

# Health System Innovations in Central America

*Lessons and Impact of New Approaches*

*Edited by Gerard M. La Forgia*



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# A New Dimension for Health Reform—The Integrated Community Child Health Program in Honduras

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## *Abstract*

*This chapter describes a national, community-based, public health and nutrition program in Honduras called AIN-C (Atención Integral a la Niñez en la Comunidad [Integrated Community Child Health Program]). The program was launched in 1990 because, although infant mortality had dropped dramatically in Honduras, malnutrition in young children remained virtually unchanged at a very high level. In its seven year evolution from concept to consolidated program, AIN-C moved from being a facility-based growth monitoring and integrated disease management program to a community-based preventive health care and nutrition program built on a foundation of monthly growth promotion, on-demand management and referral of disease in children under age five, and care of the newborn. Innovative characteristics of the program include its focus on preventing malnutrition in all children under two through tailored and negotiated counseling on behavior change, development of counseling messages in the community through Trials of Improved Practices (TIPS), the use of a team of volunteers in each community, and a simple but elegant information system used for supervision, community mobilization, health coverage statistics, monitoring, and evaluation. The program currently covers almost half of the health areas in Honduras. An impact evaluation carried out in 2002 showed that AIN-C significantly improved both height and weight of participants compared to nonparticipants and that AIN-C had significantly improved key household behaviors in health and nutrition. A careful cost study, also carried out in 2002, showed that AIN-C cost US\$2.73 in annual recurrent costs per child under five in participating communities or US\$1.60 in incremental annual recurrent costs. Many other countries—both in the Latin America region and in Africa and Asia—have studied AIN-C and adapted the model to their own circumstances.*

This chapter is about an innovative, community-based public health and nutrition program in Honduras called AIN-C (Atención Integral a la Niñez en la Comunidad [Integrated Community Child Health Program]). After first reviewing the justification for a program like AIN-C in health reform, the chapter reviews the history and evolution of the program. It then examines the program's conceptual framework, impact, and basic processes. Finally, the chapter draws attention to design innovations considered central to AIN-C's effectiveness as a key component of health sector reform.

## Background

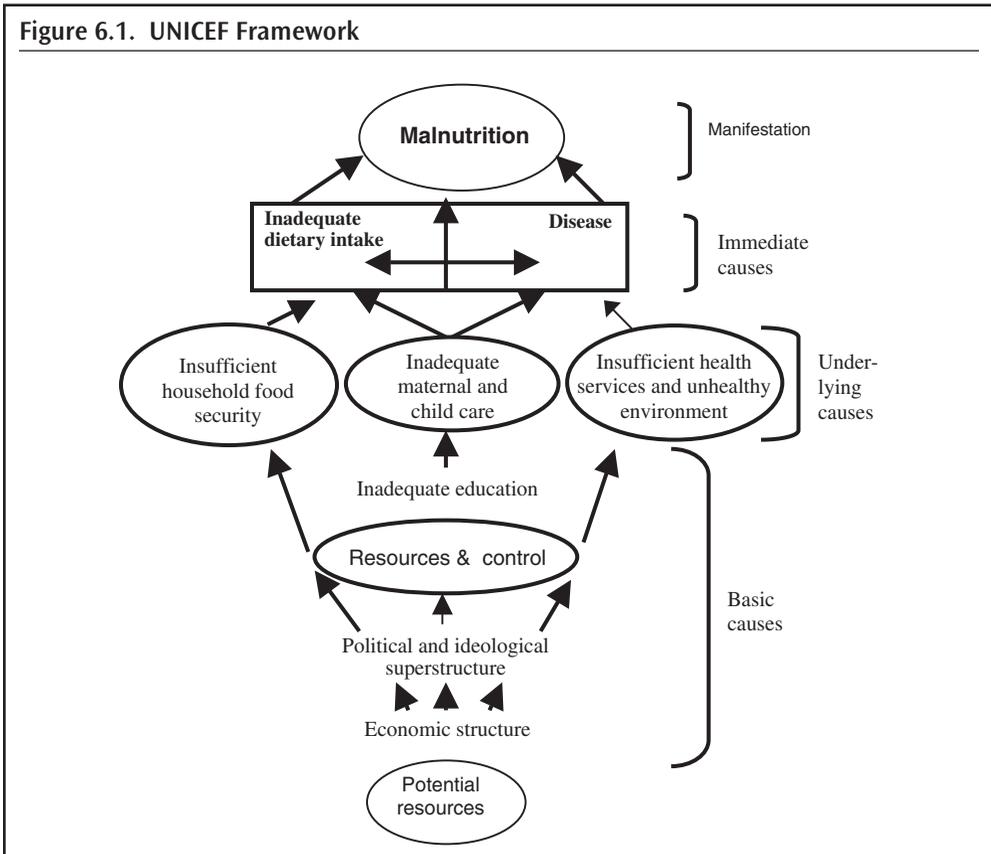
Two recent documents that outline goals and steps to overcome health disparities clearly show the role that a program like AIN-C can play in filling critical gaps.

According to the World Bank's most recent *World Development Report*, public services are failing the poor in four ways: public expenditures are not spent on services needed by the poor, the money does not always reach the frontline service provider, the service providers have little incentive to provide services to the poor, and the poor may not take advantage of the services available because of lack of information, sociocultural factors, or accessibility (World Bank 2003). The Bank also points out that health services often fail to reach the poor because clients do not play an active role in tailoring services to their needs and monitoring providers. The Honduran program described in this chapter addresses all of these issues. AIN-C is a community-based service program, funded and implemented by the government (or by nongovernmental organizations [NGOs] in specific locales), that addresses the most critical health problems of poor children. The program connects the government's public health system with families through a child growth promotion program run by *monitoras* (community volunteers). AIN-C *monitoras* empower families to raise healthy children by providing monthly, tailored counseling to parents on child feeding, home care of common illnesses, and appropriate use of health services.

Community participation is a central tenet of AIN-C. The community has responsibility for selecting the AIN-C team, reviewing children's progress, and solving detected problems that impede child health. AIN-C's simple but elegant information system provides an objective means to measure the performance of families, community volunteers, and local health services, and it generates the quantitative evidence a community needs to identify and resolve common problems and demand resources from local authorities. The program addresses the market failures in health service delivery by overcoming informational asymmetries: parents and communities now have the information they need to assess their own children's health.

Two of the eight Millennium Development Goals (MDGs) will not be met unless child malnutrition is improved. The first MDG, eradication of extreme poverty and hunger, is measured in terms of underweight in children under the age of five. The fourth MDG, reduction by two-thirds of under-five mortality, is also directly related to child nutrition. It has been well documented that undernutrition is a direct or underlying cause of more than half of under-five child (Pelletier 1994). By preventing healthy newborns from faltering in growth over the first 18–24 months of life, malnutrition in children younger than five and under-five mortality can be dramatically reduced. Prevention of growth faltering requires proactive

attention to child growth, feeding practices, immunization, health and hygiene behaviors, and care of the sick child. AIN-C addresses all of these causes of growth faltering in a low-cost way at the community level, bringing to life the causal framework (see Figure 6.1) put forward by the United Nations Children's Fund (UNICEF) in 1992 for malnutrition.



## Rationale for AIN-C-type Programs in Health Reform

Active community participation, ownership, and stewardship are essential to successful democratic development. Sustainable and equitable economic development, including promoting a healthy population, must include broad-based participation in the process. Program and project experience has shown that the organized community is essential to success in water and sanitation, education, health, reforestation, watershed management, and public works. In many cultures (Indonesia, for example), there is a long history of community cooperation and action. The community can be a source of redistribution and relief (in some communities in Africa, for instance, the community maintains an emergency food store). And, in most developing countries, the community is looked to as the labor pool for program implementation and a source of political support and financing for

many public programs. One measure of success is that the resources reach the poor. As the *World Development Report 2004* points out, one way to ensure that resources reach the poor is to transfer responsibility to the clients and the community (World Bank 2003).

The ideal of broad-based community participation and stewardship is rarely achieved, however. Too often, development programs are designed in the capital city or donor headquarters and begun in communities without any local consultation. They are entirely supply driven, providing goods, services, or both, yet simultaneously expecting labor, goods, and utilization in exchange. Often, these programs that reach the community level are captured by local elites, seldom reaching those in need. In other cases, where community members may be more involved, they still may not participate in program governance. Community members' work is often taken for granted, with recognition given only during elections or catastrophes.

The health sector needs community action at least as much as other sectors. Basic preventive health measures and appropriate use of health services by the sick require that community leaders and community-based health workers reach those who are hard to reach with education and information and mobilize and govern community action in a responsible fashion. To take action, citizen-clients need to know about immunization days, new services available at the local health post, eligibility criteria for new programs, trash disposal, sanitation, maintenance of community water sources, and emergency assistance. The community also should provide feedback to the health system. Effective epidemiological surveillance requires information from the community level rather than from facilities alone (see Table 6.1).

<b>Public provision</b>	<b>Community participation required</b>
Cold chain, vaccines, and vaccinators	Community organized for immunization days
Preventive health care services, such as nutrition, diarrhea control, prenatal care, family planning, bed nets, and so on	Education and follow-up on basic preventive health care behaviors for the family, such as home or self-care, appropriate use of basic supplies, and health-seeking behavior
Acute care facilities and staff	Detection, referral, and transport of acutely ill people to acute care facilities; follow-up and compliance with drug and treatment regimens once patients return home
Water and sanitation infrastructure	Hygiene education and maintenance of water and sanitation systems; payment systems
Environmental sanitation regulations and standards; garbage collection in cities	Organization of the community to clean up air, water, and land; social pressure to dispose of waste properly
Service statistics	Provision of information for epidemiological surveillance, birth and death registries, and civil registry

Because health sector reform touches on the broad array of systems that influence cost-effective health care provision, it must design the system around community participation in health. The community needs to be drawn in to ensure good health outcomes. Community participation facilitates health reform by getting services to needy clients, organizing demand,

informing supply, overseeing personnel, identifying unmet needs, and educating the consumer. Broad-based community participation makes it more likely that health services will be accessible to the poor and needy, a key goal of health reform. However, the community and the household have not been given adequate attention in most health reform programs.

At the same time, community participation depends on health reform for long-term sustainability. The community needs to be able to count on back-up from the health system, whether the support comes in the form of supplies, training, or supervision for community workers or timely, high-quality health care at the facility. Although successful in several ways, an evaluation of the Honduras Rural Penetration Program in the 1980s found that the program was not as effective as it could have been because of the failure of the health system to back it up (Bossert and others 1988).

Most health reforms are carried out at the central government or ministry level, and focus on changing policies and norms with an institutional perspective. Even decentralization and performance-based contracts generally stop at the health district level and don't reach down to the most peripheral service level. Since the early 1980s, Honduras has been reforming its health sector (albeit in fits and starts, with changes of administration and personnel) and strengthening community participation as part of an integrated strategy. The country went beyond simple decentralization and has constructed more facilities closer to the population. It improved access, equity, and outcomes by developing several community programs (particularly for immunization and for detection and treatment of dehydration and pneumonia). The final step has been to place the program in the community with governance by the community and only support from the health services.

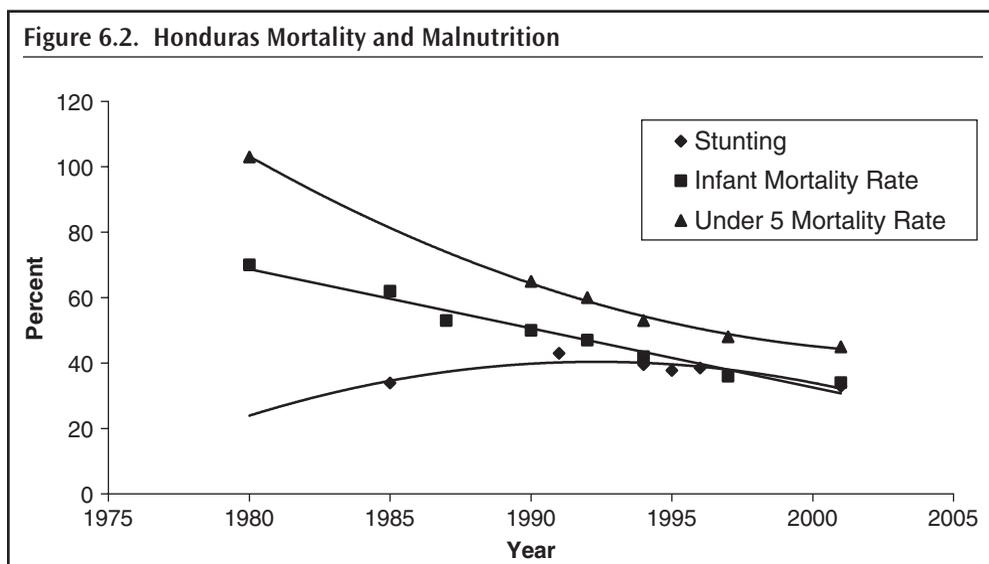
## History

Honduras has made remarkable progress in both improving health outcomes and providing equitable access to health services, especially given its low per capita income. (Gross national product per capita in 2002 was US\$920 [World Bank 2003].) Although the economy overall is quite inequitable, health care is equitably distributed. For instance, in the mid-1990s, the poorest quintile of the population earned only 3 percent of the income but used 21 percent of preventive health care, 17 percent of ambulatory care, and 15 percent of hospitalizations (World Bank 1997). The differences between the wealthiest and poorest quintiles in overall health care use are small, but the poor use predominantly *public* health services and the rich use *private* health services (World Bank 1997).

Infant mortality in Honduras dropped from 110 per 1,000 in 1970 to 39 per 1,000 in 1990, and life expectancy increased apace. This rate of decrease was fast even for Latin America, and notable because Honduras is one of the poorest countries in the region. Between 1990 and 1995, maternal mortality fell from 182 per 10,000 to 108 per 10,000 (Walker 2003), but the decline in infant mortality has slowed since 1990. In 2000, infant mortality was 35 per 1,000.

The early, sharp decline in infant mortality was attributed not so much to the amount of money invested in the health system (about US\$20 per capita in 1995; World Bank 1997) but to the effectiveness of the programs (Walker 2003). Particularly effective were vaccination programs using community volunteers that addressed diarrhea and respiratory illness (World Bank 2001b). Part of this drop in mortality was also due to declines in fertility rates from 7.5 in 1970 to 4.4 in 2001 (Walker 2003).

Health, however, is more than the absence of death. Although Honduras did a good job preventing death and controlling infectious disease agents, it did not do so well on non-infectious causes of disease—for example, malnutrition. While Honduras was saving lives through immunization and timely treatment of acute infections, it was doing much less about health promotion. Malnutrition was persistently high in the 1970s and 1980s, in spite of massive food aid and a conditional cash transfer program (Programa de Asignación Familiar [PRAF]). Over the course of the 1990s, fortunately, nutrition has improved. In 1987, stunting stood at 44 percent, but it had fallen to 38 percent by 1996 and to 33 percent by 2001. Overall malnutrition, as measured by weight-for-age, fell from 24 percent to 18 percent in the same period (see Figure 6.2).

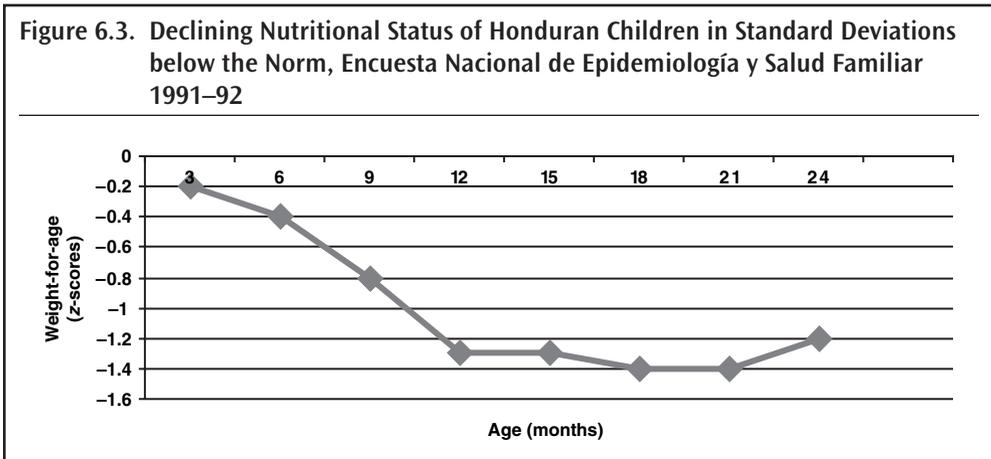


The reason for the persistence of malnutrition until the mid-1990s and the recent drop is not well understood. Neither economic growth nor poverty reduction can explain the changes in the malnutrition numbers. Malnutrition is concentrated among the poor, yet increased household income does not immediately result in improved child nutrition (Haddad and others 2002). Annual economic growth between 1981 and 1990 was 2.5 percent, and it increased to 3.1 percent in the 1990s (World Bank 2001b). This rate of growth was dampened, however, by population growth rates, which averaged 2.9 percent annually between 1990 and 2000 (World Bank 2002).

### *The Evolution of AIN-C*

In 1990, the Secretariat of Health realized that malnutrition was persistent and suspected that it was the reason why mortality rates were stagnating. This commonsense suspicion was buttressed by the international literature, which showed that more than half of under-five mortality globally was due to malnutrition, particularly to mild and moderate malnutrition (Pelletier 1994). Research in neighboring Guatemala showed that the effects of malnutrition in early childhood were not reversed in later life (Martorell 1990; Martorell, Khan, and

Schroeder 1994). A close look at the growth curves of young children in Honduras showed what was happening. For the majority of children, malnutrition began at about 3 or 4 months of age, with its severity increasing progressively until the child reached about 18 months of age, by which point the child's growth was significantly retarded (see Figure 6.3).



Honduran health authorities realized that children seen periodically at health centers were becoming malnourished, but the health system was not detecting it. Child growth over time reflects everything that is going on in the child's home and community environment that affects health: disease, nutrition, psychosocial stimulation, and child care. Malnutrition does not come upon a child in a matter of days, like an infectious disease. It is insidious, starting with a child showing signs of anorexia and gradually being reflected in slower growth. The common perception of malnutrition—bloated belly, coppery hair, and sticklike limbs—is not typical of 90 percent of the malnutrition in the world. Contrary to common practice, nutritional status (weight-for-age at any one point in time) is not a very useful programmatic tool to detect malnutrition. Malnutrition is a dynamic process, the result of daily stresses of inadequate feeding, frequent bouts of disease (often minor diseases), and inadequate care. One cannot diagnose malnutrition in its early stage without keeping track of a child's growth (weight gain) from one month to the next. Assessing adequate weight gain is like watching the onset of an illness, from general malaise to high fever or pox.

Realizing that inadequate weight gain is the first sign of a problem, Honduran health officials revised health center norms to require the detection of growth faltering in children and use that as an additional way to triage children for services. Any child who failed to gain adequate weight was subject to careful review of his or her health and home care situation. Inadequate growth was key to exploring multiple causes and integrating care protocols as needed. A special form, a checklist of causes of poor growth, was used to guide the exploration. Using growth faltering (the failure to gain the expected minimum amount of weight) as a prompt was successful. There was a 25 percent decline in malnutrition rates in program clinics after three years.<sup>1</sup>

1. Dr. Gustavo Corrales reported this history at a World Bank Nutrition Training Course October 1998. Dr. Corrales was Director General of Health at the inauguration of the clinic-based AIN program and a consultant on the design of AIN-C.

By 1994, as the secretariat was reviewing the clinic-based strategy, they recognized that it would not result in a positive impact on public health unless they could put it in the hands of the community and reach all children. The community AIN approach (AIN-C), with growth promotion at its heart, was piloted in two health areas in about a dozen communities. The piloting was done in an ad hoc way, left up to local managers who combined it differently with the existing community diarrhea and acute respiratory infection (ARI) control programs. This resulted in a 1995 report on experiences but inconclusive results. A national meeting on AIN-C called for systematizing the program process and changing the technical content to include just the most efficacious essentials at the community level, refining the assessment of adequate weight gain (how to quantify an adequate growth trajectory), and placing more emphasis on how to counsel and on improving feeding of young children.

Simultaneous with the Honduran Secretariat of Health's interest in systematizing their community program for national expansion, the World Bank had just completed a review of worldwide experience with growth promotion programs (Griffiths, Dickin, and Favin 1996). The best practices highlighted in that review, plus the lessons learned from communities that piloted the strategy in Honduras, directed AIN-C program development. At the point of program development, the Secretariat of Health requested technical assistance from USAID's child survival project, BASICS. Over approximately an 18-month period (mid-1996 to late 1997), program procedures were worked out with a few communities and with authorities at different levels in the Secretariat of Health. Research was conducted to better understand household child feeding practices, and manuals, training guides, and educational materials, including a detailed set of counseling cards, were written, tested, and published. In early 1998, the program was relaunched by the Secretariat of Health in 9 of the most populated of Honduras's 47 health areas. Since 1998, the AIN-C program has expanded through secretariat facilities to cover communities under every health center in 24 health areas. At least eight NGOs implement AIN-C, and, in additional communities, the program is operated by a special family assistance program (PRAF) from the president's office in collaboration with the Secretariat of Health.

Expansion of AIN-C has continued each year, as have technical and managerial refinements and additions (see box 6.1). Critical to the adjustments was revamping the child health actions to reflect more closely the World Health Organization's and UNICEF's recommendations on integrated management of childhood illnesses (IMCI). In 2002, the program strengthened attention to newborns. In sum AIN-C has emerged as an integrated, basic package of care for the young child in the community.

## **Does AIN-C Work? What Does it Cost?**

In 1998, the government of Honduras carried out a baseline survey for the AIN-C program. A midterm evaluation was carried out in 2000 (Van Roekel and others 2002), and a final impact survey was carried out in 2002 (Plowman and others 2004). The midterm evaluation showed that although AIN-C communities were more disadvantaged than control villages, they had made enormous strides in knowledge, attitudes, and practice concerning common diseases of childhood, child feeding, and administration of micronutrient supplements and vaccines. AIN-C communities met or exceeded control communities on virtually all indicators (see Tables 6.2 and 6.3).

### Box 6.1. Continually Seeking Improvement

In an effort to ensure that AIN-C program activities were making a difference, the U.S. Agency for International Development (USAID)–supported Basic Support for Institutionalizing Child Survival Project (BASICS) program worked with the Honduran Ministry of Health to conduct a comprehensive impact evaluation of the program. The baseline survey was done in July 1998, and the midterm survey was conducted in July and August 2000. One of the assumptions of the AIN-C program design is that rates for fully immunized children by 12 months would be significantly improved in AIN-C communities because of its emphasis on universal enrollment, focus on early enrollment (the first months of life), and on frequent (monthly) contact.

Midterm results showed that even in a country with high immunization rates, coverage could still be improved when a community-based program such as AIN-C is functioning. In AIN-C communities at midterm, vaccinations for diphtheria-pertussis-tetanus, polio, and measles were 88.1 percent, 87.7 percent, and 86.0 percent, respectively, compared to control communities where the rates were 83.7 percent, 82.5 percent, and 77.6 percent. The one exception was Calmette-Guérin bacillus (BCG) immunization. Coverage rates in AIN-C communities were lower than control communities (85 percent versus 94 percent). The explanation, that fewer women in AIN-C communities were delivering their babies in a facility, meant that AIN-C needed to get babies born at home to health care services. In response, an activity focusing on newborns was added to AIN-C. Now the *monitora* is responsible for visiting newborns and enrolling them in AIN-C within 48 hours of a home birth or of the mother returning home from an institutional birth. Among other activities, checking that the infant received BCG is fundamental. If the child is unimmunized, the *monitora* ensures receipt of the vaccine through active referral or notifying the nurse for her next community visit. In this way, the “hard to reach” are covered by this vital service.

**Table 6.2. Caregivers’ Exposure and Participation and Use of Key Health Services**

Variable	AIN-C		Control	
	1998 (baseline, %)	2000 (%)	1998 (baseline, %)	2000 (%)
Caregivers know about the CBGP program in their community	27	96	7	15
Caregivers participate in the CBGP program in their community	30	92	21	23
Caregivers attend weighing session 3 or more times in the past 3 months	30	70	38	44
Caregivers have their children fully immunized by the age of 12 months	62	76	65	66
Caregivers have their children 4 months of age or older take iron supplements	2	47	4	4

Variable	AIN-C		Control	
	1998 (baseline, %)	2000 (%)	1998 (baseline, %)	2000 (%)
Exclusive breastfeeding of children under 6 months of age	21	39	15	13
Offering complementary foods at an appropriate time	70	76	70	63
Giving oral rehydration solution to children with diarrhea	32	50	30	32
Giving oral rehydration therapy to children with diarrhea	37	57	36	42
Giving children fluids and continued feeding during a bout of diarrhea	21	33	17	16

The impact evaluation of 2002 looked at most of the same indicators of program performance and impact as the midterm, but it also measured nutritional status. By 2002, 24 percent of the children in the control communities were participating in growth promotion, either in the community or at their local health facility. This confounded the evaluation design. Therefore, results of the 2002 evaluation were analyzed based on participation or nonparticipation in growth promotion programs (community-based or facility-based), regardless of original community designation of control or program. Participants in community-based growth promotion (CBGP) and AIN-C continued to be disadvantaged on virtually every indicator of wealth and welfare (except for water source), but the behavior differences between AIN-C and control at midterm (2000) continued to be significant in 2002, when children who were not in growth promotion programs were compared with participants. Overall, the advantages of participation seen at midterm were maintained but did not increase. For example, the rate of exclusive breastfeeding of children under six months of age was significantly greater among participants in AIN-C than among nonparticipants (57 percent versus 42 percent), and overall child feeding was significantly better among AIN-C participants than nonparticipants: 72 percent of the former fed their children appropriately versus 60 percent of the latter. The important new information from the 2002 evaluation is in two areas—seeking care for ARI and nutritional status. The advent of the illness management module made a difference in care seeking for participants in growth promotion. Participant families sought care for an episode of ARI about one full day earlier than they did prior to the illness management activities. Furthermore, home-based treatment of diarrhea (giving increased fluids, including breast milk) was significantly higher among AIN-C participants compared to nonparticipants—51 percent versus 38 percent. In addition, appropriate home treatment of diarrhea (62 percent versus 38 percent gave oral rehydration solution or any fluids) and care seeking for diarrhea (45 percent versus 33 percent sought care) were significantly better among participants in AIN-C compared to non-

participants. In addition, significantly more AIN-C participants knew the danger signs of ARI compared to nonparticipants. Far more AIN-C participants had received iron and vitamin A supplements compared to nonparticipants. Participation in growth promotion appears to result in significantly better-nourished children when controlling for socioeconomic and caregiver variables. Full participation in AIN-C was associated with significantly greater weight-for-age ( $P < .01$ ) and height-for-age ( $P < .05$ ). This translates into a 0.395 z-score increment in weight-for-age in participants over nonparticipants. Children in facility-based growth promotion programs showed no difference from nonparticipants when controlling for caregiver and socioeconomic factors.

A detailed cost analysis was also carried out in 2002 (Fiedler 2003). The cost study was one of the most comprehensive empirical costing studies done to date on a community health program. It found that AIN-C cost US\$1.60 per participating child under age five in long-term annual incremental recurrent costs or US\$0.44 per capita of population covered. The community-based program costs one-ninth of what the facility-based growth-monitoring program costs and provided more than three times the coverage of children under age two. Compared to public health expenditures of US\$34 per capita in 2000, AIN-C's cost must be considered marginal. AIN-C's cost is low relative to similar programs in other countries and relative to food distribution programs (see Table 6.4).

### How AIN-C Works

AIN-C works by focusing on many of the same principles applied in health reform but at the household and community level. The program uses objective data on growth to determine need. It targets services by prioritizing children under age two, particularly those beginning to falter in growth, and focusing on adequate nutrition, care, and health-seeking practices instead of expensive treatment and supplementary feeding regimes. It brings equity by insisting on 100 percent coverage of under twos, and it decentralizes decisionmaking to the community and household, recognizing that the root of many problems is local.

The central focus of AIN-C is frequent contact with and precise advice to the parents of those most at risk—all children from birth to 24 months—because that is the age of extremely rapid growth and high susceptibility to environmental insults. AIN-C's premise is that most infants are born healthy but sustain most of their lifetime "injury" during the first 24 months of life. Therefore AIN-C's goal is to maintain newborn health (or recuper-

**Table 6.4. Comparative Costs of Nutrition Programs for Children under 5**

Program	Annual unit cost per participant <sup>a</sup>
AIN-C CBGP <sup>b</sup>	US\$1.60 (incremental cost) or US\$6.80 total cost (2003)
TINP (India) CBGP plus selective feeding <sup>c</sup>	US\$9.00 (1985)
Iringa (Tanzania) CBGP <sup>c</sup>	US\$10.00 (1991)
BINP (Bangladesh) CBGP plus feeding <sup>d</sup>	US\$18.00 (2001)
Indonesia CBGP <sup>e</sup>	US\$2.00 (1985)
Food supplementation <sup>f</sup>	US\$46.00 (1985)
School feeding <sup>e</sup>	US\$12.00 (1985)

a. Dollar figures are the equivalent of the cost in local currency in the year noted in parentheses.

b. Fiedler (2003).

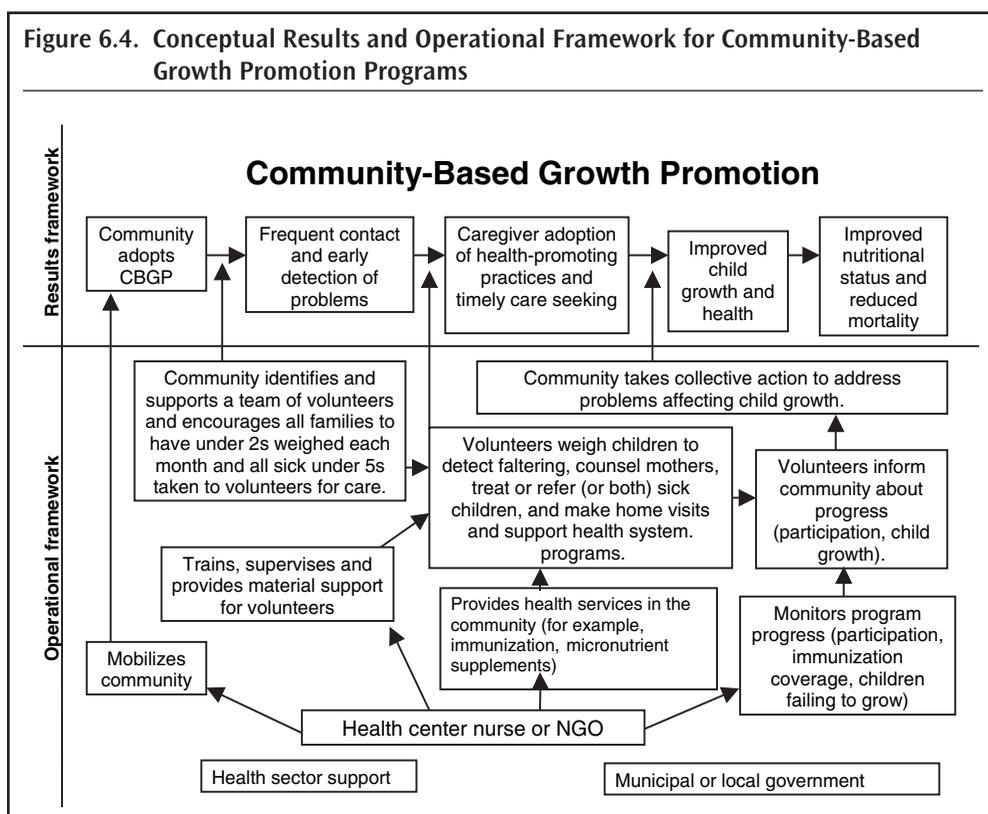
c. Gillespie, Mason, and Martorell (1996, table 5.2).

d. Mason et al. (2001, table 4.3).

e. Ho (1985).

f. Kennedy and Alderman (1985).

Source: BINP Bangladesh Integrated Nutrition Program; TINP Tamil Nadu Integrated Nutrition Program.



Source: Manoff Group (2004).

ate low birthweight) by ensuring adequate monthly growth (weight gain) until the age of 24 months and after that to see those children (until they are five years old) only when they are sick, to be sure that they receive timely and appropriate attention.

All children under two in the community are eligible, and their parents are encouraged to participate in the monthly growth promotion session, which includes weighing and counseling on their growth performance.<sup>2</sup> Adequacy of growth is determined by comparing actual weight with the expected weight based on the previous month's weight, using regional norms for weight gain.<sup>3</sup> The adequacy of the child's growth is a trigger for a dialogue with the caregiver. From the dialogue, the *monitora* gains insights into the child's health, nutrition, and care during the past month that might affect his or her growth. The *monitora* then tailors her advice to the mother of the specific child with the aid of a set of counseling cards, differentiated by child's age, adequacy or inadequacy of weight gain, illness status, and breastfeeding status. Each card has pictorial cues for the mother. Using dialogue and the pictures, the *monitora* determines precisely what the mother is doing (or not doing) now and negotiates with the mother to determine what one practice she might be willing to alter in the

2. See Annex 6.1 for a schematic of monthly weighing.

3. The minimum expected weight gain table was made using two studies by Martell and others (1981) at Uruguay's Latin American Perinatology Center (Centro Latino-Americano de Perinatología [CLAP]), which looked at the growth of 112 children of 0–23 months of age.

next month to improve the situation. There may be several areas for improvement suggested by the counseling card, but the *monitora* selects only the one (or two) that the mother is willing to follow in the ensuing month. The improved practice could be as simple as nursing from both breasts at each feeding or giving half of a tortilla to the child at two meals during each day. The next month, the mother gets feedback (in the form of the child's weight gain) that shows whether the behavior change made a difference. If the mother was not able to comply with the agreed changes, then the *monitora* tries to find out why and what can be done to further assist the mother. When a child is seriously ill or has persistent or acute growth failure, the *monitora* refers the caregiver to the health clinic (on occasion accompanying the mother) and, when the nurse has seen the child, a counter-referral slip is sent back to the *monitora* to tell her what follow-up is needed at the community level.

The nurse auxiliary from the health post nearby often attends the monthly growth promotion session, where she updates immunizations; distributes micronutrient supplements; provides medicines to children with pneumonia, fever, or worms; arranges for clinic appointments; and discusses family planning with new mothers.

Other important AIN-C activities flow from the monthly growth session. The first of these is the home visit, prioritized for those children with problems or who do not attend the weighing session. The home visit is a time for more dialogue to reinforce messages and more direct observation. Home visits are usually done for between one-third and one-half of children under two each month. These visits provide more frequent contact with the family, reinforce messages, prevent difficult situations from getting worse, and help build confidence in the mother and the family that they can properly care for their child.

The second critical follow-up activity is reporting of the child growth information to the community (see Box 6.2). Community meetings are held every quarter to permit the

#### **Box 6.2. A *Monitora* Seeks Support from a Men's Group**

It was the end of the month, and Gladys was completing her report for Laura, the health center nurse, about the status of her community's young children in the AIN-C program. It was easy to see on the bar graph that almost all the children had been weighed that month, but she had to seek out more children at home for weighing than usual. She was annoyed by this, but what alarmed her was that more children were failing to gain weight adequately this month. The previous month had also had a number of children with poor growth, and this month she had 6 children out of 18 children under two years of age who had failed to gain adequate weight for two consecutive months. Gladys knew each case and felt there was more each family could do if motivated. She colored in the bar chart with the nurse, and they discussed it with the mothers of the young children during the nurse's visit. Gladys felt that the point of the importance of each child being seen and the alarm that should be felt when a child fails to grow for two months had not been understood by the community. About a week after the meeting with the mothers, a group of men was repairing a small footbridge over a storm drainage ditch not far from her house. As Gladys watched them work, she realized that many of the men were the fathers of AIN-C children. During a rest period, she showed her graph of the children's growth to the men and explained it to them. The men took a lot of interest in what she said—they wanted to know about their children and what they could do. Many topics were covered, including the use of family money to purchase liquor and venting cooking fire smoke from the house. The men obviously discussed what they learned with their wives, because Gladys was able to report nearly perfect participation and improvement in the number of children gaining adequate weight the next month. The mothers also told her that they appreciated her calling the men's attention to childcare.

*Source:* Laura Molina, Region II AIN-C supervisor, personal communication, 2003.

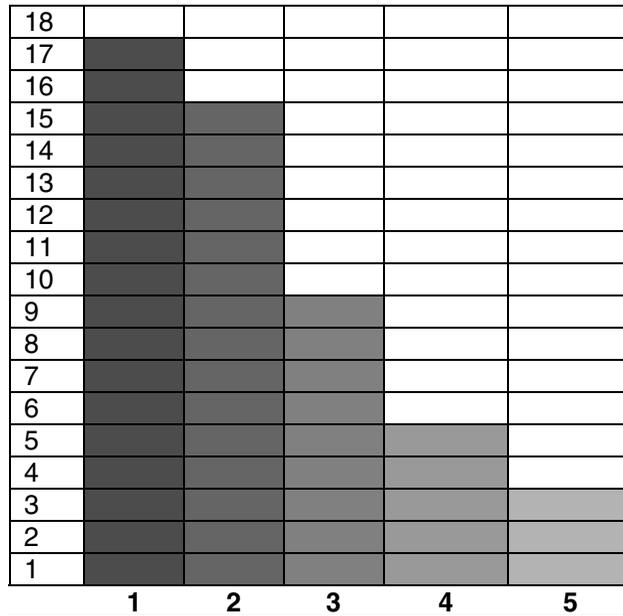
community at-large to make decisions and work collectively for the betterment of the community's children. Collective community action is key because many problems causing poor child growth go beyond the power or authority of a family to correct. Contaminated water sources, garbage disposal, childcare, and poor health center outreach are all situations that families working together can help resolve.

Another important action taken by the AIN-C program is the detection, assessment, and treatment of common childhood illnesses, especially diarrhea and pneumonia, in children under five. These cases come to the *monitora*'s attention either during counseling or by spontaneous demand. The *monitora* either treats the disease or, for severe cases, she refers the mother immediately to the health center. Once the *monitoras* have mastered the core AIN-C program for under twos, focused primarily on home-based preventive actions, they are trained in the illness and newborn modules, which focus more on identifying danger signs, expedited referral, and some community-initiated treatment. Then, to diagnose pneumonia, the *monitoras* are given timers (to help them make the diagnosis by counting the number of breaths per minute) and an antibiotic to treat it.

Just as the monthly session is the core activity, the determination of adequate weight gain is the pivotal indicator around which the information system is structured. The *monitora* maintains a register of all under twos that is constantly updated with births or new arrivals in the community. Each month, each child's weight is recorded with a note on whether or not it was an adequate increase from the previous month. The adequacy of the weight gain is also recorded on the child's health record for the mother. At the end of the month, the *monitoras* compile the individual growth information from all of the children and display it in bar graphs that use five simple indicators: number of children under two in the community, number weighed that month, number gaining adequate weight, number with inadequate weight gain, and number gaining inadequate weight for two or more months (see Figure 6.5). These five indicators are used for targeting home visits (persistent growth failure and illness get the most attention), to target and focus supervision, for community mobilization, and for health system reporting. These same five indicators are being imported into the management information system and used from the top to the bottom of the health system. AIN-C's system is visual and requires no advanced math skills (such as long division or ability to calculate percentages). The bars make the achievement of the goal clear: *monitoras* want the first three bars to be of equal height, or if not, the fourth bar should be as low as possible, and the fifth bar should be at zero or the column should be empty.

Communication related to improved health and nutrition practices at the community and household levels goes hand in hand with the determination of adequate growth. After all, measuring growth will not have a positive impact on health outcomes if nothing is done when growth faltering is detected. Again, AIN-C has tried to make a relatively complex task (providing tailored advice) as straightforward as possible. The counseling card set described previously in this chapter is the source of the program's health and nutrition technical content. These cards for counseling enable the *monitora* to tailor general advice to specific situations. In addition, using the audience research done for the development of the cards, other communication materials have been produced for other purposes and for the media. Small flipcharts are available for use by nurses in the health centers, a radio program popularizing key behaviors is broadcast to AIN-C and non-AIN-C communities, and these same generic concepts are disseminated in churches, women's groups, and literacy classes under the national program, Programa de Comunicación en Salud Infantil (COMSAIN).

**Figure 6.5. Monthly Program Indicators**



Indicators:

1. Number of children younger than 2 years listed in the register
2. Number of children younger than 2 years who attended the weighing session this month
3. Number of children younger than 2 years with adequate growth this month
4. Number of children younger than 2 years with inadequate growth this month
5. Number of children younger than 2 years with inadequate growth this month and last month

AIN-C devoted considerable care and time to developing its training model and materials using state-of-the-art principles of adult education. Health area staff and nurses from the sector level are trained first to make sure that they understand the program and support it. The area nurse is a critical actor in AIN-C and is responsible for overall supervision of the program in her area. The five-day training program for health area personnel is simultaneously an education for the health area staff and a training of trainers. Even when those trainers go on to train health facility staff and community volunteers, they are initially accompanied by the master trainers to make sure that the training is done correctly. Community volunteers and the nurse auxiliaries who will supervise them are trained together, once again for five days, by the health area and sector staff. In addition, there are monthly meetings at the health center that provide in-service training to volunteers. When new modules are added to AIN-C (for example, the illness module), the same cascade-type training is done, but for two days at the health area level and three days at the health cen-

### Box 6.3. Municipalization and AIN-C

As Honduras's government systems decentralize, municipalities are taking on more responsibility and authority in health policy and health services provision. Municipalities must now make decisions about how to respond to community health needs. The information generated from the AIN-C program on child growth is extremely helpful. They can see from comparisons of the bar graphs across the months (see Figure 6.6) when situations such as a poor harvest, disruption of work, or pneumonia season cause children to fail to grow. The municipal response in terms of mobilizing health care or instituting new policies can be more timely.

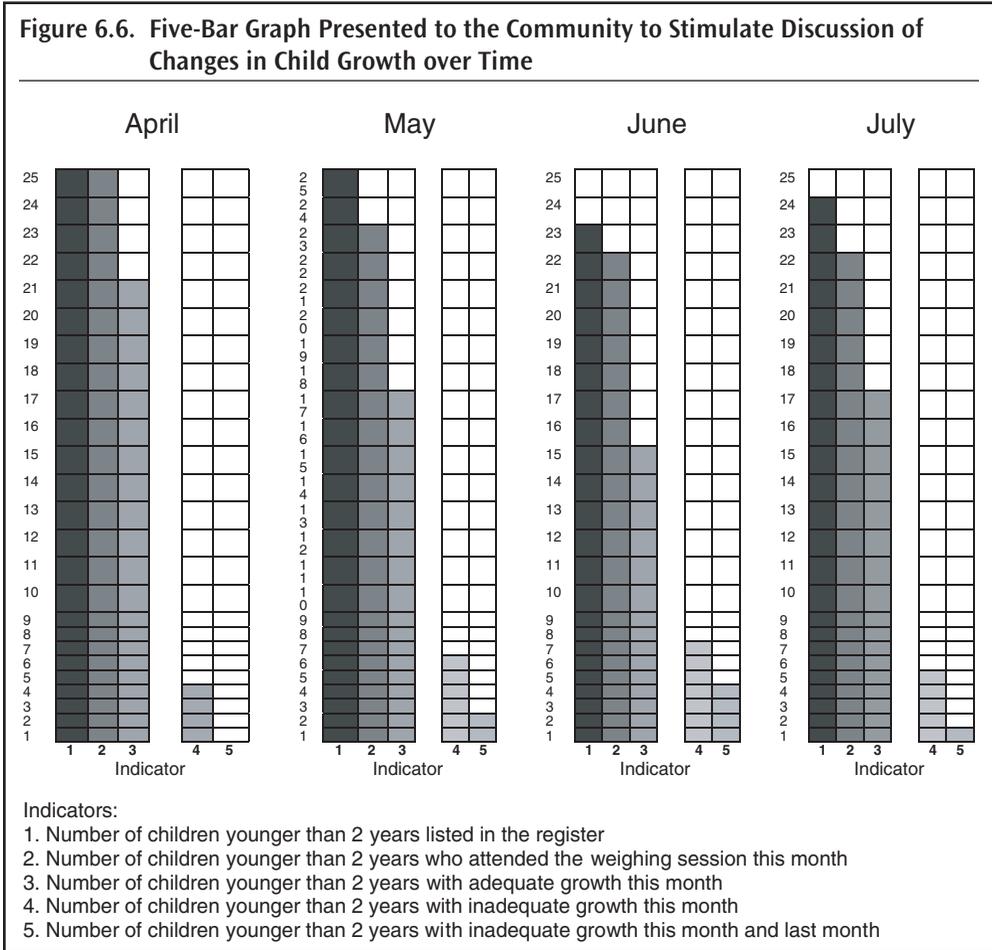
An example of this comes from a municipality in the western mountainous region of Honduras. Two young children died over a two-month period, each of pneumonia. When municipal health officials looked into the deaths of these children, they realized that although the children were from communities with the AIN-C program, the children had not been taken to the *monitora* for treatment of their illness. Instead, parents waited and then transported their children several hours to the health service, where it was too late to help the very young children.

With these two examples, municipal and health center authorities are meeting with AIN-C communities and *monitoras* to discuss the mothers' seeking care from the *monitora* at the first sign of a problem and the subsequent referral to the health center. To reinforce the first referral to the *monitora*, this municipality is testing a new policy: health center personnel will see sick children only if they have been seen first by their community's *monitora*. To avoid problems, a lot of community education about this new policy is taking place. A large sign is posted at the health center, and parents of sick children are gently reminded of this policy at the health center.

*Source:* Victoria de Alvarado, Basics II country representative, personal communication, 2003.

ter and community levels. Training constitutes 54 percent of the first year's costs (Fiedler 2003, table 10). This falls to 41 percent in the second year.

Supervision by the health system personnel is designed to be supportive, regular, and methodical. Although the weakest part of the program, supervision is stronger than usual in health systems but is an ever-increasing challenge as the program expands to cover all communities and adds new modules, such as the illness management module. The health system in Honduras is divided into health areas at the highest level, health sectors below them, and health centers (CESARs and CESAMOs) below health areas. In each health area, there are about 300 communities across five health sectors, each of which includes about six health centers covering an average of 10 communities each. (Each year, a health center's staff introduces AIN-C in two communities. On average, about six years are needed for complete coverage of all communities in a health center's catchment area.) Initially, when the program is introduced to a community or a health facility, the supervision is more intense than it is later, when volunteers and auxiliaries have mastered the basic program skills. The supervision load is 52.5 person-days per year at the health area level, 78.0 days per year at the health sector level, and 30.0 days per year at the health center level (Fiedler 2003). A full 39 percent of costs are for supervision in the first year for the first cohort of communities (usually two) in a health area and 33 percent for subsequent cohorts (Fiedler 2003, table 10). In subsequent years, supervision costs rise proportionally (because training costs diminish) and become virtually the entire program cost by the sixth year (Fiedler 2003, Table 12). This relatively high proportional cost for supervision is due to the very low cost of service delivery. The high cost makes it clear that Honduras understands that community-based programs need frequent and skilled supervision.



For the first six months of program implementation, either the health center nurse or the health sector nurse attends each community weighing session. All volunteers working in the catchment area for each center meet at the health center monthly, for the life of the program, to discuss problems and get new supplies. This is a form of supervision and training at the same time.

**What are Other Design Features?**

The design of the program does not tell the full story about AIN-C and why it is an unusual program. There are several particular characteristics of the program that differentiate it from programs that might appear to be similar, and this makes it an obvious choice for extending the principles of health reform to the community.

*Evidence-based decisionmaking.* Perhaps the most important attribute of AIN-C is that it provides a mechanism for identifying community needs directly linked to improving health status. The objective indicator, adequacy of child growth, offers the community a

structured means to analyze its problems (growth of young children is a good proxy for many social, economic, and biological problems in the community), measure progress, and present their situation, ideas, or improvement needs to outside entities (for example, municipalities, NGOs, donors).

Data on child growth status are sensitive over fairly short time periods to changes in the community and are sensitive to a wide range of stresses even beyond health problems. Thus the use of child growth as an organizing principle for the community opens the door to discussing and tackling a number of social problems, including lack of adequate child care, HIV/AIDS, poor water and sanitation, alcoholism, domestic abuse, illiteracy and educational failure, agricultural productivity, intrahousehold allocation of resources, gender relations, and more. AIN-C is structured in such a way as to uncover local needs and make them, and local ideas for their resolution, accessible to all.

*Equity.* AIN-C is targeted to all children under two in the community, and their identification and enrollment is an important indicator of program performance. Including all children sends a clear message of concern that everyone's children should be growing adequately, not just the poor children, the malnourished, or those at highest risk. There is no stigma attached to being a participant. At the same time, so far, AIN-C has been geographically targeted to the worst-off areas and the worst-off communities within those areas. The communities selected for first entry into the program are those with the poorest access to health care or in the worst socioeconomic status quintiles in the health center's catchment area. This targeting helps a health system bring greater equity to health services provision.

*Empowerment.* AIN-C starts with the assumption that the family has the responsibility and the right to keep its children healthy and well fed. The program provides guidance on small changes in behavior that require minor changes in allocation of resources within the household (perhaps 300 calories all together or a half-hour of time). AIN-C's designers felt that this was the best place to start: give the family the opportunity and confidence to nurture children within its own resource base. The research done on feeding of young children in Honduras indicated that only a small minority of families (8 percent) could not do more to improve their children's food intake (Maradiaga, Griffiths, and Nunez 1997). In cases where a household tries and still comes up short, the community is asked to take on some of the responsibility. Finally, if the community's resources are inadequate, external sources (such as food aid programs, cash transfer programs, and welfare programs) can be sought.

This attitude toward family self-sufficiency is different from the common practice that assumes from the beginning that the family cannot adequately provide for its children and immediately offers food, coupons, or cash to families with malnourished children. Sometimes these donations reward failure—the classic case is that of a food supplementation program that gives food only to children who are already malnourished. Some programs provide cash-equivalent coupons to clients with the condition that they use a defined package of health services. These transfers devalue both the contingent services and the family. If the reason for nonuse of services was poor quality (long waiting times, inconvenient hours, lack of medical staff or drugs) or inaccessible services, then the transfers may exacerbate the problem by creating overcrowded clinics and demand for unwanted or substandard services by an uninformed consumer. Where the transfer is a substitute for effective communications with families about behavior change, once the cash or in-kind

incentive is removed, the demand for services disappears. For the family, receiving cash or in-kind incentives becomes the goal rather than improving health and the family members do not become informed consumers.

*Ownership.* It is often said that sustained program success requires local ownership, and this has been shown in Honduras (Bossert and others 1988). AIN-C is a locally owned program because it was conceptualized and developed within the Secretariat of Health by Hondurans. From the beginning, the program had local champions who repeatedly articulated the program's key concepts and reason for being. Although external assistance has played a role, it was a group of Honduran health professionals who guided the program's course. An important step in solidifying the program as part of the Honduran health landscape was its adoption as national health policy in 2000.

Not only are the policy makers the "owners," but the design and running of the program has been done in such a way as to make every community the owner of its activities and of progress made in its children's growth. AIN-C guidance does not give precise specifications for how community workers are to perform their jobs. Instead, the program establishes goals or outcomes that must be reached. How a community or group of workers chooses to reach the goals is up to them. For example, all children under two years should be seen by a *monitora* each month. Whether the *monitoras* accomplish this by, for example, house-to-house visits, neighborhood meetings, or community-wide meetings is up to them. In AIN-C, communities decide if they want to have the program in their community, how many and who will be a *monitoras*, how they will reach every child under two every month, how they will create a community environment that favors adequate child growth, and how they will interact with the government's health infrastructure.

*Focus on tasks.* The job description of the *monitora* is the basis for determining all other program actions because these actions function to support the community effort. Each item in the job description and community plan relates to the core objective of the program: promoting healthy growth of children. The job description is captured in practical detail in the *monitora's* manual.

In a similar fashion, the trainers' and supervisors' jobs are built upon the foundation of the *monitoras'* work. Their manuals and tools build on the *monitoras'* manuals and tools. The *monitoras* are trained and supervised by the local nurse from the health center using the *monitoras'* manual as the guide. The area nurse trains and supervises the center nurses, and her work is, once again, a further refinement of the work of those she supervises. Hence there is a seamless connection between community-based work and the formal health system.

*Teamwork with specialization.* A key practice implemented by AIN-C is the use of a team of volunteers at the community level rather than relying on just one person. Having a team means that each member contributes different strengths. One may be good at weighing and charting while another is good at counseling. In addition, a team minimizes the effect of turnover and enables all members to help each other learn and remember lessons from the training. Working as a team means that the work is not too burdensome for any individual. Thus Honduras is able to rely on volunteers who spend about four hours per week on AIN-C tasks, in addition to periodic tasks for the Secretariat of Health (mobilizing the community for immunization days and various campaigns).

#### Box 6.4. Periurban Communities Request Assistance on Saturdays

The first indicator of AIN-C implementation is coverage. The expectation is that at least 90 percent of the children under two will be seen each month by the *monitora* and that no child will miss more than two sessions a year. When AIN-C monitoring data were shared with periurban communities, the low participation figures were an immediate cause of concern. Salaried working mothers found it difficult to bring their children to sessions during the week. They said they could attend sessions only on Saturday after working hours. The *monitoras* indicated that they could change the sessions to Saturday, but health center staff had been reluctant to work on Saturdays. However, when community leaders met with the health center, an arrangement was worked out for the auxiliary nurse to be available on Saturdays to attend AIN-C growth promotion sessions. Participation is now about 80 percent each month in periurban communities.

*Source:* Tesla Gutierrez, AIN-C Region III supervisor, personal communication, 2000.

Teamwork extends to the Secretariat of Health's view of how AIN-C is implemented. From the beginning, the secretariat has welcomed and encouraged NGO collaboration in the implementation of AIN-C. In fact, in 2000, when AIN-C was decreed the national child health program, the secretariat notified NGOs working in the field of child health that the basic package they must implement is AIN-C—they can add to AIN-C but not ignore it. This insistence and support from the secretariat has meant that to date at least 800 more communities have AIN because of NGO collaboration.

The only drawback to NGOs' expanding program coverage is that when an NGO pulls out of an area, the secretariat must provide supervision to many more communities than they have programmed resources for. One NGO, realizing this dilemma, limited the number of communities they covered and put their additional resources into supportive supervision, additional training, and monitoring for all AIN-C communities in the area. The idea was that when they left the area, they would leave behind a strengthened permanent system that could be maintained by secretariat resources. The NGO's activities included two regional trainer supervisors, the purchase of a computer and help from a data analyst to make a computer program to compile the five AIN-C indicators for the entire region.

*Systematic support for volunteers.* There are debates among professionals in the development field about reliance on volunteer workers. On the positive side, obviously volunteer workers cost less than paid workers, and they often have greater motivation (beyond just a paycheck) to do well. On the negative side, volunteers are said to have limited tenures, volunteerism is thought to be exploitative, and often volunteers tend to be from the higher-status or higher-income groups in a community. Neither of these sides is always right.

Honduras has a history of community spirit and volunteerism, but this alone is not enough to sustain a program over decades. AIN-C has designed its program with the volunteer in mind. In particular, the job of the *monitora* is manageable for a volunteer. AIN-C *monitoras* work, on average, 14.9 hours per month, of which 4.5 hours are at the monthly growth promotion session, which is a reasonable workload for a volunteer (Fiedler 2003). AIN-C also provides systematic incentives to its volunteers, and these incentives have both intrinsic value and market value. What Honduras has learned is that the incentives need to be regularly provided and planned for—just like all other operational aspects of the program. Examples of the incentives are a letter from the Secretary of Health thanking the fam-

ily of the *monitora* for their generosity, an identification card with a photo of the *monitora*, and regular parties in honor of Mother's Day or Children's Day holidays. Training and monthly meetings at the health center are also used as incentives for volunteers.

Volunteers in Honduras have done community health work for decades. Many of the *monitoras* are the people who volunteered years ago for sanitation or diarrhea control work, or they are traditional midwives. The number of *monitoras* has remained the same over time, but the individuals doing the job have changed. Because there is a team of *monitoras*, new people learn the job from their predecessors, and the health center nurse refreshes forgotten concepts (Griffiths 2004). The fact that over a five-year period, six to eight people might have worked in their community's AIN-C program, instead of just three, strengthens community commitment, knowledge, and ownership of the process and program.

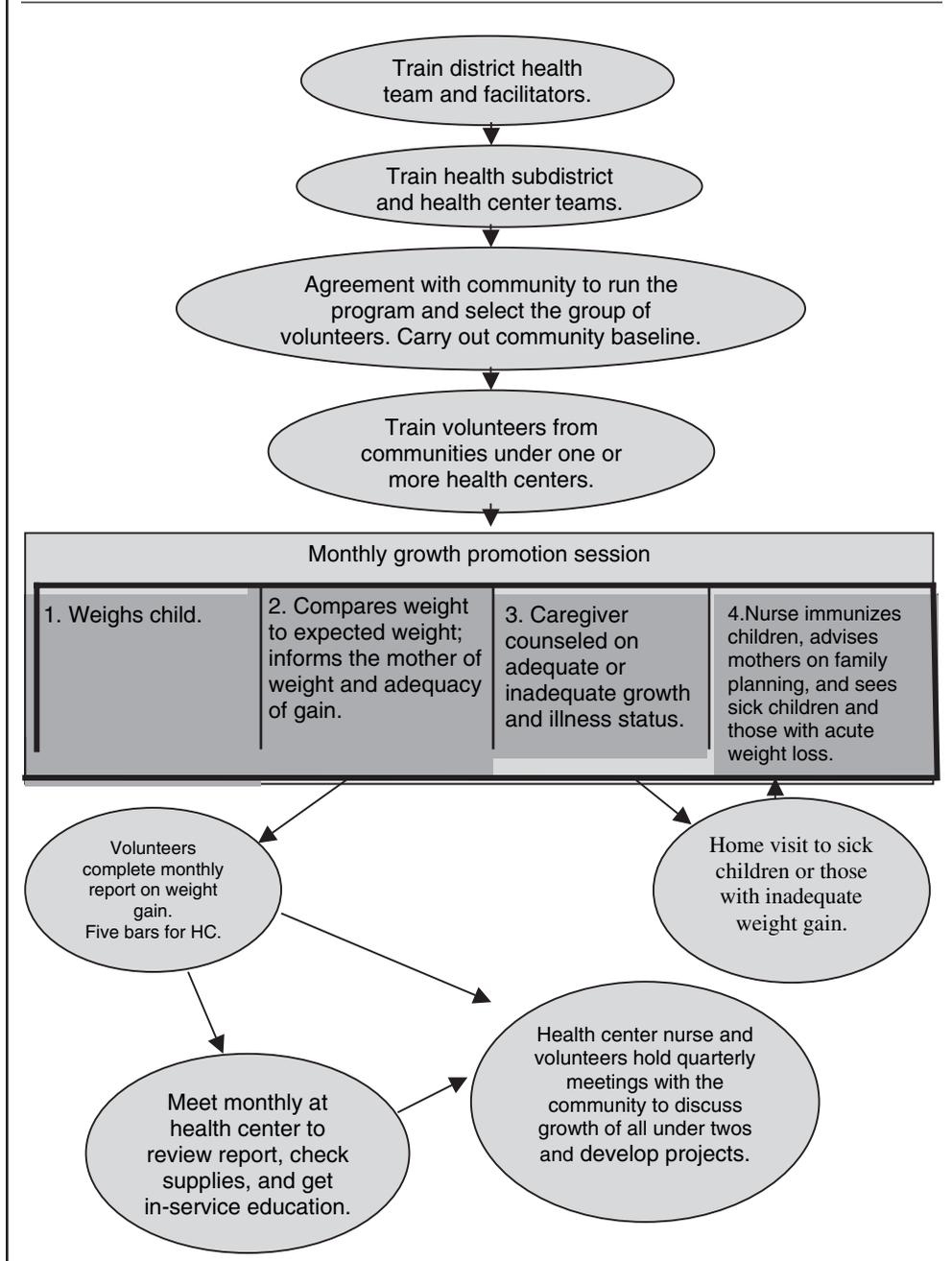
*Monitoring and program development.* As noted above, the information system is simple, practical, and useful for a number of different purposes: community mobilization, targeting supervision, health system reporting, and decisionmaking by the *monitoras*. If participation rates are low, then the community leaders may need to mobilize support among families in the community. If participation is high but too many children have chronic growth faltering, then the supervisor may need to make some visits to homes and observe the *monitoras*' counseling. If there is a widespread problem, then the community may need to take action to secure external support. In addition to the five basic indicators, AIN-C also monitors immunization rates, disease and referral rates, and distribution of micronutrient supplements. These help the auxiliary nurse to better target her own work. The community baseline and regular updates and the quarterly meetings help the community monitor its own progress in improving the well-being of its most vulnerable members and, by extension, its own development.

## Conclusions

Health reform must extend to all communities and engage their participation to truly achieve national health goals and the MDGs. Few models exist for garnering the active participation of the community in improving the impact, efficiency, and quality of health care services.

The AIN-C program offers one such model. It has benefited from careful refinement over a decade and the incorporation of best practices from reviews of other community-based programs. Growth promotion entails tailored attention to each child and frequent interaction between the community agent and the family. The World Bank (2003) says such interactions are particularly hard to monitor, yet AIN-C's five-indicator information system does just that. Built on the concept that a healthy child is a growing child, AIN-C uses the adequacy of monthly growth of children under two as the indicator of child, family, and community health. In addition, the evidence about growth is used as a tool to catalyze community analysis and commitment to solutions to the problems affecting all young children in the community. The program promotes equity by including all children under two and by targeting preferentially to the lowest socioeconomic groups in communities. It is intimately tied in to facility-based services through the critical role of health personnel in training and supervision and through referral and counter referral. Its cost is quite low, and its impact is broad and deep.

**Annex 6.1. Activity Flow for the Introduction and Operation of AIN-C in a District**



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