems revolutionized program management. Computers were purchased and given to the Ministry of Health (MOH) through loan agreements for their use. The MOH was responsible for their maintenance and priority use for the program. As the years went by, more computers were installed at lower levels and, as the Ministry of Health also began to buy its own computers, only software installation was needed in some areas.

For the PANFAR Program, the development of software for use in the field was facilitated by the existence of a paper system of forms used for data collection. The computerized information system was called PANSERV (Figure 20) and allowed data for inputs, process and results to be entered at remote locations. Data was verified at the central level and was immediately added to the database.

Local program managers could print out their results immediately for presentation in local reports and for local evaluation meetings. This program had an interactive help line that also dealt with on-line consultations. A reports package was added in 1999 and used as a management tool for health directors, so that problem analysis could be facilitated and solutions implemented more rapidly. The implementation of the software required training programs throughout the country and technical visits to key areas for installation and problem solving.

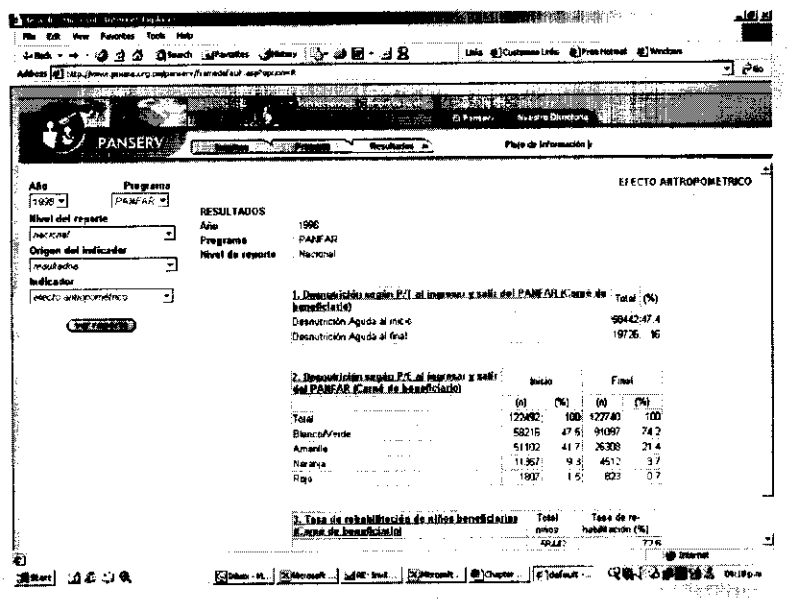

Figure 20 Sample data page of the PANSERV Information Systems.

PANSERV was available on the Internet at www.prisma.org.pe/panserv for all interested individuals. This transparency of information was considered one of the most positive aspects of the program. This was the first time that a National Program in Peru made available its information system in a website.

The KUSIAYLLU Program used a software package called ANA that provides reports on the anthropometric data collected in the program. Weights, height and ages are entered and a report is available for either individual children or the population as a whole. This can be broken down into age groups in six-monthly intervals and results are expressed as percentage of the median, Z score or percentiles. The KUSIAYLLU Program also used the PANSERV software from remote location to enter information on inputs and processes. Results from the ANA (Figure 21) program locally were also sent to the central office and data was collected from all remote locations. There were approximately fifty KUSIAYLLU sites in any given year and all had access to computers either in a community building or a health center or health post.

Improved information technology during the course of this program helped improve program reporting, monitoring and evaluation. As a result, the program was able to use food commodities and financial resources more efficiently and report results in a timelier manner.

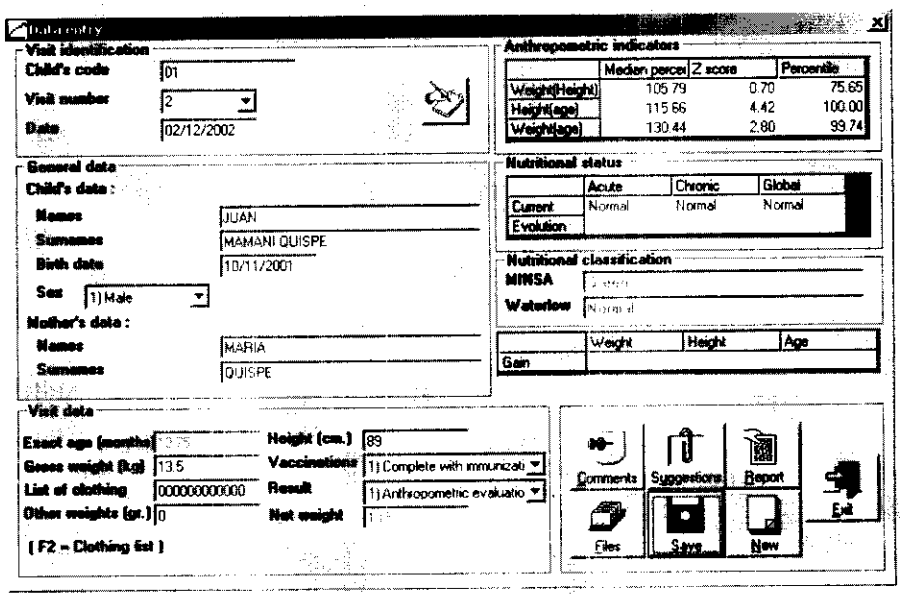

Figure 21 Sample data page of the ANA Information System.

Chapter 8

Treatment and Prevention of Malnutrition

Chapter 8

Treatment and Prevention of Malnutrition

Stunting is a failure to reach linear growth potential and is measured by a height for age indicator. In a child older than three years of age we can say that the child has failed to grow. Below three years of age the child is failing to grow. A decrease in the national stunting rate is often achieved by an overall increase in socio-economic conditions. This increase is difficult to measure as it depends on a complex series of indicators such as women's roles, education and health care. The GDP, which is the normal measure of economic improvement, is not a reflection of the quality of life of the population. It measures the amount of money being spent in a country, regardless of it effect on the communities' social and environmental health. In developing countries, it is not unusual to find the prevalence of stunting at 40% or higher.

Wasting is a severe process of weight loss or thinning that is often associated with illness and famine. Wasting is measured by the weight for height indicator. Wasting can occur at any time but is more common after children have

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been weaned. Peak wasting in an under three-year population can be seen between nine and 18 months. Children may have multiple episodes with spontaneous recuperation over a period of time. The early detection of children with wasting is important.

One important finding we made was that by using a cut off point of –1Z below the mean, we were able to prevent many more serious episodes of malnutrition from occurring. The raising of the cut off point in our experience did not create an undue burden, in terms of numbers of children, on health personnel. The advantage was that children were not so severely malnourished and were easier to work with as they quickly regained an appetite. The prevalence of wasting is below 5% in most countries; levels higher than this indicate severe problems such as famine, warfare or social unrest.

A few years ago, nutritional rehabilitation was thought to be the major activity for combating malnutrition. Nutritional rehabilitation was often thought to be a hospital or clinic-based activity to recuperate the child's weight. In many places special clinics were developed and whole wards in hospitals were devoted to child malnutrition. These treatments were unable to be replicated by mothers at home and, in many cases, mothers were excluded from the child's treatment. However, over time household-based nutritional rehabilitation

has been found to be more effective[23] The advantages are that mothers are more directly involved in the care of their children and there is an added advantage that local community health worker and volunteers can also focus on prevention and not just rehabilitation.

a. Prevention

A public health approach to malnutrition versus a clinical approach turned our focus more towards communities. We first needed to know the severity of the problem in the communities we were working in. National statistics did not help, national means did not reflect the true severity of the problem due to the wide gaps between rich and poor and urban and rural. We developed a surveillance system that first required meeting communities, electing volunteer health workers, training them and performing community-wide nutrition surveys. With the results of these surveys, we were able to determine the individual families who had malnourished children and thus needed more health worker attention. Preventive education messages were given to all families, particularly pregnant women and women with young babies in an effort to prevent an occurrence of malnutrition.

[23] Fernández-Concha D., Gilman R. H., and Gilman J.B. A home nutritional rehabilitation program in a Peruvian peri-urban shanty town(pueblo joven). Transactions of the Royal Society of Tropical Medicine and Hygiene. 1991. 85:809-813.

Basic Educational Messages for Families of Children under 3 years.

- Mothers should give colostrum to their babies from the first hour of life
- Exclusive breast feeding to 6 months, no baby feeding bottles
- After 6 months keep breast feeding and introduce semi-solid and solid foods until they are being offered 5 times per day
- Children should be actively fed
- Immunize appropriately for the child's age
- Feeding should continue throughout any illness such as diarrhea or respiratory infection
- Couples should try to space children approximately 24 months apart
- Women who are pregnant or breast feeding should increase their food intake
- Mothers should wash hands before preparing food

Over time and with new information these messages varied slightly, although the basic messages remained the same.

b. Detection of malnutrition

When we began to work in Peru in 1988, the indicator that was used by all government health workers to detect malnutrition was weight for age. This indicator reflects body mass relative to chronological age and can be influenced by both the height of the child and the weight. For instance, a tall

skinny child may weigh the same as a short fat one. If there is significant wasting in a community, this indicator may not detect it. The indicator is similar to height for age in that it reflects the long-term health and nutritional history of the child. The main reasons that weight for age was being used was that this indicator was commonly used in other South American countries. UNICEF had printed weight for age charts for the health system and it was commonly thought by health officials that health workers could not measure height reliably.

We soon realized that the addition of height required some technology changes that would represent a cost to the health system. We persisted in showing the Ministry of Health the importance of incorporating this indicator. In our first community-based nutritional surveillance in the Pampas de San Juan, prior to the beginning of the PANFAR Program, we detected more than 80 children suffering from wasting, some of whom had marasmus and kwashiorkor. This represented about 5% of the population of children under three years of age. None of these children were receiving any kind of on-going health care and all families refused to admit them to a hospital. We then successfully devised an in-home rehabilitation program for these children, using local volunteers to supervise their care with the help of local health center workers.

The technology changes we implemented were standardized height boards to measure height and then the means to interpret the measurement, a simple computer program that allowed the age weight and height to be entered along with a child identification number. The height board needed to have a design that allowed for the child to have a supine measurement to the age of two years and a standing height after that. It needed to be of a lightweight wood to make it portable and measuring strips and hinges were standardized. A creative carpenter designed the first one and we progressed from there, making modifications to the design until the measurements were as accurate as possible and the height board could be easily transported in a back pack. The first computer program we used was a Spanish-language program similar to the CDC EpiInfo Program. This was at a time when computers were not universally available and the greatest limitation for health workers was actually getting time on a computer to enter the information. Many workers had to complete their calculations for each child with a calculator using the formula, P (T) = actual weight x 100/ ideal weight from the 50th percentile NCHS standard.

When PANFAR and KUSIAYLLU began, we recognized that families with malnourished children were often more marginalized than other families and often did not seek the health care they required. The Ministry of Health was the most important provider of health care services with about 3,000 health centers and health posts in 1988, which grew to

about 4,500 by the year 2000. With this countrywide network, reaching into rural areas we designed a strategy that would utilize the strengths of this infrastructure and personnel, combined with the obvious strengths of community volunteers to improve the detection of families with malnourished children.

We found that community volunteers were by far the best way to provide follow-up to families, because many low-income families work away from home during the day; both in rural and urban areas, and volunteers were able to locate them at night. Volunteer health workers were trained to measure all children under three to obtain weight, height and age; other basic household census data was collected during the first surveillance in each community. This census data was useful to community leaders and was given to them to help present community needs to other areas of the government. Volunteers were also trained in basic illness prevention and treatment strategies for all maternal and child health care, diarrhea, acute respiratory infections, immunizations, pre-natal care and early childhood growth and development. Growth charts were used for all indicators and families were informed if children were malnourished or were not gaining weight adequately. It was found that many mothers did not recognize that their children were either wasted or stunted. In fact, stunting was often considered normal. Wasting was more often recognized because of accompanying frequent illness and lethargy.

D. Education

Health and nutrition education for parents is an important part of both treatment and prevention of malnutrition. Both health workers and volunteer health promoters conducted educational sessions with parents in their homes and in health posts. Mostly women attended these sessions. Training manuals standardized educational messages and both health workers and volunteers were given training manuals. Volunteers tended to work one on one with mothers and health workers would usually provide education to a group of mothers. Often sessions were organized either before or after handing out the monthly food ration.

Educational topics included:

- Acute diarrheal disease
- Acute respiratory infection
- Nutritional rehabilitation
- Immunizations
- Family planning
- Pre-natal care
- Breast feeding and weaning
- Growth monitoring

Additional topics given to Health Workers included:

- Quality of care
- Integrated primary health care
- Information systems
- Monitoring and evaluation
- Food logistics

d. Food Supplementation

Food supplementation is a recommended intervention when the target population has a nutritional deficit[24]. The PANFAR Program gave all participating families a food ration of 12.5Kg of donated food commodities monthly. The ration was made up of vegetable oil, corn soy blend, peas and bulgur wheat. This ration represented 30% of the daily nutritional requirements of a pregnant or lactating mother and two children under the age of five years. Acutely malnourished children in the KUSIAYLLU program were given double the PANFAR food ration and also given ferrous sulphate tablets and vitamin A capsules. Donated food commodities for this program were supplied through the United States Government PL480 Title II Program. The Government of Peru supplied an increasing proportion of food resources as part of the sustainability plan from 1997. These food resources were purchased locally.

[24] Montes C., Segura L., Consumo de Alimentos en el Perú 1990-95. AB PRISMA 1997

e. Growth Monitoring

Children's growth was monitored monthly for children in the PANFAR Program and bi-monthly for children in the KUSIAYLLU Program. The KUSIAYLLU community surveillance measured the growth every three months of all children less than three years old. Children who were found to have weight for height –1Z entered the KUSIAYLLU Program and were monitored every two weeks. Heights weights and ages were recorded and the ANA software program, designed by PRISMA, was used to manage and interpret this information.

f. Health Care Interventions

All health care was given through Ministry of Health centers and health posts. If a health post did not have a service then referrals would be made to the closest health center. The following services were available to program participants and the general population.

- Immunizations
- Pre-natal care
- Family Planning
- Treatment for infections
- Other program referrals for sexually transmitted diseases
- Tuberculosis

Chapter 9

Graduation Criteria

Chapter 9

Graduation Criteria

It is important to recognize from the beginning of a program what the goals will be for each of the participating families. Families enter a program with certain expectations and it is up to us to fulfill or correct those expectations. Problems arise when families feel that their expectations are not being met. If we are not clear about what we plan to achieve with the families during their time in the program, then misunderstandings can occur. Sometimes families achieve additional accomplishments that we have not considered at the start of the program; it is important to be on the look out for these so that their effect can be maximized. Women who participated in the PANFAR Program stated that they enjoyed the group educational and food distribution meetings. It gave them a sense of belonging to a group and many stated their disappointment that the group would no longer meet after their six-month participation in the program. This gave us the idea in 1998 of asking ex-beneficiaries as well as community leaders to form part of the Community Committee for the Support of PANFAR (COCOA) and act as advocates for new beneficiary families in their communities.

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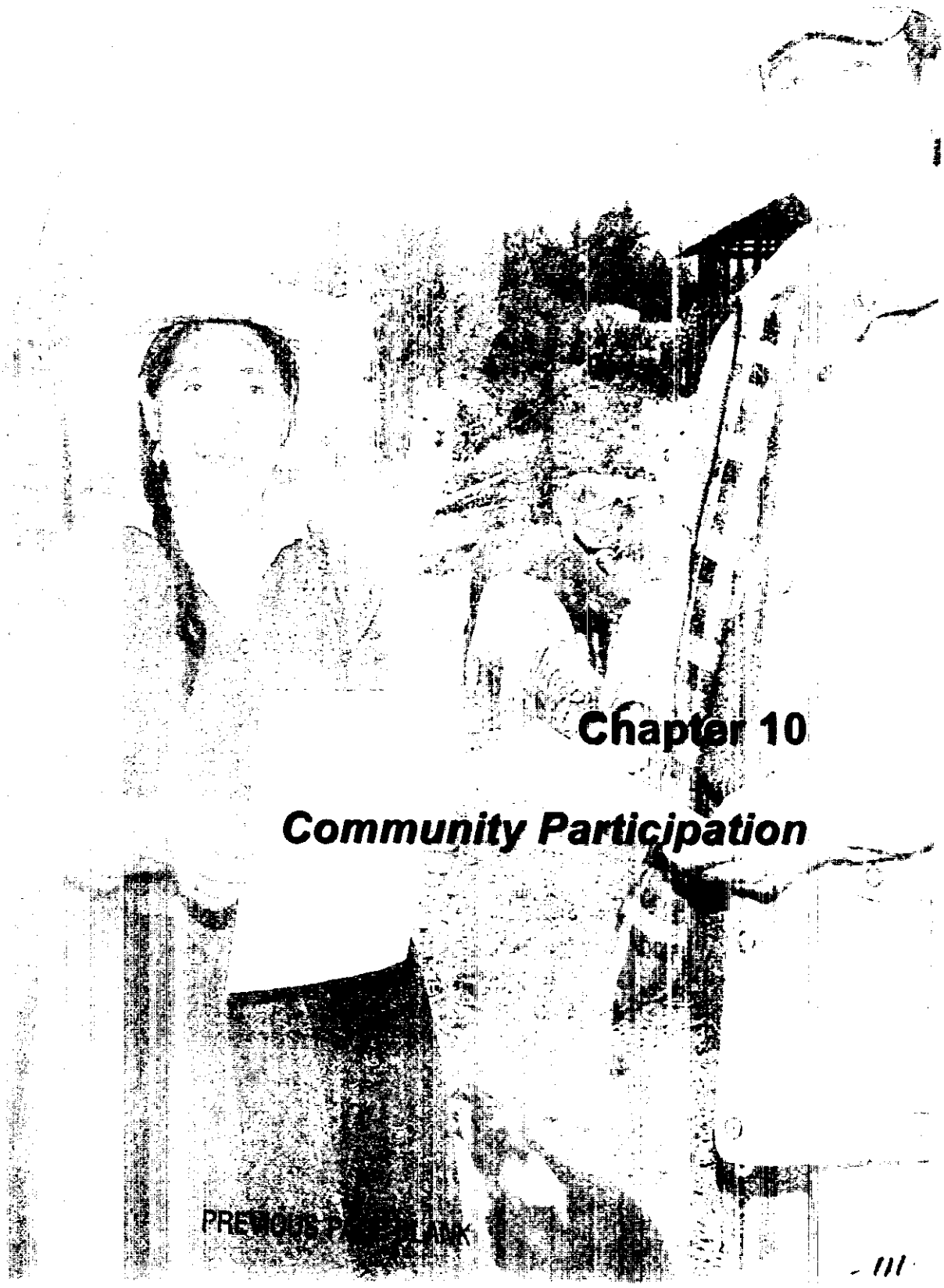
Clearly stated graduation criteria also help program managers improve their program implementation (see page 15). For instance, in the case of PANFAR, if the reason for no graduation was consistently that children were not being vaccinated according to their age appropriate schedule, then health workers and managers should examine the strategy being used to both refer and vaccinate these children. It is frequent that nurses will only open a phial of vaccine when there are enough children to vaccinate to use up all the doses in the phial. This is a lost opportunity often for vaccination as mothers may not be able to return with all children at a later date. Also frequent is that the mother is referred to another service but can find no one there the day she is referred. She will become disheartened and may not return. Referral with an appointment is an important feature for referrals; otherwise families loose valuable earning time seeking out health workers to make appointments and may not return.

Graduation criteria also help provide information for program evaluations and audits. The graduation rate is a good indicator of program efficiency. If the graduation rate is too low, then either program implementation or planning and design are at fault and will need to be revisited. In the PANFAR Program, we considered an 87% graduation rate to be adequate in 1997, however, we managed to raise that rate to 90% in later years. The Kusiayllu Program had a higher graduation rate, mainly due to the efforts of the health promoters. Most children who remained malnourished in the

Kusiayllu Program were those who had been born with congenital abnormalities or had parents with deep-rooted social problems such as alcoholism.

A certificate of graduation was given to mothers on graduation. The doctor in charge of the health facility and the health worker in charge of the program usually signed this certificate. The presentation ceremony gave positive reinforcement to mothers to continue to maintain the child's health.



Chapter 10

Community Participation

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Chapter 10

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Community involvement is possibly one of the most important aspects of any social development program. The first problem we faced was exactly how to involve the community and how to identify those individuals within the community that would be the most valuable for linking the program to the rest of the community. The natural inclination in working with community programs is to go along with the community leaders; however, their time is limited because the community sees their prime function as advancing community development particularly with regard to roads, electricity, water, sewage and infrastructure. They are elected because they have the right knowledge and contacts and can get the job done. Instead, we suggested to them that the community elect one community health volunteer per block of homes so that each group of homes would have their own representative in the KUSIAYLLU Program. Families elected women (more than 95%) and those women were usually among the most educated within the communities. In areas where illiteracy was high, even though the women had only a

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few years of formal schooling, they had natural leadership abilities with the general population.

Community leaders often have partisan political affiliations, and because of this their popularity in the community may change over time, particularly if their connections and influence fail to bring resources in to the community. The community may observe that they have secondary objectives, such as a desire to climb the ranks in a particular party. It is important to stress, however, that program managers should always work through and not against community leaders and other authorities. Even though time may be spent winning them over, it will be worthwhile due to the multisectorial nature of their work. While the actual management of the volunteers may often be left to program managers, frequent feedback should be given to community leaders regarding progress.

Both the PANFAR and KUSIAYLLU Programs worked through the Ministry of Health centers and health posts. However, other community-based authorities were included in informational and general meetings and local Ministry of Health staff participated in the training of the community volunteers.

a. Community Volunteers.

Managers who work with volunteers need to be aware of the volunteer's motives and their changing roles within the community. Many women had supportive husbands; there were others who forbade their wives to participate. The empowerment of communities requires:

- A gender balance
- Increased transparency and accountability
- Reliance on their own abilities
- Participation in setting goals and priorities

Training was an important vehicle so that communities could work towards achieving their empowerment. Training manuals and other materials were provided to volunteer health workers during training sessions. Training sessions were organized to meet the needs of individual communities, some preferred to meet for a solid block of time and others for hours every few days. The volunteers had expectations and it was important to help meet them. Some of those expectations were:

- To have good supervisors
- A clear statement of goals
- A motivating environment
- Performance satisfaction and feedback
- To receive help with stress and conflict resolution

Rewards and non-financial incentives such as exchanges with groups in other areas to share *best practice* experiences.

All volunteers were initially fearful of visiting their neighbors and asking questions, even those questions relating to health and nutrition. Many remember their first visits to families as nerve-wracking. One woman described her nervousness when the child's father did not wish for the child to be weighed and she had to explain to him why monitoring growth and development would be helpful for the child.

The volunteer health workers more easily accomplished raising community awareness of the health and nutrition problems affecting their young children. Raising awareness of the need for prevention was a slow process; many communities still wanted more curative services and medicine. The KUSIAYLLU Program managers were careful to explain the role of food in the program so as not to generate unrealistic expectations of food for the whole community. Because both PANFAR and KUSIAYLLU Programs followed clearly laid out criteria of eligibility for food and other program resources, we do not believe that any unrealistic expectations were created.

Although the programs were measuring results such as children fully immunized or food rations distributed, there

were also some results such as the community census that helped local leaders organize their communities. We know that improved community organization is a step towards community empowerment. Empowerment of individuals and communities is not easy to measure but we know that it did occur. Many of the groups of volunteers formed health promoter associations within communities. Many of our volunteers went on to be community representatives and municipal authorities.

b. Other PANFAR Participant Advocates

In 1998 PRISMA developed an additional mechanism to provide advocacy and help PANFAR beneficiary families access health services. These advocacy groups, one in each health center and health post, were called Community Committees for the Support of PANFAR (COCOA). The group's mandate was to ensure that PANFAR beneficiary families receive quality services, that they are aware of their rights within the health system, and choose the services they require. The group's objective was to ensure that food commodities could in no way be used as a coercive tool. Members of COCOA were community leaders, leaders of women's organizations and ex-PANFAR beneficiaries. In 1999, the presence of a COCOA in each health center or health post was strongly recommended to encourage

community partnership and provide impartial community advocates for families in the program.

Participación y Salud Comunitaria

10 ideas para compartir

Material de Apoyo para los COCOAs

Chapter 11

Integration of Nutrition with other Development Programs

Chapter 11

Integration of Nutrition with other Development Programs

For development to be effective long term it needs to be sustainable. Sustainable development implies the achievement of both human and economic development while at the same time taking care that the environment is in no way compromised.

Most of our commonly used indicators for measuring development are related to economic growth and population demographics. There are few indicators that reflect the quality of life of the poorest segments of the population.

The most commonly used indicator for measuring changes in development is Gross Domestic Product (GDP). This indicator measures the amount of money being spent in a country. In a developing country, the bulk of this would come from overseas investments. GDP then is a reflection of the economic activity in a country regardless of its effect on the communities' social and environmental health. Although different agencies collect other indicators, these often reflect

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the interests of those particular agencies. Few agencies actually disaggregate their data by gender; the most common variables that are disaggregated are education and health. Hence, the impact of women in a work force is frequently not measured or understood.

Women's economic activity reflects choices in household spending that has been positively associated with child nutritional status.

Nutrition indicators are rarely considered as human development indicators by the large agencies even though the close relationship between extreme poverty and stunting would suggest that they could be a good indicator of human development. Poor nutrition also reflects other deficiencies that are related to low socio-economic status such as lack of social services, sanitation and education.

a. Actors in development

Governments, non-governmental organizations, corporations, small businesses, organized community groups and schools and universities are all actors in development. They are associated with a myriad of projects and programs that affect and impact development. Not all of these actors work with the poor and extreme poor and those who do tend to concentrate in certain areas:

- Microcredit – credit schemes working with organized community groups, such as community banks, that make loans to members and charge a monthly interest rate is a method used to provide needed capital to an entrepreneur.

- Agricultural Production, Productivity and Sales – the improvement of all three areas is important. The organization of producers, especially small landowners is vital to improve sales networks and markets. These activities tend to be in rural areas where access to markets is limited.

- Protection of Natural Resources – usually implemented in rural areas and often a goal is to limit human economic or productive activity so that a resource, such as an animal, bird, waterway or forest can be protected.

- Improved Education – for the poor, particularly girls is a development goal for the rural areas of many developing countries. Women's education is an important factor for the improvement of nutritional status in their children.

- Reduction of Environmental Contamination – this is generally a by-product of industrialization. Even

though there are economic gains, there are also contamination problems that can affect both workers and nearby populations. Lead, cyanide, mercury have all created major public health problems in various parts of the world. Many of these problems affect the health and nutritional status of young children.

Although large industries often do not affect the poor directly they may do so indirectly. Many industrial activities such as mining are in remote areas where the poor live. Many companies have offshore policies, meaning that they import workers from other areas and do not hire from the local population. The poor can be affected positively through an expansion of economic opportunities and negatively through contamination or other consequences that can have both health and environmental impacts.

International corporations working in developing countries are held accountable to their shareholders and principal financial backers to provide environmental and social development plans that will be implemented parallel to their principal activity, for instance, mining and oil or gas drilling. Enlightened shareholders and financial backers will monitor the implementation of these plans because they are aware of the potential threats to the future of the corporation if both environmental and social responsibilities are neglected. Unfortunately, in some cases the emphasis on the financial bottom line can cause these plans to be delegated to well-

meaning but inexperienced people resulting in donations being made or infrastructure being built that are neither well thought out or sustainable.

Indicators of community sustainable development are interconnected around three main segments areas of the community, the environment, local production and social progress (Figure 22). Projects developed by governments and non-profit organizations center on one or more of these segments.

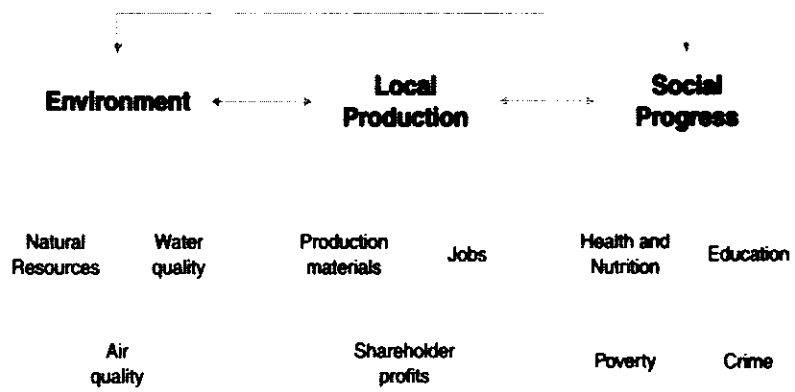

Figure 22. Interrelated segments of community development.

b. The Community

The decision for the development of projects should begin with community participation for the identification of priorities. Decisions should not be influenced by donor-

directed priorities. Many donors have excellent analyses of problems based on data collected from surveys and other programs. Results should be shared with communities. Many communities will state that they require infrastructure, a community building, a health post, however, the long-term upkeep and operation of these is infrequently considered.

Considerations for and against the integration of multiple projects into one larger development project depend on the orientation given to the project by its leaders, and the detail with which individual activity results are monitored. The more integrated an activity, the more disaggregated results and indicators need to be; otherwise some activities will overpower others in importance.

When working in developing countries, it should be the real needs of the target population rather than the felt needs of some of their members that determine the project activities we carry-out there. It is often the poorest sectors of any community who require the most outside help for improving the quality of their lives. The most vulnerable individuals are women and their children less than three years of age. In almost all developing countries, the poorest sectors of the population are those living in remote rural areas and also those in the slums and shantytowns of large urban centers. This vulnerable population rarely participates in local government and because of poverty and lack of gender equality, also has limited access to services.

c. The Development Quandary

One of our biggest challenges is how do we reach and involve the poorest sectors of the population, those who are most susceptible to nutrition deficits, into sustainable, socially and environmentally responsible, productive activities that will improve their nutrition and health status and that of their children? Given the world situation of scarce resources where would those resources be put to best use? In what kind of activities?

Low educational levels characterize the poorest sectors of a community and most live in rural areas where there is often a fear of risk taking that causes the poor to exclude themselves from productive activities such as microcredit. However, there is no doubt that scarce resources are better used in sustainable activities. Microcredit activities do permit families to diversify their income sources and microcredit, if well-managed should be operationally and financially sustainable.

Stunting is a valuable indicator for the geographic targeting of poor communities who would benefit from development activities. Stunting data can be taken from school height surveys of first graders. Poverty is such a dynamic indicator due to the fragility of the economies of households living in poor rural areas, that the illness of one member of a family can make the difference between being

classified non-poor or extremely poor. Stunting is a long-term indicator that tells us that the situation has not changed for many years. If we are to make an impact on poverty we need to concentrate on areas with a prevalence of stunting higher than 40%.

Chapter 12

Conclusion

Chapter 12

Conclusion

In 1988 the poor Peruvian population was a young population, the average age of men and women in the peri-urban slum areas of Lima was less than 30 years of age and children under five years represented more than 20% of the total population. In some areas less than 35% of children were immunized and most deaths after the post-natal period occurred from diarrhea, respiratory infection and other infectious diseases. This contrasts sharply with the situation today, in which mortality has been reduced from 78 to 33 per 1,000 live births. In 2001, immunization coverage of recommended vaccines reached 66% and the prevalence of diarrheal diseases in children under five decreased from 18% to 15%.

In concluding, we have tried to define those key areas of our programs that individually or all together may have contributed to some of these improvements:

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- Program design using the risk focus that allowed us to focus directly on the public health nutrition problem we had identified.
- Strong monitoring and evaluation component so that data was used for decision-making.
- Training of thousands of health workers in health, nutrition and program management lasting more than 10 years.
- Hundreds of thousands of tons of Title II donated food commodities that were distributed through an efficient logistics system.
- Community involvement through trained, volunteer community health promoters.
- Partnership between the Ministry of Health and an NGO for program implementation using the strengths of both organizations.

Our main decision to focus our program designs for both PANFAR and KUSIAYLLU on malnourished children and their families was based on available survey data and our own information that showed that malnutrition in children under three years of age was an important public health problem in Peru. There were no other nation-wide nutrition programs in Peru at that time and existing health services had no viable strategies for serving the at-risk population. Most government social programs, since 1988, have focused on school-age children and community food kitchens. Only one government program has targeting the under three year age

group for food distribution. Some NGO programs have focused on the prevention and treatment of childhood malnutrition but none of them had a national scope and few were in remote rural areas where the problem was more severe.

When the PANFAR Program began, health services were limited to the population that came to the health centers. Health workers were not working in communities and there were few attempts at community outreach: most waited to receive patients in their centers. There was a need for health-worker training with a public health focus in nutrition and community health. We felt that it was important to combine both nutritional goals and health goals, given the complex relationships between infection and malnutrition. The PANFAR and KUSIAYLLU Programs trained thousands of health professionals in all departments of the country. Training was given at least three times per year initially in all areas of nutrition and maternal and child health care and in later years many management topics were also included. Management topics such as programming, supervision, monitoring and evaluation and, information systems were included as well as training for the use of hardware and software that was developed as part of the program. The health professionals who were trained were mainly nutritionists, nurses and technicians although some physicians requested to be included and were invaluable as team leaders in their areas. Particularly from 1989 to 1991

most of the trainees were individuals who had previously received no in-house training from the Ministry of Health. Training manuals were written and distributed to at least 5,000 trainees per course.

Community-based volunteer health promoters helped identify families and then followed those families bringing them into health services when they needed extra attention. Many of the volunteers were women who through an altruistic desire to help their communities, especially for those less fortunate than themselves, prevented countless episodes of illness and unnecessary deaths. They educated the general population in their communities and put emphasis on prevention. They were proud of their accomplishments both at the personal and community level, they knew who had been born and who had died and they worked hard to change a culture of *machismo* in their communities. Many were fortunate to have supportive husbands and children in their lives and some even moved into public office. They are the social capital our program left behind.

Food commodities were an important component of our programs. Prior to 1988, Perú received some donated food commodities for direct distribution to the population. These food distribution programs did not have nutritional objectives and distribution was erratic and often related to political goals. The commodities used in the PANFAR Program were PL 480 Title II commodities and were selected

because of their nutritional content and consistency, which were appropriate for children, and were not very attractive to the adult population. The reduction of intra-familial dilution of these food commodities was targeted in the nutrition education given to families. Probably the most important food commodity we chose was the corn soy blend. This is the major commodity vehicle used for fortification by the Title II program. Fortification with ferrous sulphate and vitamin A became more important to our goals as researchers more increasingly recognized the role that micronutrients play in child growth and development.

Whether it was the design of the programs, the ability to make decisions based on data, the training of health workers, the involvement of communities or the food commodities themselves the PANFAR and KUSIAYLLU Programs successfully reached and worked with more than two million beneficiary families and more than 4,000 Ministry of Health workers and 2,700 community volunteers. The programs were handed over to the Ministry of Health of Peru, the government entity committed to continuing them after 2001. This was our original goal for sustainability and we were able to accomplish it.

We would recommend either the PANFAR or KUSIAYLLU program design to anyone in a situation where the country prevalence of stunting is higher than 30%, and wasting is around 3%. Sustainability is important and should

be decided from the outset of the program. A sustainability strategy is something that we discovered has to be worked on from the first day of the program, and should be clearly laid out in any signed agreement with a host government. A permanent entity in the country is the ideal entity to sustain the program, in our case it was the Ministry of Health. It could just as easily be community health services or church-based health services in another country.

PRISMA has taken up a new challenge and will continue to work towards the reduction of malnutrition in Peru but is now looking at a new program design and different strategies. Today the children in Peru growing up in rural areas have a five times higher chance of being affected by stunting than their urban counterparts even though most of these children do have access to health care and the majority are immunized and are exclusively breast fed. The challenge now is how to reach these children early enough to prevent stunting altogether.

PRISMA is working with health services and municipalities in some of the affected rural areas. The municipalities will provide program sustainability through their "glass of milk" program and PRISMA will help establish local networks for the sharing of information and decision-making. The information, for all participating social programs in a given area, will be systematized into a management information system and shared so that programs may be

more efficient and effective. To prevent stunting, PRISMA and the Ministry of Health and community volunteers have identified all pregnant women in these areas and will provide them pre-natal care, education and a food basket to complement their existing diet for a period of time from the identification of the pregnant mother up to the baby's six month birthday. PRISMA has also concentrated its microcredit and agricultural development activities in these areas to help provide more economic opportunities for families.

Development requires progress and to progress we must constantly take a new look at old problems and be receptive to new solutions. The families and volunteer workers we worked with taught us a lot. In a short time, they made major changes to their lives, they were adaptable, open to new ideas and challenges and most of all quick to share their new found knowledge with others all the time keeping an eye on a better future for themselves, their families and their communities.