Promoting Healthy Child Growth and Development:  
Advances and Opportunities for Community-based Nutrition Programs in Central America  

May 2012  
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This report summarizes the second regional nutrition workshop, “Promoting Healthy Growth to Prevent Chronic Malnutrition: Advances and Opportunities for Community-based Strategies in Central America,” held in Panama City from October 26-28, 2011.

It was written by Lucy Bassett (Social Protection Specialist, World Bank) and Julie Ruel-Bergeron (Consultant, World Bank). We thank Ana Perez Exposito (Senior Technical Officer, Inter-American Development Bank/Salud Mesoamerica 2015 Initiative), Alessandra Marini (Senior Economist, World Bank), Christine Lao Pena (Senior Human Development Economist, World Bank), Marie Ruel (Division Director, Poverty, Health, and Nutrition, IFPRI), Marcia Griffiths (President, Manoff Group), Laura Irizarry (Nutrition consultant, UNICEF), Virginia Moscoso (Coordinator, Maternal and Infant Health and Nutrition Project, Ministry of Health, Guatemala) and Lynnette Neufeld (Chief Technical Adviser, Micronutrient Initiative) for their helpful comments and Nadira Saleh (Tufts University) for her inputs.

This report would not be possible without the enthusiastic participation of all the country program staff and expert speakers who attended the workshop. We thank everyone for their contributions, questions, and collaboration (see Annex 2 for a list of participants), and especially Isabel Nieves (Social Protection Specialist, Inter-American Development Bank), Gisela Rodriguez (Consultant, Inter-American Development Bank), and Gustau Alegret (Outreach and Communications Officer, Inter-American Development Bank/Salud Mesoamerica 2015 Initiative) for their support planning the workshop. We would also like to acknowledge the participation of representatives of UN and other donor agencies and NGOs including Calidad en Salud, Centers for Disease Control (CDC), International Food Policy Research Institute (IFPRI), Instituto de Nutricion de Centro América y Panamá (INCAP), Japan International Cooperation Agency (JICA), Manoff Group, Micronutrient Initiative (MI), Pan-American Health Organization (PAHO), UNICEF, and WFP. We extend particular appreciation to the Ministry of Health in Panama, which cordially hosted visitors and organized a field visit for participants.

We would also like to thank the South-South Experience Exchange Trust Fund and the Japan Trust Fund for Scaling Up Nutrition for funding this workshop and report.
<table>
<thead>
<tr>
<th>Acronyms and Abbreviations</th>
</tr>
</thead>
</table>
| AIN-C | Atención Integral a la Niñez - Comunitaria (Honduras, Panama)  
Atención Integral en Nutrición en la Comunidad (El Salvador) |
| AINM-C | Atención Integral a la Niñez y la Mujer en la Comunidad (Guatemala) |
| BASICS | Basic Support for Institutionalizing Child Survival |
| CBGP | Community-based growth promotion |
| CDC | Centers for Disease Control and Prevention |
| ECD | Early Childhood Development |
| GDP | Gross Domestic Product |
| GAIN | Global Alliance for Improved Nutrition |
| GPRS | General Packet Radio Service |
| GPS | Global Positioning System |
| HF-TAG | Home Fortification Technical Advisory Group |
| IDB | Inter-American Development Bank |
| IFPRI | International Food Policy Research Institute |
| INCAP | Instituto de Nutrición de Centroamérica y Panamá |
| JICA | Japan International Cooperation Agency |
| LAC | Latin America and Caribbean |
| M&E | Monitoring and evaluation |
| MI | Micronutrient Initiative |
| MNP | Micronutrient powder |
| MSPAS | Ministry of Health and Social Assistance (Guatemala) |
| NGO | Non-governmental organization |
| PAHO | Pan-American Health Organization |
| PROCOSI | Coordinated Program in Integrated Health (Bolivia) |
| PROCOSAN | Programa Comunitario de Salud y Nutrición (Nicaragua) |
| SEECALINE | Surveillance et Education des Écoles et des Communautés en matière d’Alimentation et de Nutrition Élargie (Madagascar) |
| SGHI | Sprinkles Global Health Initiative |
| SIME | Sistema Información Monitoreo y Evaluación (Monitoring and Evaluation System) (Honduras) |
| SINOS | Sistema Nominal de Salud (Mexico) |
| SM2015 | Salud Mesoamerica 2015 Initiative |
| SUN | Scaling Up Nutrition Movement |
| UNICEF | United Nations Children’s Fund |
| USAID | United States Agency for International Development |
| WB | World Bank |
| WFP | World Food Program |
| WHO | World Health Organization |
Executive Summary

Introduction

Chronic malnutrition, or stunting (defined as being too short for a given age), is a serious problem in Central America, causing long-term damage to individuals, and economies as a whole. Stunting rates in El Salvador, Guatemala, Honduras, Nicaragua, and Panama are greater than 20 percent and Guatemala’s stunting rate (49.8 percent) is one of the highest in the world. The cost of malnutrition in these countries in Central America is estimated to range from 2.3 to 11.4 percent of GDP.¹

There is abundant international evidence that reducing malnutrition confers significant social and economic benefits in terms of better health outcomes, improved cognitive development, and higher earnings in adulthood. And a growing number of studies show that community-based nutrition programs can make important contributions to reducing malnutrition.²

This report summarizes findings from a regional workshop entitled, “Promoting Healthy Growth to Prevent Chronic Malnutrition: Advances and Opportunities for Community-based Strategies in Central America,” held in Panama City from October 26-28, 2011. This workshop built on the successful experience of the first international workshop, “Fighting Chronic Malnutrition in Central America,” sponsored by the World Bank and held in Honduras in 2006.³ Both workshops focused on the prevention of chronic malnutrition, the most common nutritional problem in Central America.

Community-based growth promotion programs in Central America

Community-based growth promotion (CBGP) programs support children’s growth through regular growth measurement and individualized counseling to parents about caring practices, feeding, disease treatment, and appropriate use of health services. A common program feature is the use of a team of community volunteers (often called monitoras) for counseling, monitoring children’s growth, and helping families and communities overcome obstacles to healthy growth. The primary objective of the CBGP approach is to have family, community, and healthcare providers share healthy growth as a common goal.

¹ Martinez and Fernandez, 2008.
² For example: Alderman, 2007; Galasso and Umapathi, 2007; and Schaetzel et al., 2007.
Key topics in community-based nutrition programs discussed in the workshop

The workshop focused on four key topics fundamental to the success of CBGP programs in the region. Below are the main messages for each of the topics:

1. Monitoring growth
   - Some of the most important purposes of growth measurement are motivating regular contact with mothers, informing them of their child’s growth, and acting as an entry point for counseling and negotiation on behavior change to promote growth and contribute to the prevention of chronic malnutrition. Therefore, growth measurement tools should be designed and used with these purposes in mind.
   - Programs are encouraged to re-assess the amount of time devoted to interpreting the measurement of a child’s growth and focus more on delivering quality services and effective counseling and negotiation for behavioral change.
   - Community-level tools to measure height may have a role in communicating with caregivers and motivating behavioral change.

2. Behavior change communication
   - Understanding the constraints to changing a specific behavior can help program staff tailor messages and discussions to identify relevant solutions with caregivers.
   - Additional stakeholders, such as community leaders, fathers, mothers-in-law, and midwives should be included in behavior change communication to reinforce the adoption of appropriate practices.
   - Cultural adaptation of behavior change messages and delivery mechanisms, based on solid formative research, is critical to achieving program outcomes in indigenous and afro-Caribbean populations.
   - Regular monitoring and evaluations of the effectiveness of messages and communication channels are necessary to identify gaps in behavior change communication strategies and opportunities for improvement.
   - The presence of a broader strategic communication campaign for nutrition is important to complement community-based nutrition programs.

3. Monitoring and evaluation
   - Monitoring and evaluation are important complementary activities for decision-making. Multiple tools for each can be used in a single program to assess diverse questions related to program design, implementation, efficiency, impact and sustainability.
   - Some community-based growth promotion programs are improving monitoring systems and implementing innovative approaches to regularly assess the quality of services at the community level.
   - There continues to be an overwhelming lack of evidence on the impact of community-based nutrition programs. Countries are urged to work towards creating an evidence base to better guide policies and actions.
   - Cell phones have the potential to be a cost-effective, user-friendly, and time-sensitive monitoring tool; however, to date there are few large-scale examples of using this kind of technology so more experimentation and learning is needed.
<table>
<thead>
<tr>
<th>Challenges</th>
<th>Potential solutions</th>
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| Institutional arrangements (who is responsible for planning, implementing, and supervising community-based nutrition programs) | • Conduct institutional assessments, looking at capacity, financial resources, etc., to determine options for institutional arrangements.  
• Plan the transition from one set of institutional arrangements to another using a phased approach.  
• Monitor and evaluate institutional arrangements by phase to provide lessons for scaling up.  
• Enforce the use of common protocols, monitoring instruments, and accountability mechanisms across implementers to guarantee the quality of service under each delivery modality. |
| Ensuring adequate coordination across local program actors and different levels of health care to ensure appropriate services and follow-up | • Coordinate messages about child feeding and caring practices at the community and institutional level so that caregivers receive consistent messages.  
• Organize and institutionalize systems of referrals and counter-referrals so that there is a clear path of action and responsibility in cases of need.  
• Ideally, integrate monitoring information into a single system, which can be used for decision-making at different levels of government. |
| Scaling up community programs while maintaining quality                   | • Before program scale-up, raise awareness about the issue of nutrition to create demand for the program in new areas.  
• ‘Speak the language’ of the Ministry of Finance (e.g. by presenting cost estimates, cost-effectiveness data, etc.) to improve advocacy for government funds to be allocated to community-based nutrition programs. |
| Addressing the frequent turnover of community volunteers                  | • Give the best ranked *monitoras* (according to objective, agreed upon criteria) the opportunity to receive additional training and seek an entry-level position in the health sector.  
• Use cell phones, radio, etc. to send motivational messages to community volunteers, or encourage others to become volunteers.  
• Use a bonus or incentive system for community-level work and achievements. |
| Improving program monitoring                                              | • Define a limited number of monitoring indicators related to the key processes and outcomes of interest that can be collected frequently and reliably.  
• Improve training on data analysis and the interpretation of information for operational staff.  
• Improve the availability of evidence for community-based nutrition programs including evaluations of processes, impacts, and costs. |
| Determining appropriate complementary interventions                        | • Pilot test and evaluate complementary interventions at small scale, including an assessment of *monitoras’* workloads and the quality of services delivered. |
| Improving collective action                                                | • Conduct systematic documentation and analysis of collective action in the program, including documentation of activities, participants, topics addressed, and outcomes.  
• Analyze experiences using qualitative methods to determine perspectives of different stakeholders. |

4. Additional services to enhance child development outcomes
   • CBGP programs can play an important role in supporting additional services to enhance child development.
   • Micronutrient powders (MNPs) have been shown to be an effective strategy to reduce and treat anemia given their low cost, efficacy, effectiveness, safety, and acceptability by target populations. Monitores\(^5\) can encourage mothers’ compliance with MNP consumption guidelines and promote the use of MNPs combined with proper complementary feeding practices for children 6-23 months.
   • The integration of early child development (ECD) messages and interventions into CBGP programs has been shown to be feasible, and has had promising results in several countries in the region at a small scale. There is a need for more evidence of impact of ECD activities when linked to community-based nutrition programs to determine value added and document synergies.
   • The tradeoffs of assigning additional responsibilities to monitores need to be analyzed before implementing changes.

The Way Forward

CBGP programs in Central America have a solid history and have been evolving with ever more innovation and integration with existing country systems. However, at the same time, these programs face ongoing challenges at the institutional and programmatic levels. Table 1 outlines some of the main challenges and potential solutions.

CBGP programs have rich opportunities to expand and improve over the coming years. The workshop demonstrated significant advances in monitoring and information systems, culturally appropriate communication for behavioral change, and complementary activities to boost impacts for young children. Countries could consider exploring the following opportunities in the future:

   • Applying a positive deviance framework to behavior change communication and counseling to identify those children who, despite low income, poor water and poor sanitation, are growing well in local communities and determine what exactly their families are doing differently.
   • Placing a greater emphasis on pregnant and lactating women.
   • Ensuring multisectoral services in areas served by community-based nutrition programs (e.g. hygiene and sanitation, good quality education, healthcare services, early childhood education activities, and conditional cash transfers, etc.) to address multidimensional causes of malnutrition.
   • Systematically documenting and learning from both successes and failures.

\(^5\) For ease of reference, we use monitorea here as a general term for community workers, although different terms are used in different countries (e.g. brigadista, educadora, etc.).
1. Introduction

Malnutrition is a serious problem in Central America. Chronic malnutrition (or stunting), defined as being too short for a given age (see Figure 1), is an entrenched problem in the region, causing long-term deleterious consequences for individuals, and economies as a whole. Stunting rates in El Salvador, Guatemala, Honduras, Nicaragua, and Panama are greater than 20 percent and Guatemala’s stunting rate (49.8 percent) is one of the highest in the world. The cost of malnutrition in these countries in Central America is estimated to range from 2.3 to 11.4 percent of GDP.6

There is abundant international evidence that reducing malnutrition confers significant social and economic benefits in terms of better health outcomes, improved cognitive development, and higher earnings in adulthood. And a growing number of studies show that community-based nutrition programs can make important contributions to reducing malnutrition.7

This report summarizes findings from the second regional workshop “Promoting Healthy Growth to Prevent Chronic Malnutrition: Advances and Opportunities for Community-based Strategies in Central America,” held in Panama City from October 26-28, 2011. This workshop built on the successful experience of the first international workshop, “Fighting Chronic Malnutrition in Central America,” sponsored by the World Bank and held in Honduras in 2006.8

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7 For example: Alderman, 2007; Galasso and Umapathi, 2007; and Schaetzel et al., 2007.
Both workshops focused on the prevention of chronic malnutrition (see Box 1 and Figure 1) because this is the most common nutritional problem in Central America. There is proportionately more stunting (more than 20 percent in almost all countries) than wasting (less than 2 percent in each country) (see Figure 2).

The objectives of the 2011 workshop were to share country experiences related to key program features as well to provide cutting-edge technical guidance and pertinent ideas for innovations to improve the operational efficiency and effectiveness of countries’ community-based nutrition programs to produce better child nutrition outcomes. The workshop built on and continues the efforts of the international Scaling Up Nutrition (SUN) Movement, a results-oriented effort to raise awareness about child undernutrition and bring about improvements in nutrition programs and outcomes.

The 2011 workshop was organized by the World Bank, the Inter-American Development Bank, and the Salud Mesoamerica 2015 Initiative (SM2015). Funding was also provided by the Japanese Scaling Up Nutrition Trust Fund and the South-South Experience Exchange Trust Fund. More than 80 high-level professionals participated in the workshop, including country staff from 11 countries in the LAC region and representatives from both regional and international organizations.

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**Box 1: Chronic malnutrition (stunting)**
- Long-term measure of undernutrition and poor health.
- Reflects a failure to reach linear growth potential.
- Measured as height-for-age <-2 z-scores below the international reference.
- Leads to higher risk of morbidity and mortality and lower earnings.
- Often a nearly invisible problem.

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10 Participating countries included: Belize, Bolivia, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama and Peru.

11 Participating agencies included: Calidad en Salud, Centers for Disease Control (CDC), International Food Policy Research Institute (IFPRI), Instituto de Nutrición de Centro América y Panamá (INCAP), Japan International Cooperation Agency (JICA), Manoff Group, Micronutrient Initiative (MI), Pan-American Health Organization (PAHO), The United Nations Children’s Fund (UNICEF), and the World Food Programme (WFP).
2. History and principles of community-based nutrition programs in Central America

To address the persistent problem of chronic malnutrition, many Central American countries have put in place programs to improve child nutrition. A key feature of these initiatives has been the community-based approach, which has allowed an integrated response to some of the multisectoral causes of malnutrition (see Figure 3) and expansion of coverage to the most vulnerable and remote areas of Central American countries.

![Figure 3: Conceptual Framework of Malnutrition](image)

Community-based growth promotion (CBGP) programs support children’s growth through regular growth monitoring and individualized counseling to parents about caring practices, feeding, disease treatment, and appropriate use of health services. A common program feature is the use of a team of community volunteers for counseling, monitoring children’s growth, and helping families and communities overcome obstacles to healthy growth. The primary objective of the CBGP approach is to have family, community, and healthcare providers share healthy growth as a common goal early enough in a child’s life to prevent irreversible consequences.

The preventive CBGP approach represents an important shift from traditional approaches to combat malnutrition, which focused on the detection and treatment of already malnourished children, particularly those with severe acute malnutrition. The treatment-based strategy missed the opportunity to implement cost-effective, preventive actions to preclude a child from falling into a malnourished state and to help parents make better decisions about caring and feeding practices for their children, regardless of nutritional status.
The first CBGP program in Central America, called *Atención Integral a la Niñez Comunitaria* (AIN-C) began in Honduras in 1990, where it was based in the community’s health structures/centers. For its implementation, the government reformed the health center’s regulations, shifting from a curative to a preventive approach to improve nutrition. The new approach moved away from focusing on the classification of nutritional status and focused instead on tracking children’s growth over time and on delivering key counseling messages to caregivers to promote healthy growth. In an effort to reach communities that were not covered by or lacked access to health centers, the community-based strategy gradually expanded to these communities in 1994. In the subsequent years, El Salvador, Guatemala, and Nicaragua implemented their own CBGP strategies. El Salvador began its AIN-C program in 1992, Nicaragua launched its *Programa Comunitario de Salud y Nutrición* (PROCOSAN) in 2001, Guatemala started *Atención Integral a la Niñez y la Mujer* (AINM-C) in 2002, and, most recently, Panama began its AIN-C program in 2008 (see Table 2).

<table>
<thead>
<tr>
<th>Table 2: Overview of the community-based growth promotion programs in Central America</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General information</strong></td>
</tr>
<tr>
<td><strong>Annual cost</strong></td>
</tr>
<tr>
<td><strong>% external financing</strong></td>
</tr>
<tr>
<td><strong>Coverage</strong></td>
</tr>
<tr>
<td><strong>Children 0-24 months</strong></td>
</tr>
<tr>
<td><strong>Children 0-59 months</strong></td>
</tr>
<tr>
<td><strong>Pregnant and lactating women</strong></td>
</tr>
<tr>
<td><strong>Families</strong></td>
</tr>
<tr>
<td><strong>Communities</strong></td>
</tr>
</tbody>
</table>

Source: Information provided by country program staff, October 2011.  
Note: N/A indicates information was not available.
Despite minor differences, all of the CBGP programs in the region follow the basic principles of the AIN-C model, which include:

1. **A focus on preventing malnutrition** with the aim of keeping children healthy and averting the onset of malnutrition.

2. **A focus on children under two years of age as the main beneficiaries**, to prevent undernutrition during the narrow and critical “window of opportunity,” also called the “first 1,000 days” (see Box 2). Many programs also focus on pregnant and lactating women to fully cover the first 1,000 days and emphasize attention during the first month of life.

3. **Regular contact with mothers and families** to identify and address cases of growth faltering in a timely manner. Community volunteers have monthly contact with all beneficiaries at growth promotion and counseling sessions and follow-up with certain families, as needed, through household visits.

4. **Regular monitoring of child growth** to track trends in growth and act as an entry point for tailored individual counseling and referrals, if needed.

5. **Personalized counseling and negotiated behavioral change** focused on precise and practical actions that mothers and families can take to improve child growth.

6. **A community focus that improves access and community participation** for the most vulnerable households, namely poor, rural, and indigenous families with limited access to health care services.

7. **Strong links with the health sector** for referrals of sick children or children with weight loss or persistent inadequate growth and for training and supervision.

8. **Collective action** at the community level with a focus on engaging community leaders, families, and health teams to identify challenges and discuss potential actions to promote the growth of children, which are beyond the reach of individual families.

Table 3 illustrates some of the key programmatic dimensions of each country’s community-based nutrition program.

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**Box 2: First 1,000 Days: The window of opportunity for nutrition**

The period between conception and age two when the irreversible damage caused by malnutrition can and should be prevented.
Table 3: Overview of key program elements

<table>
<thead>
<tr>
<th></th>
<th>El Salvador</th>
<th>Guatemala</th>
<th>Honduras</th>
<th>Nicaragua</th>
<th>Panama</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Community workers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community workers</td>
<td>1,624 consejeras</td>
<td>5,938 madres consejeras</td>
<td>103 promotores</td>
<td>5,550 brigadistas</td>
<td>755 monitoras</td>
</tr>
<tr>
<td>Ratio community worker: beneficiaries</td>
<td>1 volunteer:15 children and pregnant women</td>
<td>1 madre consejera: 10 children under 2; 2-3 educadoras: jurisdiction of 10,000 inhabitants</td>
<td>1 monitora: 8-10 children</td>
<td>3 brigadistas: 25 children</td>
<td>1 monitora: 10 children</td>
</tr>
<tr>
<td><strong>Supervision</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervision of community staff</td>
<td>By institutional staff (rural health technician) monthly</td>
<td>By institutional staff (nurse) quarterly</td>
<td>By institutional staff (auxiliary nurse or nurse) monthly</td>
<td>By institutional staff (nurse or rural health technician) monthly in 1st semester, then bimonthly</td>
<td>By institutional staff (nutritionist and rural health technician) bimonthly</td>
</tr>
<tr>
<td><strong>Referral and counter-referral</strong></td>
<td>Instruments exist, counter-referral is limited</td>
<td>Guidelines exist, but are not implemented adequately</td>
<td>Limited follow-up of patients</td>
<td>Approved norms exist, but need improvement in practice</td>
<td>Guidelines exist and function well</td>
</tr>
<tr>
<td>Guidelines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication mechanism</td>
<td>Telephone, fax</td>
<td>Referral form</td>
<td>Referral form</td>
<td>N/A</td>
<td>Referral form</td>
</tr>
<tr>
<td>Community meetings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>2 times/year</td>
<td>4 times/year</td>
<td>3 times/year</td>
<td>3 times/year</td>
<td>N/A</td>
</tr>
<tr>
<td>Participants</td>
<td>Community, health staff, community development associations, representative from mayor’s office,</td>
<td>Basic health team, health commissions, midwives, community leaders, madres consejeras, community members</td>
<td>Mothers, fathers, monitoras, service providers (promotor), health staff, representative from mayor’s office, community members</td>
<td>Community leaders, health staff, NGOs or private organizations supporting the Ministry of Health</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Source: Information provided by country program staff, October 2011.
Note: N/A indicates information was not available.
2.1 The state of community-based nutrition programs in Central America

The CBGP programs in each country have made important advances in recent years. For example:

- **El Salvador** modified the program model to include activities for early childhood stimulation, emotional care, and attentive feeding. These topics are addressed in weekly community groups led by health promoters and community volunteers. The program also adjusted the organization, coordination, and role of the community volunteers to expand the program to urban areas.

- Starting in 2008, **Guatemala** shifted its program’s focus to children under 24 months and introduced a unified communications strategy with key messages that take into account the country’s multicultural, ethnic, and linguistic diversity. The program also implemented an evaluation strategy to assess the quality of care in the first and second levels of health services. Training has been diversified to include e-learning technology.

- **Honduras** has expanded program coverage, piloted an early childhood development module, developed a software tool for monitoring as well as instruments for monitoring and evaluating performance, and implemented cross-cultural awareness-raising among service providers.

- In **Nicaragua**, the PROCOSAN strategy is recognized by the Government as essential in combating malnutrition. The program has recently included a focus on pregnant women, which involves monitoring weight gain during pregnancy and the provision of micronutrients to prevent malnutrition in utero and low birthweight.

- **Panama** conducted extensive formative research among the country’s four primary ethnic groups in the country and designed culturally appropriate communication materials. Implementation began recently and is expanding over the course of 2012.
3. Key topics in community-based nutrition programs discussed in the workshop

The workshop focused on four key topics that were identified as critical by program staff in Central American countries and are fundamental to the success of CBGP programs in the region. These include: (i) growth monitoring, including its purpose and appropriate tools; (ii) communication for behavior change; (iii) monitoring and evaluation, including monitoring the quality of services; and (iv) additional interventions to enhance nutrition and development outcomes in the target population. The following sections present each of the topics and highlight key messages from the workshop.

3.1 Growth monitoring: purpose, tools, and challenges

One of the basic principles of CBGP programs is the regular monitoring and promotion of child growth. This section discusses the purpose(s) of growth measurement, what to measure (weight or height), and tools that are used, including challenges for their use at the community level.

3.1.1 Why monitor growth?

Measuring growth in the context of CBGP programs has multiple potential beneficial purposes. It can inform parents of their children’s growth and detect growth faltering, which can lead to timely decision-making to address the problem. Furthermore, the visual representation of child growth can help mothers understand their child’s development and can act as an entry point for program staff to discuss and promote changes in behavior to improve child growth. Understanding the potential for healthy growth can create demand among parents and caregivers for healthy and well-fed children in their community and can stimulate collective action within the community to address malnutrition.

3.1.2 What to monitor: weight or height?

CBGP programs in Latin America primarily aim to address child stunting, or chronic malnutrition, a long-term measure of undernutrition and poor health measured by low height-for-age, because this is the most common nutritional problem in the region. However, most programs measure weight instead of height for two primary reasons. First, linear growth (height) is a generally slow and highly variable process, making monthly changes difficult to detect and interpret, especially given the well known high levels of errors in measuring height. For example, for a seven-month old child, a period of at least two months is required to detect any change in linear growth.12 Second, compared to measuring weight, measuring height (or length in children less than 2 years of age) requires a specialized tool (measuring board or infantómetro in Spanish), which is more expensive, difficult to use and cumbersome to carry around than most scales used to measure weight. It is, therefore, more difficult to accurately measure child height/length, compared to weight, in a field setting, where relatively low skilled community volunteers are responsible for the measurements.

12 This estimate is based on a child whose height-for-age is between -2 and -3 z-scores and whose height measurement has been done with a confidence interval of 0.90 (Himes 1999 as cited in World Bank 2009).
For these reasons weight monitoring is used as a broad proxy for child growth (and in most programs height/length is measured periodically by more educated and better trained health center staff). In Latin America and the Caribbean—a region with often high levels of stunting (more than 20 percent in almost all countries), very low levels of wasting (less than 2 percent in each country), and relatively low levels of underweight—weight can serve as a suitable proxy for linear growth in this population.\(^\text{13}\) That is, in a context with little to no wasting, and relatively low underweight, if a child is gaining weight, this is most likely to be reflective of gains in height in the first months of life (see Figure 4). Whereas in countries where underweight and wasting are high, weight measurement to track linear growth would be inappropriate because growth faltering could reflect underweight, wasting, or stunting—or any combination of these.

While measuring weight is preferred at the community level for the reasons explained above, there are also errors associated with measuring weight. Most community programs use a Salter scale, which measures in increments of 4 ounces (114 grams), making it impossible to detect changes that are smaller than 4 ounces. As rates of growth slow down during the second year of the child’s life, it becomes difficult to detect the smaller monthly gains that children experience at that age if weight is measured on a monthly basis (see section on how often to measure below).

According to a study of the accuracy of weight measurement conducted in Ixil, Guatemala under normal community-based program conditions and using staff with the same level of education and training, there are errors associated with variability from day to day as well as within the same day. To determine errors in weight measurement, weight was taken twice for the same child with one hour of difference and with one day of difference. Results show that for the measurements one hour apart, 68 percent showed no error, but 19 percent had an error of 114 grams (4 ounces), equivalent to the smallest gradation on the Salter scale. For the measurements taken 24 hours apart, only 23 percent had no measurement error, 38 percent

\(^{13}\) UN Standing Committee on Nutrition, 2010.
had a difference of 114 grams, and 19 percent had a difference of 227 grams. These errors are the usual errors that would be found in community-based programs managed by volunteers or staff with relatively low levels of education and training. Given this measurement error, community-level growth measurement is useful as an indication of growth trends and as an entry point for counseling, but is not accurate enough to determine exact weight gain.

3.1.3 How often to monitor?

Community-based growth promotion programs are based on the prevention of malnutrition. Therefore, the programs aim to establish contact with mothers frequently, to detect growth faltering as early as possible, and to promote changes in behavior that will most effectively promote healthy growth and, if necessary, reverse the deterioration of a child’s nutritional status. Moreover, frequent contact with mothers plays an important role in sustained reinforcement of behaviors to improve child growth. Despite the methodological soundness of monthly weight measurements, after the age of twelve months, average monthly weight gain is minimal and therefore difficult to detect on a monthly basis. In addition, given demonstrated measurement error in the community-based setting, proper identification of growth faltering becomes more difficult at this measurement interval. Nevertheless, the value of monthly contact and its role as an entry point for counseling and promotion of key nutrition messages for mothers and caretakers should not be underestimated and continues to be a key component of CBGP programs.

3.1.4 Tools to monitor growth: options and issues

A number of tools have been and continue to be used in CBGP programs to measure and track children’s weight. It is important to recognize that not all of the tools measure the

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KEY MESSAGES: GROWTH MEASUREMENT AND TOOLS

- Some of the most important purposes of growth measurement are motivating regular contact with mothers, informing them of their child’s growth, and acting as an entry point for counseling and negotiation on behavior change to promote growth and contribute to the prevention of chronic malnutrition. Therefore, growth measurement tools should be designed and used with these purposes in mind.
- Programs are encouraged to re-assess the amount of time devoted to interpreting measurement of a child’s growth and focus more on delivering quality services and effective counseling and negotiation for behavioral change.
- Community-level tools to measure height may have a role in communicating with caregivers and motivating behavioral change.

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Measuring a child in Panama

Photo: Julie Ruel-Bergeron
same thing. Some assess nutritional status, or whether or not a child is malnourished based on anthropometry; others assess weight gain; and yet others look at growth velocity, the change in growth over time (for example, between two measurements taken one month apart). ¹⁵

What each tool assesses tells a different story. For example, measuring nutritional status indicates whether the child is currently malnourished or not (and, if so, to what degree), whereas measuring growth velocity reflects the growth tendency and may indicate worsening or improving nutritional status.

One commonly used tool is a growth chart with curved bands (sometimes in different colors), where the band in which the child’s weight falls indicates the category of nutritional status (normal or with moderate or severe malnutrition) (see Figure 5).

It is recommended that program staff not only look at the band within which the child’s weight falls in the current month (indicating their nutritional status), but also the trend in child growth, whether positive (upward sloping), neutral (flat), or negative (downward sloping) (see arrows in the bottom right-hand side of Figure 6). This approach is considered easier for mothers to understand and for community volunteers to analyze the growth trend; however it is sometimes

difficult to evaluate the slope of the trend line accurately because of the poorly designed growth cards for the purpose of growth monitoring. Moreover, an upward growth trend, meaning a child had gained weight, does not necessarily mean the child had gained *sufficient* weight, and could lead to undetected chronic malnutrition over time, particularly before 12 months of age.

Based on a concern that these charts do not detect adequate weight gain and are difficult to use and interpret by community volunteers, a new tool, called the minimum weight gain table, was introduced in 1998 in Honduras (see Figure 7). This table simplified the process of assessing weight gain by providing a target (minimum) weight gain based on the child’s weight from the previous month. Using this tool, the volunteer only has to ensure that the child had gained a predetermined amount of weight since the previous month. The table does not take into account age or sex, important factors in child growth patterns, except in Guatemala, where the minimum weight gain table was adapted to include minimum weight gain by age (see Figure 8). The easy-to-use tool eliminated the need to plot and analyze growth curves. Furthermore, community workers no longer had to ‘guess’ if a child’s weight gain was adequate and mothers had a concrete ‘goal’ of weight gain for the subsequent month.
Figure 7: Minimum weight gain table (Honduras)

Tabla de Peso Mínimo Esperado

<table>
<thead>
<tr>
<th>Edad (Meses)</th>
<th>Peso Actual</th>
<th>Peso A Gos</th>
<th>Peso A 80 Dias</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>2.3</td>
<td>2.6</td>
<td>2.9</td>
</tr>
<tr>
<td>3-5</td>
<td>2.4</td>
<td>2.7</td>
<td>3.0</td>
</tr>
<tr>
<td>6-8</td>
<td>2.5</td>
<td>2.8</td>
<td>3.1</td>
</tr>
<tr>
<td>9-11</td>
<td>2.6</td>
<td>2.9</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Figure 8: Minimum weight gain table based on on age (Guatemala)

<table>
<thead>
<tr>
<th>Edad (Meses)</th>
<th>Ganancia Mínima</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>1 libra 4 onzas (570g) o más</td>
</tr>
<tr>
<td>3-5</td>
<td>1/2 libra u 8 onzas (228g) o más</td>
</tr>
<tr>
<td>6-8</td>
<td>4 onzas (114g) o más</td>
</tr>
<tr>
<td>9-11</td>
<td>4 onzas (114g) o más</td>
</tr>
</tbody>
</table>
When WHO reviewed the minimum weight gain table, it found the premise of the table to be erroneous and recommended that the use of the minimum weight gain table be discontinued and replaced by the growth tendency chart based on the 2006 WHO growth standards. WHO explained that children do not necessarily grow at an even rate from month to month and that there is no accurate standard expected weight gain. Furthermore, given the small expected weight monthly gain for children between 6 to 11 months of age (114g), errors in weight measurement may yield inaccurate results, resulting in an increased possibility of wrongfully classifying children as growing inadequately and failing to identify those who truly suffer from insufficient growth.\textsuperscript{16}

The current international recommendation for measuring growth is to use the 2006 WHO growth charts for girls and boys from 0 to 24 months. Figure 9 shows an example of the WHO girls’ growth chart with growth trend indicating growth faltering.

\textsuperscript{16} Martorell et al., 2002.
chart illustrating a child’s growth trend, which indicates growth faltering.

While these charts are technically sound for assessing growth based on the current WHO international growth standards, they present three main challenges at the community level. First, the vertical axis (weight) uses an increment of 200g rather than 100g, which is necessary to detect small monthly weight gain at older ages. Second, the font is small and, third, there is little space to write the child’s name, age, etc. Without a careful recording of the child age, the chart is meaningless and unfortunately, recording of age is often done poorly in communities and facilities. In order to optimize the use of these charts at the community level, there is a need to monitor and validate their use and interpretation by relatively low-skilled community volunteers.

In terms of measuring height, few tools have been developed specifically for height measurement at the community level. One recent example is a portable length mat used in Bolivia (Figure 10). To help community-based programs assess individual children for stunting a team of professionals from the Bolivian NGO network, Coordinated Program in Integrated Health (PROCOSI), and the Manoff Group developed a portable length mat made from durable plastic. Boys’ and girls’ measurements appear side-by-side on the mat. Markings on each half denote the cutoff lengths for a 6, 12 and 18 month old child that would indicate if the child is, or is not, stunted, defined as <-2 SD of the WHO standard.

Although measurement of height by community workers has not been recommended (see discussion above), there may be a rationale for this because seeing changes in a child’s height may effectively motivate caregivers to change behaviors to promote child growth. Since community-level height measurements would not be of high accuracy, they should be used primarily to create opportunities for awareness raising and discussion about behavioral change, not as hard data. Table 4 summarizes growth measurement practices in each country.

![Figure 10: Length mat (Bolivia)](image-url)
3.2 Communication for behavior change

One of the main pillars of CBGP programs is the use of communication for behavioral change, especially tailored personal counseling focusing on improved caring and feeding behaviors for young children, better hygiene, and timely response to illness.

CBGP programs like AIN-C are especially well-positioned for bringing about behavioral change because they address not only the challenges to maintaining good nutrition that are common across a community (e.g. standard feeding practices, nutritional needs, preventing and treating illness), but also the unique challenges that individual caregivers may face (e.g. feeding peculiarities, resources and abilities).\(^\text{17}\)

One key challenge within behavior change communication is optimizing messages to bring about changes in behaviors. A first step to do this is to identify and understand the most

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\(^\text{17}\) Schaetzel, no date.
common practices that contribute to growth failure at the local level (as these may vary by region/community). For example, in many countries mothers continue to feed their children below six months of age liquids other than breastmilk even though they say they know that exclusive breastfeeding is best. Understanding the barriers to change—or the reasons that mothers continue to provide other liquids (e.g. because babies are thirsty, because they believe other liquids reduce colic, help children sleep, etc.)—can help programs develop tailored messages that would be more effective in helping mothers adopt truly exclusive breastfeeding.

For example, in Guatemala breastfeeding messages developed by IFPRI and Mercy Corps explicitly address the underlying constraints to exclusive breastfeeding. Instead of providing general messages about the benefits of exclusive breastfeeding (e.g. that breastmilk is a healthy food for the baby), they focus on two key messages that respond to beliefs held in the communities where they work: (1) that breastmilk quenches thirst and (2) that breastfeeding minimizes colic. Also, an effective complementary feeding intervention in Peru focused on three main messages based on identified behaviors in the community: (1) give a thick (rather than thin, watery) puree, (2) add something special (meat, fish, or egg) to the baby’s food, and (3) feed your child with love, patience, and good humor. The delivery of these messages resulted in significantly better complementary feeding practices, especially related to the specific behaviors promoted.\(^{18}\)

Behavior change communication is most likely to be effective when there are a limited number of action-oriented messages based on the key infant and child feeding and caring problems identified in the community. The purpose of the messages is to give the

\(^{18}\) Penny et al., 2005.
mother/caregiver a concrete task to improve her child’s diet and nutrition that she is likely to remember and has the resources to carry out. The more specific the message, the more times given, and the more times it is reinforced from different sources (monitoras, heath providers, communications materials, etc.) the more likely it is that mothers can adopt it.

An important issue in many of the countries implementing the CBGP model is making communication culturally appropriate for indigenous and afro-Caribbean cultures. Some examples of doing this in Guatemala and Panama include:

- Conducting formative research on populations of different ethnic and cultural backgrounds and using the results to develop communication materials that are adapted to each culture’s language, needs, situations, and realities. This means not only translating messages into different languages, but also tailoring messages to different cultural worldviews. For example, messages may focus on beliefs about health and growth (e.g. hot and cold foods, value of colostrum) and roles of cultural leaders in the community.

- Including local authorities and community personnel (who may be involved in or responsible for conducting individual counseling) in all steps of developing, testing, and implementing communication and counseling.

- Training community volunteers in individualized counseling for different populations. This includes establishing trust with the caretaker, understanding the socio-cultural situation, and asking questions and providing suggestions that are relevant and feasible.

Some opportunities for improvement in CBGP communication include:

- Involving fathers and other important family members (e.g. grandmothers) who influence behaviors and decisions.

- Promoting two-way communication to engage caregivers in finding their own solutions to problems.

- Ensuring that community members receive the same information from all communication channels (i.e. community workers, nurses, doctors, community leaders, etc.).

- Monitoring and evaluating the acceptability and effectiveness of behavior change messages and communication channels and identifying ways to improve them during the course of program implementation.

3.3 Monitoring and evaluation

Monitoring and evaluation (M&E) are essential to assess program design, processes and implementation, impact, and efficiency, and to facilitate decision-making for program improvement. This section outlines the key elements of monitoring and evaluation for community-based nutrition programs and presents several country examples of monitoring systems and approaches. It also describes a promising mechanism to conduct program monitoring using cell phone technology.
3.3.1 Key elements of monitoring and evaluation

Monitoring refers to a systematic and ongoing process of data collection, analysis, and interpretation regarding program inputs, activities, and processes, to reflect how well the program is being implemented. There are three principal types of program monitoring (see Table 5). All are complementary and should be integrated into the program during the design phase.

<table>
<thead>
<tr>
<th>Type</th>
<th>Objective</th>
<th>Frequency/timing</th>
<th>Data/data collection methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation</td>
<td>To track inputs, activities, products, and problems as they arise</td>
<td>Every 3-6 months, ideally</td>
<td>• Existing/secondary data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• New data: surveys, sentinel sites, focus groups, observation, document review</td>
</tr>
<tr>
<td>Diagnostic</td>
<td>To investigate why problems occurred and find solutions</td>
<td>Following the monitoring report/data collection</td>
<td></td>
</tr>
<tr>
<td>Financial</td>
<td>To control/track the use of funds</td>
<td>Monthly, quarterly, annually</td>
<td></td>
</tr>
</tbody>
</table>

One of the critical decisions to make when designing a monitoring system is which indicators to use. While there is a tendency to include a wide range of indicators to capture as much information as possible, it is generally more helpful to use a minimum number of indicators that focus on the key processes and outputs of interest. The aim should be to produce one page of results at the end of each month that adequately measures and demonstrates the program’s tendencies and patterns.

The following are recommended questions whose answers contribute to the selection of appropriate indicators:

- What is the purpose of collecting the indicator? Who is interested in and will use the information generated and for what purpose?
- How will these indicators be collected (methodology, data source, verification mechanism)?
- How often will these indicators be collected?
- Who will analyze and prepare a report for each of these indicators?
- Who is responsible for follow-up actions after monitoring results are shared?

Beyond selecting indicators, it is also important to define minimum levels, or thresholds, for each indicator that indicate satisfactory or unsatisfactory performance. Comparing actual performance to these thresholds allows program managers to assess program progress, flag potential problems, and devise timely solutions to resolve these during the course of program implementation.


Evaluation refers to a systematic and objective assessment of the design, implementation, impact, efficiency and/or sustainability of a program which is planned, underway, or completed. The diversity of evaluation types can be used at different stages of the program lifecycle and to answer different questions. Impact evaluations are particularly important to document the changes that have occurred in the target population that can be attributed to the program intervention. Rigorous impact evaluations measure a baseline, which establishes pre-intervention conditions against which to compare program results after a given implementation period, and determine an appropriate evaluation design that has the power to determine a statistically significant change attributable to the program. It is critical to involve experts in the evaluation design from the beginning to ensure a robust and feasible design. It is also recommended to incorporate qualitative techniques to triangulate findings and explain quantitative results.

Results from impact evaluations can be used to help justify decisions related to:

- The future of the program (e.g. eliminate the program or expand or reduce coverage)
- Program design (e.g. identify results or activities that need to be modified)
- Other solutions to problems addressed by the program (e.g. how to address unanticipated positive or negative impacts)

Good results can also give credibility to a program, generating political and institutional support. Despite these valuable benefits, however, and after decades of implementation and millions of dollars spent on social programs, there remains an overwhelming absence of evidence on the impact of community-based growth promotion programs.

To be most effective, monitoring and evaluation should be conceptualized and planned (including cost estimates for each) during the program design phase. A conceptual framework—a diagram of linkages across program components including inputs, activities, outputs, and results/impacts—serves as a planning and management tool that can help define the areas of focus for monitoring and evaluation activities.

An effective monitoring system can indicate an acceptable level of quality in implementation at which time it makes sense to undertake an impact evaluation. Program readiness can be based on the achievement of minimum program indicators, adequate coverage levels, and satisfactory adherence to program interventions over a minimum period of time (rule of thumb is approximately 18 months of implementation).

3.3.2 Country examples of program monitoring

Some programs are developing increasingly sophisticated monitoring systems to collect and analyze information and facilitate timely response to any identified problems or inconsistencies. For example, in Honduras, the Monitoring and Evaluation Information System (or Sistema Informacion Monitoreo y Evaluación, SIME) collects information for the AIN-C program and facilitates the transfer and analysis of this information at different administrative levels. The SIME was developed in 2007-08 and since 2010 has been used as the primary source of information for the AIN-C strategy. It is used by Government as well as NGOs implementing AIN-C in the country.
The SIME is made up of a number of modules that record relevant information and generate a variety of monitoring reports and maps. It is a user-friendly system with a straightforward information flow (see Figure 11).

The development and use of the SIME has generated the following lessons learned:

- Effectively implementing a computer-based information system requires close coordination across all stakeholders.
- Correct operation of computer systems requires a strong process of field testing to identify specific system requirements and usage needs/limitations.
- Computer systems must be developed to be flexible to address changes to meet a changing program or strategy.
- The immediate availability of data for the personnel responsible for decision-making can facilitate timely analysis and responses.
- An ongoing challenge is determining how to institutionalize the SIME within the general health information system of the Ministry of Health.

A more complex information system for program monitoring has been created in Mexico, called the Sistema Nominal de Salud (SINOS), which links data from a number of the country’s national social programs (Oportunidades, Seguro Popular) that operate at the primary health care level. This management information system now safely and effectively integrates all locally-registered information from the thousands of primary health units across the country, providing real-time data at the national level on both individuals (child and maternal health indicators, primarily) and communities, municipalities, and states. The SINOS system exemplifies a safe, effective, and user-friendly monitoring and information system, but this model is not yet feasible in the context of many of the community-based growth promotion programs in Central America due to limited capacity and technology constraints (e.g. lack of computers) at the health unit level.
Other programs are experimenting with alternative forms to program monitoring, for example focusing on the ongoing assessment of service quality. In Guatemala, a model of monitoring service quality has been implemented for community-based nutrition services. The monitoring process, known as “auto-analysis,” has health teams, including the educadora responsible for nutrition, review and analyze key health and nutrition indicators of services provided to children aged 2, 6, 12, and 24 months of age. The indicators include, for example, growth measurement, micronutrient supplementation, counseling on infant and young child feeding, immunizations, and follow-up activities. During the assessment, each indicator is then marked as ‘achieved’ or not (based on rigorous criteria), and a summary of results yields the percent compliance by community, jurisdiction, and health area. This process has also recently been applied at the secondary level of care, focusing on maternal, neonatal, and perinatal indicators, which are reviewed for a randomly selected group of patients attended over the preceding 30 days, and then summarized to yield ‘achievement’ levels.

The continuous and repeated application of this self-monitoring process has had many benefits, particularly in terms of raising awareness among local health teams about the actual quality of services delivered to different age groups and the identification of areas for improvement. Many teams expressed that they find the process has empowered them to find ways to improve care for the children in their catchment area.

3.3.3 Cell phone technology for data collection and monitoring

Given the now extensive coverage of cell phones, even in the poorest areas in Central America, mobile technology presents an innovative and cost-effective tool to be applied to program monitoring. Cell phone technology can help overcome persistent challenges related to the quality of data; the cost of data collection, processing, and analysis; the lag time between collection and results; and the use of data for timely decision-making.

Guatemala and Panama have run pilots of cell phone technology for data collection with the support of the World Bank. These pilots collected data on social, nutrition, and health programs in rural communities using a free software program called EpiSurveyor, one of a growing number of software packages that facilitate the use of cell phones for data collection. Using this kind of software, users who have basic computer skills and have received a simple training can log in online and create survey forms and questionnaires, including multiple-choice, free text, numeric, data, and other kinds of questions. Survey forms can then be downloaded to any Java- and GPRS-enabled mobile phones and the phones can be used to collect and upload data in real time to an online account through a secure server or to a laptop, as needed. This immediate and automatic data transmission and digitization reduces the time needed for data collection and analysis and minimizes errors caused by manual data entry. Furthermore, the software program allows for real-time analysis and visualization of survey responses using graphs, charts, and maps as well as exportation to common third-party data analysis programs such as Microsoft Excel or Access (see Figure 12). This, in turn, can facilitate the real-time use of data for decision-making.
Technological advances and increased cell phone coverage and access will further improve the potential of mobile phones for accurate data collection (e.g. phones with Global Positioning System (GPS) capabilities). Using cell phone technology for CBGP programs has the potential to facilitate regular program monitoring and surveys at lower cost (e.g. reducing travel, data collection, and data entry expenses) and strengthen the potential for timely and appropriate responses to improve program outcomes.
3.4 Complementary services to enhance outcomes for the target population

The delivery platform of CBGP programs, involving direct contact with caregivers and individualized counseling, offers a potential mechanism for delivering other services that can improve nutritional and health status in the same communities. There may be some synergies or economies of scale associated with using existing human resources at the community level and capitalizing on opportunities to reach families with pregnant women and children under two with personalized counseling. This section describes potential opportunities to incorporate home fortification of complementary foods with micronutrient powders and early childhood development activities into CBGP programs in the region.

3.4.1 Multiple micronutrient powders for home fortification

Deficiencies in iodine, vitamin A, zinc, and iron, particularly in vulnerable populations of mothers and children, can cause lasting and irreversible physical and cognitive damage. During the first two years of life, growth velocity is highest, and therefore nutrient requirements—both in terms of calories and micronutrients—increase. Additionally, at this age the stomach capacity of young children is limited so foods provided along with breastmilk have to contain a high density of nutrients to meet the body’s requirements. Access to micronutrient-rich diets may be limited by high food prices and cultural practices, producing serious micronutrient deficiencies in underprivileged populations.

In the Central America region, efforts have been made to reduce micronutrient deficiencies through population-level food fortification, such as sugar fortification with vitamin A in Guatemala and salt iodization across the region, as well as the production and distribution of fortified complementary foods in Panama (Nutricrema) and Guatemala (Vitacereal). All of the CBGP programs in Central America provide micronutrients as part of their basic package of services, but micronutrient deficiencies remain prevalent (see Table 6).

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Micronutrient powders (MNPs) are an attractive option to fortify foods consumed by young children at home given their low cost, wide acceptability, and demonstrated impact on anemia. MNPs are especially promising if tied to a comprehensive complementary feeding plan that emphasizes exclusive breastfeeding and continued breastfeeding after six months. MNPs, well-known by the brand name ‘Sprinkles,’ come in small sachets containing a single dose of micronutrients that is sprinkled onto semi-solid food once per day. The single dose sachet is easy to use and does not require any measurement of doses or saving of open containers. The powder is tasteless and does not change the organoleptic properties of the food to which it is added. Furthermore, the sachets are also easy to transport and store. MNPs have been widely accepted by mothers and children.  

MNPs are also highly attractive due to their proven effectiveness and safety in a wide range of country contexts. In a study in Ghana,

<table>
<thead>
<tr>
<th>Micronutrients</th>
<th>El Salvador</th>
<th>Guatemala</th>
<th>Honduras</th>
<th>Nicaragua</th>
<th>Panama</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron, folic acid, vitamin A, zinc</td>
<td>Iron, folic acid, vitamin A, MNP</td>
<td>Iron, vitamin A, zinc</td>
<td>Iron and zinc (for treatment of diarrhea)</td>
<td>Iron, vitamin A</td>
<td></td>
</tr>
<tr>
<td>Beneficiaries</td>
<td>Children 0-23 mos, pregnant women</td>
<td>Children &lt;5 yrs, pregnant and lactating women, women of childbearing age</td>
<td>Iron: children 4-23 mos; zinc and vitamin A: children 6-24 mos</td>
<td>Children 6-23 mos</td>
<td>Iron: children 4-23 mos; Vitamin A: children 6-24 mos</td>
</tr>
<tr>
<td>Frequency of distribution</td>
<td>Iron: according to national norms vitamin A: 2 times/year</td>
<td>Iron and folic acid: every 3 mos, MNP: every 6 mos; vitamin A: 2 times/year</td>
<td>According to national norms</td>
<td>Iron: once/year Zinc: for treatment of diarrhea</td>
<td>Iron: once/year Vitamin A: 2 times/year</td>
</tr>
<tr>
<td>Complementary food</td>
<td>Provided in most vulnerable municipalities for children 0-35 mos, pregnant and lactating women</td>
<td>Vitacereal for children 6-36 mos, pregnant and lactating women (monthly) in one municipality</td>
<td>Not provided. Instead focus on foods available in the community</td>
<td>Not provided</td>
<td>Nutricereal for children 6-24 mos, 9 lbs per month</td>
</tr>
</tbody>
</table>

Source: Information gathered from country programs, October 2011.

20 Guatemala currently uses both MNP formulations. The 5 MNP formulation is locally made and the 15 MNP formulation is procured by UNICEF.
21 De-Regil et al., 2011 and Dewey et al., 2009.
administrations of MNPs over a two-month period resulted in a 58 percent reduction of anemia cases in children aged 6-18 months. Similarly, in Haiti, where over half of rural children under the age of two years are anemic, the use of MNPs had dramatic results. In the Haiti study, children aged 6-24 months who were given MNPs (Babyfer) in combination with donated wheat-soy blend experienced a drop in anemia prevalence from 53 to 28 percent. In the non-intervention group that only received the wheat-soy blend, anemia increased from 37 to 45 percent. The decrease in anemia in the intervention group corresponded to a mean hemoglobin increase of 0.52g/dL. While MNPs have been shown to play an important role in the reduction and prevention of anemia among children, there is little evidence of impact on linear growth (see Box 3).

MNPs can serve as a motivating entry point to discuss and promote healthy complementary feeding practices, which, in turn, can promote linear growth. The product is targeted to children

Box 3: Evidence suggesting an impact of MNPs on linear growth

A study done in the context of the Mexican conditional cash transfer program, Oportunidades, evaluated the efficacy of MNPs in improving micronutrient status as well as linear growth and other outcomes, by comparing daily provision of MNPs to 2 alternatives (1) Nutrisano (a fortified complementary food), or (2) micronutrient syrup. Communities (18 for each type of supplement) were randomly assigned to one of the three and all children 6 to 12 months of age willing to participate received the supplements until 24 months of age. The micronutrient content of the syrup and MNP were developed based on nutrients used to fortify Nutrisano, so all the products had the same content and form of micronutrients. Also notable is that all the products in this study had higher zinc content (10mg vs. 5mg) than that recommended in WHO’s 2011 guidelines (see below). Children recruited for the study were 8 months of age at baseline on average and the average supplementation period for study participants was 15 months. Participants were followed and measured after 4 and 10 months of supplementation, and then at 24 (end of supplementation) and 30 months of age (i.e. 6 months after supplementation ended).

After 4 and 10 months of supplementation, the reduction of anemia was significantly larger in the MNP and syrup groups than the Nutrisano group (with no difference between MNP and syrup). By 24 months of age there was no difference in the prevalence of anemia among the three groups; all three groups had a prevalence below 10 percent, a reduction of more than 25 percentage points from baseline. In terms of linear growth, there was no significant difference among the three intervention groups, but there was a significant positive association between higher compliance with supplementation and taller height in children. The main limitation of this study is the lack of a control or non-intervention group needed to establish a cause-effect relationship, i.e. to be certain that the observed dose-response effect of growth was caused by the supplements.

Also, while all three products had a similar impact, mothers preferred MNPs over the other two products due to their ease of use. Compliance of product consumption was almost 90 percent in all three groups, but the groups receiving MNPs were more likely to get the complete dose versus those in the other groups.
6-23 months of age, the window when complementary food should be introduced. Because MNPs must be consumed with semi-solid food (not liquids), there is a need to promote the appropriate consistency of complementary food. The training for mothers on the use of MNPs can also include counseling on the quality of complementary food as well as hygiene.

In 2011, WHO released new guidelines for the use of MNPs for home fortification, based on various global trials, recommending their use for the improvement of iron status and reduction of anemia among children from 6 to 23 months of age. The Home Fortification Technical Advisory Group (HF-TAG)\textsuperscript{25} has also published programmatic guidance on the use of MNPs for home fortification.

Current recommendations are:

- Consumption of one daily sachet for a minimum period of 60 days\textsuperscript{26} (2 consecutive months) over a 6 month period (2 months of supplementation, 3-4 months without supplementation) in populations where anemia surpasses a prevalence of 20 percent in children under 24 months.
- Exclusive use of the 15-micronutrient formulation of MNP rather than the 5-micronutrient formulation,\textsuperscript{27} which continues to be distributed in many countries in the region like Guatemala, Bolivia, Columbia, Cuba, Ecuador, and Peru.

The role of CBGP programs in promoting home fortification with MNPs will vary by country. Given the regular contact with mothers and young children, these programs are well positioned to provide counseling about the use of MNPs and the importance of coupling MNP use with proper complementary feeding practices (e.g. consistency, frequency, dietary diversity, etc.), to follow-up on compliance with MNP consumption, and to make referrals as needed.

**KEY MESSAGES: MICRONUTRIENT POWDERS**

- MNPs are an effective strategy to reduce and treat anemia and a promising intervention for the reduction of micronutrient deficiencies in Central America given their low cost, efficacy, effectiveness, safety, and acceptability by target populations. The effect of MNPs on linear growth is still unknown.
- The 2011 WHO guidelines on MNPs recommend that countries provide one daily sachet of the 15 micronutrient formulation to children 6-23 months for a minimum period of 2 consecutive months over a 6 month period.
- CBGP programs can play an important role in encouraging mothers’ compliance with MNP consumption guidelines and promoting the use of MNP combined with proper complementary feeding practices for children 6-23 months.

\textsuperscript{25} The HF-TAG is made up of the World Food Programme (WFP), UNICEF, Micronutrient Initiative, Helen Keller International, Sight and Life, Global Alliance for Improved Nutrition (GAIN), and the Sprinkles Global Health Initiative (SGHI).
\textsuperscript{26} While this is the minimum recommended, a higher dosage is also being explored.
\textsuperscript{27} Two formulations of MNPs are in use today, which include: (1) a 5 micronutrient formulation that contains iron, zinc, folic acid, and vitamins A and C; and (2) a 15 micronutrient formulation that contains the same nutrients and quantities as the 5 micronutrient formulation, with the addition of vitamins D, E, B1, B2, B6, B12, niacin, iodine, and copper.
3.4.2 Early childhood development activities

A child’s ability to reach his or her full potential—in terms of physical development, social and emotional skills, self-confidence, good peer relationships, and an ability to tackle and persist with difficult tasks—depends on more than just good health and nutrition. Indeed, a large body of research has proven that a child’s ability to develop and learn is related to the synergistic interplay of good health, good nutrition, and appropriate stimulation and interaction with others.28 It is well documented that young children respond best when caregivers use specific techniques designed to encourage and promote children’s progress to the next level of development. Early childhood development (ECD) interventions can take the form of supporting and training parents and caregivers, delivering services to children, and using mass media to enhance parents’ and caregiver’s knowledge and practices. Given the vital synergy between nutrition and ECD, and the importance of counseling and follow-up with caregivers, incorporating ECD activities into CBGP programs is a promising approach to integrated child development. Using the CBGP platform has the advantage of reaching children at the community level during their most important developmental years—the first two years of life—and having regular contact with parents/caregivers.

Several CBGP programs in Central America have explicitly incorporated an ECD focus. Honduras and El Salvador developed specific modules on ECD messages and interventions, particularly related to attentive feeding starting at the age of six months when complementary foods are introduced; creating and supporting a nurturing and clean environment; and talking, playing, interacting, and reading with children from a young age. Additionally, both programs invested in training their health and nutrition program staff (both paid and volunteer) in ECD. In El Salvador, community volunteers are trained in ECD messages and activities, and ECD demonstrations and presentations are now among the topics addressed in the two-hour long, weekly ‘community circles’ held with caretakers and parents.

In Honduras, an ECD pilot was implemented in 17 communities in the Chinacla la Paz municipality29 by an NGO called Child Fund. Two implementation models were tested to determine the most cost-effective and accepted way of delivering ECD messages and interventions. Both models used an assessment of child development for children under two using a development scale designed by Child Fund to classify children and target ECD activities to the most vulnerable. Under model A, all of the existing AIN-C monitores were trained in ECD activities and implemented these along with the program’s nutrition activities. Model B hired additional monitores dedicated exclusively to ECD activities. After an assessment of the two approaches, Model A was selected as the most effective model since all of the community volunteers were trained in ECD and therefore able to convey the importance of early stimulation and integrate this message with the existing nutrition messages. There was, however, greater turnover under Model A due to the increased workload. Model B proved to be more difficult and expensive to manage, particularly when an ECD monitora quit the program, leaving the families under her responsibility without any ECD support. To date, a proportion of community volunteers are trained in ECD, and ECD indicators have been incorporated into the program’s monitoring and evaluation information system. Future challenges include the need to improve

29 The pilot took place over the course of two years with a one-year gap due to political problems.
documentation of processes; create manuals, instruction and other instruments; and better define what information is needed to incorporate into the AIN-C monitoring and evaluation information system (SIME).

In Guatemala, the program team developed training materials on early childhood stimulation, describing the milestones that a child should reach by age one and the activities to promote the achievement of these milestones. This is now an integral part of family counseling. The program also installed locally-made toys for young children in health centers to provide opportunities for stimulation. The program team decided to keep the ECD messages integrated into the ongoing nutrition activities instead of having a separate ECD branch of the program because the program is focusing on four key topics (exclusive breastfeeding, complementary feeding, feeding sick children, and care of pregnant women) in an effort to increase impact in communities.

Adding ECD interventions to CBGP programs is a promising approach to foster optimal child development. However, as evidenced in the Honduras pilot, adding additional responsibilities to monitoras’ workloads implies tradeoffs, including potential increases in turnover and reduction in the quality of services. Given that the ECD activities linked to a community-based nutrition program have not yet been implemented at scale, nor rigorously evaluated, it would be valuable to learn more about the impacts on child development, nutrition outcomes, and other outcomes of interest resulting from larger efforts and, possibly, additional models of intervention.

**KEY MESSAGES: EARLY CHILDHOOD DEVELOPMENT**

- The integration of early child development messages and interventions into CBGP programs is feasible, and has had promising results in several countries in the region at a small scale. There is a need for more evidence of impact of ECD activities when linked to community-based nutrition programs to determine value added and document synergies.
- According to experience in Honduras, an integrated approach that incorporates ECD messages with current nutrition counseling is a preferable delivery channel compared to hiring additional community workers who are exclusively responsible for implementing ECD activities.
- The tradeoffs of assigning ECD related responsibilities to monitoras need to be analyzed before implementing these changes.
4. The way forward

CBGP programs in Central America have a solid history and have been evolving with ever more innovation and integration with existing country systems. However, at the same time, countries face ongoing challenges at the institutional and programmatic levels. This section discusses challenges facing CBGP programs in Central America, potential solutions, and opportunities.

4.1 Challenges

Countries continue to face significant challenges related to the structure and quality of program implementation and the institutionalization and sustainability of CBGP programs over time. Mainstreaming these programs and expanding coverage to reach a larger target group poses open questions related to institutional coordination, ensuring service quality, and more.

4.1.1 Institutional challenges

4.1.1.1 Institutional arrangements

One key short-term issue is related to institutional roles and who is responsible for planning, implementing, and supervising CBGP programs. To date, many countries have used NGOs as implementers with Ministries of Health overseeing and coordinating the services. NGOs often play an important role in guaranteeing access to services in remote areas with vulnerable populations where public services cannot reach. However, the use of NGOs brings up issues of sustainability as programs that depend on external resources and are not integrated within a country’s institutional structures are often at greater risk of being discontinued. While some countries continue to find NGOs to be the best option for program implementation, others are moving toward having the health sector implement community-based nutrition activities through mobile clinics (e.g. Panama) or health posts (e.g. Guatemala).

Another option, given the multisectoral factors affecting nutrition, would be to position a CBGP program within a ministry other than health, such as the Ministry of Social Development, Family, or even Planning. This could bring in a broader constituency of support for nutrition and encourage multisectoral actions to be coordinated at the community level. At the same time, given the fundamental role of health in community-based nutrition programs (especially related to referral to health services and the provision of some key inputs), Ministries of Health need to remain engaged in the programs in a meaningful way (see section 4.1.1.2).

The success of using governmental institutional arrangements depends on the level of government capacity to plan, implement, and oversee community-based activities, the presence of appropriate supervision and incentive structures to ensure community action is taking place, sufficient financial resources, and a well-phased transition to ensure continuity of services and continued quality.

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Potential solutions

- Transitioning from one set of institutional arrangements to another should be planned and, in most cases, implemented using a phased approach. Institutional arrangements should be monitored and evaluated by phase to provide lessons for scaling up.
- Institutional assessments, looking at capacity, financial resources, etc. can be useful to determine options for institutional arrangements.
- All implementers across the country should use the same protocols, monitoring instruments, and accountability mechanisms to guarantee the quality of service under each delivery modality.
- It may be desirable to have a mixed strategy, using both NGO and national implementers in different areas, depending on local conditions.

4.1.1.2 Ensuring adequate coordination

Regardless of which agency or organization implements the program at the community level, there is a challenge of ensuring adequate coordination across local program actors and the health sector at different levels of care to ensure appropriate services and follow-up (see Box 4).

Potential solutions

- Messages about child feeding and caring practices should be coordinated at the community and institutional level so that caregivers receive consistent messages.
- Systems of referrals and counter-referrals must be organized and institutionalized so that there is a clear path of action and responsibility in cases of need.
- Ideally, monitoring information would be integrated into a single system and could be used for decision-making at different levels of government.

Box 4: Links with the health sector

Coordination between local-level programs and fixed health services takes different forms in each country. In El Salvador and Honduras, health facility staff are responsible for the coordination of community work. Nicaragua and Panama have mobile teams to coordinate work in the various communities. In Panama, fixed services participate in selection, training, and supervision of monitoras. In Guatemala, in the majority of cases, NGOs have been responsible, monitored by the Departmental Directorate of Health. The Government is now piloting “AINM-C Institucional” through health centers with educadoras serving as the link between health center staff and communities.

4.1.1.3 Scaling up community programs while maintaining quality

Over the longer term, a key challenge is how to scale up community-based programs to reach full coverage of priority groups, while maintaining the quality of interventions. This challenge raises questions of financial resources, timing/phasing of expansion, and how to ensure the quality of services in a larger target area. Concerns about scaling up too quickly (e.g. as in the case of Madagascar’s CBGP nutrition program, SEECALINE) include the potential for work overload for monitoras, reduced capacity for supervision and training of new monitoras, and poor quality of services (including a lack of materials and supplies).
One way to set the stage for successful scale up is to improve communication strategies for CBGP programs. While communication for behavioral change directed to beneficiaries is quite well developed, there is a lack of broader communication to raise awareness about the importance of a preventive approach focusing on the first 1,000 days, directed not only to central government ministries, but also to sub-national government entities, the private sector, academia (including nurses, doctors and medical schools), and civil society. Increasingly, the use of innovative technology and tools are influencing communication channels. Some countries have been producing communication materials to reach these broader audiences, including videos, radio, and television spots.31

**Potential solutions**

- Before program scale-up, it is particularly important to raise awareness about the issue of nutrition, especially chronic malnutrition, and to create demand for the program in new areas.
- ‘Speaking the language’ of the Ministry of Finance (e.g. by presenting cost estimates, cost-effectiveness data, etc.) can improve advocacy for government funds to be allocated to community-based nutrition programs. This would require that programs have cost information available and conduct cost-effectiveness studies as part of their evaluation packages.

### 4.1.2 Operational challenges

#### 4.1.2.1 Addressing the frequent turnover of community volunteers

Many programs have noted that *monitores* lose motivation over time and resign, perhaps because of lack of remuneration, supervision, positive reinforcement, or visible results, or because the position of *monitores* does not lead to higher-level paid work. The consequences of high turnover rates include gaps in local services and higher costs associated with identifying and retraining new personnel. There is some debate about whether the position of community volunteer should be part of a possible career path into the health sector.

**Potential solutions**

- There could be an arrangement in which a given number of the best ranked *monitores* (according to objective, agreed upon criteria and after a specified amount of time serving the community) have the opportunity to receive additional training and seek an entry-level position in the health sector. This opportunity could be a good incentive for *monitores* to perform well during their service in community-based programs and could also promote consistency in nutrition-related messages at the local and institutional levels.
- Programs could use cell phones, radio programs, or other means of communication to send motivational and appreciative messages to community volunteers, or encourage women to become volunteers. According to a pilot program in Guatemala, motivational text messages inspired health workers to improve their performance.32

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31 For example: Guatemala’s Banco de Recursos de Comunicación Interpersonal y Grupal para la Salud y Nutrición de la Mujer, la Niña y el Niño (MSPAS), which includes educational videos; Guatemala nutrition video (in Spanish): http://www.youtube.com/watch?v=lKc2HzVld10; Honduras nutrition video (in English): http://www.youtube.com/watch?v=RnE0E4quyc; and Peru television spot (in Spanish): http://video.google.es/videoplay?docid=6870832736191717685#.

Promoting Healthy Child Growth and Development: Advances and Opportunities for Community-based Nutrition Programs in Central America

4.1.2.2 Improving program monitoring

Another important challenge for programs to overcome is that of improving program monitoring and, more generally, the generation of evidence for decision-making and advocacy. One of the weaknesses of CBGP programs has been the limited use of data to guide decisions to make program improvements.

Potential solutions

- One way to facilitate getting useful, timely data is to define a limited number of monitoring indicators related to the key processes and outcomes of interest that can be collected frequently (monthly, quarterly, etc.) and reliably. Analyzing these results can help program staff more readily focus on the key issues to be addressed without getting overwhelmed by vast amounts of data.
- Improving training on data analysis and the interpretation of information for operational staff would also be extremely beneficial.
- Improving the availability of evidence for CBGP programs requires creativity and advocacy to include evaluations of processes, impacts, and costs in program design. This could be facilitated by partnering with academic organizations to support the design of rigorous evaluations.

4.1.2.3 Determining appropriate complementary interventions

There is a challenge in determining which, if any, complementary interventions should be adopted to enhance outcomes for the target group of CBGP programs. As discussed in the section on ECD, new interventions can result in an added burden on monitores and can confuse institutional roles (e.g. for supervision, coordination, and funding). But, these interventions also pose a great opportunity to expand the scope and impact of community-based nutrition programs and bring other stakeholders on board.

Potential solution

- Pilot test and evaluate complementary interventions at small scale, including an assessment of monitores’ workloads and the quality of services delivered.

4.1.2.4 Improving collective action

Finally, the role of collective action within CBGP programs remains an open issue. While all programs have community meetings with some regularity, there is a need for more evidence to establish the results of these different types of community involvement.

Potential solution

- Systematic documentation and analysis of collective action in the program—including documentation of activities, participants, topics addressed, and outcomes—would provide a foundation for understanding the value of collective action and how it could be improved. Analysis should include qualitative methods to determine perspectives of different stakeholders.
4.2 Opportunities

CBGP programs have rich opportunities to expand and improve over the coming years. In many communities these programs are deep-rooted with strong local support. Some countries have adopted CBGP approaches as the national strategy to promote healthy growth and nutrition of young children. At the international level, the Scaling Up Nutrition (SUN) Movement, a multi-stakeholder movement to reduce hunger and undernutrition with a specific focus on the first 1,000 days, provides a push for countries to focus more on nutrition.

Given the advances presented in this report, it is clear that countries have openings and models for improving monitoring and information systems, culturally appropriate communication for behavioral change, advocacy for program scale-up based on evidence and awareness-raising, and complementary activities to boost impacts for young children. In addition, programs could consider exploring the following opportunities in the future:

- **Applying a positive deviance framework to behavior change communication and counseling.** This would involve, as part of the assessment of nutrition practices, looking at those children who, despite low income, poor water, and poor sanitation, are growing well in local communities and identifying what exactly their families are doing differently. The behaviors these families practice may also be applicable, and relevant, to other families in the community.

- **Placing a greater emphasis on pregnant and lactating women.** Some programs include or plan to include services for this target group (e.g. pregnancy weight gain monitoring, micronutrient supplementation, nutrition counseling, etc.), but these have not been developed as extensively as the activities for young children. Given the evidence about the “window of opportunity” for preventing chronic malnutrition, it is critical to focus on the period of pregnancy and lactation.

- **Ensuring multisectoral services in areas served by CBGP programs.** Because the causes of malnutrition are multidimensional, there is a great potential to improve nutrition outcomes by combining CBGP services with improved hygiene and sanitation, good quality education, healthcare services, early childhood education activities, and conditional cash transfers, etc. For example, the Government of Honduras is trying to ensure that all AIN-C communities are served by the country’s conditional cash transfer program so that beneficiaries can benefit not only from nutrition services, but also from additional monetary resources to facilitate and support behavioral change. Other possible areas of coordination include promoting the cultivation, processing, and sale of micronutrient-rich crops, and targeting sanitation and hygiene services to communities with high rates of malnutrition and diarrhea. It may also be useful to adapt counseling messages, expand audiences, and rethink community meetings, as needed, to take best advantage of the presence of multiple, positively reinforcing interventions.

- **Systematically documenting and learning from both successes and failures.** Finally, as Professor Jim Levinson mentioned in the keynote address for the 2011 workshop, there is a great potential for learning not only from program successes, but also from program failures. As he says, “Let’s make community based nutrition in Latin America and the Caribbean a culture of curiosity—and a culture of action emanating from that curiosity.”
Annex 1: Workshop agenda

Promoting Healthy Growth to Prevent Chronic Malnutrition: Advances and Opportunities for Community-Based Strategies in Central America

Miramar Intercontinental Hotel – Panama City, Panama
October 26 to 28, 2011

Agenda

Tuesday, October 25

4:00-7:30pm Registration and delivery of documentation
Intercontinental Hotel Lobby

Wednesday, October 26
Marina Gran Room 2nd floor

8-8:30 am Registration and distribution of background documents

8:30-9 am Welcome
Emma Margarita Iriarte, Coordinator, Salud Mesoamericana 2015 Initiative
Tomás Bermúdez, Inter-American Development Bank Representative in Panama
Ludmilla Butenko, World Bank Representative in Panama
Reina Roa, Director, Service Delivery, Panama Health Ministry

OPENING ADDRESS

9:00-9:30 am Nutrition and community-based programs in Central America
Moderator: Lucy Bassett
Speaker: James Levinson, Tufts University and Boston University

AIN-C OVERVIEW

9:30-10:00 am AIN-C history and principles
Moderator: Marcia Griffiths
Speaker: Vicky Alvarado

10:00-10:15 am Q & A

10:15-10:45 am Coffee break
10:45-1:00 pm  **AIN-C programs in Central America**  
Moderator: Ana Pérez Expósito

Speakers:
- **Panama**
- **Honduras**
- **Guatemala**
- **El Salvador**
- **Nicaragua**

1:00-1:30 pm  **Q & A**
1:30-2:30 pm  Lunch break  
*Rest. Miramar, 5th floor*

**GOOD PRACTICE IN INTERVENTIONS WITH MICRONUTRIENTS**

2:30-3:00 pm  **Micronutrient powders (MNPs)**  
*Room: Marina Gran, 2nd floor*  
Moderator: Ali MacLean  
Speaker: **Laura Irizarry**, UNICEF

3:00-3:30 pm  **Results of the micronutrient powder impact study in Mexico**  
Speaker: **Lynnette Neufeld**, **Micronutrient Initiative**

3:30-3:45 pm  **Q & A**
3:45-4:15 pm  Coffee break. Preparation of tables for Cocktail/Market

**MONITORING CHILD GROWTH**

4:15-4:45 pm  **Growth measurement: objectives and indicators**  
Moderator: Rafael Flores  
Speaker: **Marie Ruel**, **International Food Policy Research Institute (IFPRI)**

4:45-5:15 pm  **Tools for growth monitoring in community-based programs**  
Speaker: **Marcia Griffiths**, **Manoff Group**

5:15-5:45 pm  **Q & A**

6:00-7:30 pm  **Cocktail Party and market**  
*Room: Bahia, 2nd floor*
Thursday, October 27
Room: Marina Gran, 2nd floor

8:30-8:45 am  Welcome and summary of day 1
Speaker: Lucy Bassett, World Bank

8:45-9:15 am  Strengthening communication for behavioral change
Moderator: Laura Irizarry
Speaker: Anabelle Bonvecchio, National Public Health Institute of Mexico (INSP)

9:15-9:45 am  Q & A

MOBILE TELEPHONE TECHNOLOGY FOR GROWTH MONITORING

9:45-10:15 am  Using mobile telephones for data collection and growth monitoring
Moderator: Julie Ruel-Bergeron
Speaker: Carlos Pérez-Brito, The World Bank

10:15-11:15 am  Practice session with mobile telephones
Speakers: Carlos Pérez-Brito and Alfredo Chock (includes coffee service)

11:15-11:30 am  Q & A

MONITORING AND INFORMATION SYSTEMS

11:30-12:00 pm  Monitoring and information systems
Moderator: Alessandra Marini
Speakers:
Víctor Hugo López Aranda, National Health Social Protection Commission, Mexico
Sara Mercedes Uriega, National Health Social Protection Commission, Mexico

12:00-12:30 pm  Case Study: Honduras monitoring and information system
Speaker: Jorge Arturo López Flores

12:30-1:00 pm  Q & A

1:00-2:00 pm  Lunch break
Rest. Miramar, 5th floor

MONITORING AND EVALUATION

2:00-2:30 pm  Monitoring service quality
Gran Marina Room, 2nd floor
Moderator: Marie Ruel
Speakers: Carina Ramírez and Edwin Montufar, Guatemala
2:30-3:00 pm  
**Program evaluation**  
Speaker: Rafael Flores, *Center for Disease Control* (CDC)

3:00-3:30 pm  
Q & A

3:30-4:00 pm  
**Salud Mesoamericana 2015 Initiative**  
Speaker: Emma Iriarte, Coordinator, Salud Mesoamericana 2015 Initiative

4:00-4:15 pm  
Coffee break

4:15-5:30 pm  
Discussion of country challenges  
Moderator: Ana Pérez Expósito  
Presenting Countries:  
*Panama*  
*Honduras*  
*Guatemala*  
*El Salvador*  
*Nicaragua*

**SUMMARY AND NEXT STEPS**

5:30-5:45 pm  
**Summary of lessons learned in the workshop**  
Moderator: Gisela Rodríguez  
Speaker: Ana Pérez Expósito, Salud Mesoamericana 2015 Initiative

5:45-6:15pm  
**Next steps**  
Speaker: Lucy Bassett, *World Bank*

6:15-6:30 pm  
**Closing Session**  
Speakers:  
Enrique Paz, Regional Health and Nutrition Advisor, UNICEF  
Jaime Vallaure, World Food Program  
Manuel Peña, Pan American Health Organization

**Friday, October 28**

**Visit to Coclé Province**

5:00 am  
*Departure from the Miramar Intercontinental Hotel Lobby*

6:00 pm  
*Return to the Miramar Intercontinental Hotel*
## Annex 2: Participant list

<table>
<thead>
<tr>
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<th>Organization</th>
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<td><strong>Speakers</strong></td>
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<tr>
<td>Alvarado, Vicky</td>
<td>International Consultant</td>
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<tr>
<td>Bonvecchio, Anabelle</td>
<td>National Public Health Institute of Mexico (INSP)</td>
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<td>Butenko, Ludmilla</td>
<td>World Bank, Panama</td>
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<td>Flores, Rafael</td>
<td>Center for Disease Control (CDC)</td>
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<td>Manoff Group</td>
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<td>UNICEF</td>
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<td>Levinson, James</td>
<td>Tufts University and Boston University</td>
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<td>López Aranda, Victor Hugo</td>
<td>National Health Social Protection Commission, Mexico</td>
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<td>Muñoz Aguirre, Luisa</td>
<td>National Health Social Protection Commission, Mexico</td>
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<td>Neufeld, Lynnette</td>
<td>Micronutrient Initiative (MI)</td>
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<td>Perez-Brito, Carlos</td>
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<td>Atencio, Ana</td>
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<td>International Consultant (Quality in Health, Guatemala)</td>
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Annex 3: 2011 Workshop keynote speech

Challenges and Opportunities in Community Based Nutrition

F. James Levinson
October 26, 2011

There is simply nothing that pleases me more than being part of a gathering of nutrition and public health professionals working programmatically on community-based health and nutrition. And I love the idea that this meeting is focused on prevention. During the past few years, with all the attention given to Ready to Use Therapeutic Food (RUTF)—foods like Plumpy’nut designed for the treatment of malnutrition—I have sometimes wondered what world I was living in. Of course those therapeutic foods have value in emergencies and in instances of severe acute malnutrition, but this kind of expensive, patented approach can never pretend to be a substitute for the kind of malnutrition prevention being addressed in this conference. I worked several years ago on a national nutrition program in an African country where, believe it or not, the budget for therapeutic foods exceeded the budget for prevention. Congratulations to all of you for not falling into that trap!

I consider myself fortunate to have been actively involved in nutrition programs at periods when major change was taking place:

- In the 1960s when, based on new understandings of the consequences of maternal and child malnutrition, governments and international agencies began developing programs to address the problem;
- In the 1970s when the first serious community-based programs were established in south India, Brazil, Indonesia and Tanzania;
- In the 1980s when, as a response to the development community’s obsession with structural adjustment, UNICEF issued a plea for “adjustment with a human face”—for the development of safety nets to protect the poor, and for increased investment in nutrition; and
- In 2006 when new WHO international growth standards switched us from the static and passive measurement of young children to a much more active promotion of growth.

I believe that this is another such period where quantum leaps are taking place in nutrition. It’s an important time to working in this field. For the younger people at this conference, you’ve chosen the right field at the right time.

I have been delighted, for example, to see the new Scaling Up Nutrition Initiative, your Salud Mesoamerica 2015 Initiative, and the Feed the Future program, all of which raise the profile of nutrition in the first 1000 days.

So we’re experiencing a “growth spurt” in nutrition. To help us take full advantage of this window of opportunity, we have the benefit of lots of acknowledged wisdom such as the 2008 Lancet Series on Maternal and Child Undernutrition which provides us with a set of evidence-based interventions—programs which we know work well.
But, of course, being knowledgeable about such experience is only the beginning of our challenge. Working on community nutrition in the endless variety of contexts that we face here in Latin America and the Caribbean requires a great deal more creativity and ingenuity than simply following Lancet wisdom and WHO guidelines. While we have some pretty good ideas about the “what” of community-based nutrition, we need to continue experimenting with and continue refining and improving the “how”—how we can best design and implement these programs in ways that are cost-effective, in ways that are sustainable, and in ways that actively involve communities. Let’s not be afraid of trying approaches which may not yet have the official WHO Seal of Approval. And then, when we get some results, let’s go public with them so that collectively we as a community can learn from every single thing that we do.

I find it interesting that when I go to a scientific meeting, researchers stand up and say without any hesitation or embarrassment, “We tried this and it worked, but we tried this and it didn’t work.” Somehow in nutrition programs we are reluctant to do this. We’d often prefer to bury our negative results rather than take the risk of looking bad. We absolutely have to change this mentality. Every project we undertake is an experiment from which we can learn.

So let me talk a bit about five of these cutting-edge “how” issues which can engage us in our community-based nutrition work.

Number 1: Growth Promotion and Effective Counseling

I’m delighted to see AIN/C being used as a model for these discussions – AIN/C which places such a high premium on growth promotion and behavioral change communications. If I were the Minister of Health in a country of Latin America or the Caribbean—I have to admit that I haven’t yet been invited—the very first thing I would do is to institutionalize these community-based services at the national level, with the recognition that they are every bit as important as anything that’s taking place at the facility level, and with the recognition that good community services, by definition, will make everything that does take place at the facility level that much more efficient. I’m so pleased that my own guru on effective nutrition counseling, Marcia Griffiths, is here with us at this conference. On this topic let me offer a few thoughts for your consideration in developing and expanding community based nutrition programs in Latin America and the Caribbean:

- As I’ve learned from Marcia, didactic behavioral change messages (messages that say Do this; don’t do that) rarely work very well. We need to understand in every case the constraints and resistance points currently impeding these desirable behaviors, acknowledge them, and move on from there.

- Rather than simply adopting behavioral change messages sent along from the capital city – or worse from Geneva or Washington—let’s look at those children who despite low income, poor water and poor sanitation are growing well in local communities and see what exactly their families are doing differently—what behaviors they’re practicing that others might also practice. This concept of positive deviance is a hot topic in international development these days. How useful this can be in community-based nutrition! In positive deviance analysis of this kind that Lucy Bassett and I did a few years ago in...
India, we found that the lower income children growing well were the ones who were introduced to complementary food at seven months (as opposed to nine months among the others), those whose mothers washed their hands with soap (instead of mud), and those whose moms were literate. In Vietnam, the lower income children growing well were those who were fed the small fish shunned by others.

- If we find that maternal malnutrition is a problem, and that low birthweight is a problem in our communities, why not—when we’re doing child growth promotion—also call together the pregnant women and do pregnancy weight gain monitoring? If a woman early in pregnancy has a BMI less than—well you figure out what the cutoff should be for your country—or has gained less than 1 kg in the past month, this woman needs special attention.

- One of the best community-based programs with which I ever worked was successful because the local health facilities took them so seriously and provided so much support. In fact, growth promotion activity was held on a different day in each of the communities in the facility coverage area so that at least one facility staff member could be present. And so on that day, with all the moms and the kids present, it was possible to bring children up to date on immunizations, make sure that pregnant women had enough iron folate tablets, make sure that families had adequate amounts of micronutrient powders for their kids (I’m so pleased to see that Laura and Lynnette will be discussing these), and facilitate referrals where necessary. In the country where they did all of this, they called it “one stop shopping.”

- And please, please don’t make the mistake that I made in Egypt some years ago. In this Egypt work, we completely neglected the issue of overweight both among mothers and children. We can’t simply focus on weight gain and end up with obese mothers and stunted but fat children. Marie Ruel will be talking with us about this later in the conference.

Number 2: Demand Creation

The more I work in community-based nutrition, the more convinced I am that in order for nutrition services to be sustainable, communities and families within these communities have to want them—have to demand them. Families need to know what their children should be able to achieve and then know exactly where they should be able to go to get these services.

How do we generate such demand creation?

- In Peru, the government with World Bank assistance did this in education by informing families and communities that a child by 2nd grade ought to be able to read 60 words a minute. And if your kid can’t read 60 words a minute, your child is not getting the education he or she needs, and you should insist upon better schooling.

- In nutrition, the standard set in Peru was that the child should have a length of at least 60 cm by one year of age. It was explained to families that every child, whether from a culture of shorter people or taller people, has the potential to be at least 60 cm by one
year of age, and needs to grow that much to be healthy. Families were then told what nutrition services were available in their communities and who to go to if their child wasn’t growing well to demand support. Controversial idea? Certainly! But intriguing, isn’t it? Why not experiment with it in some of your programs and see if this kind of demand creation has a place in Latin America and the Caribbean. (Let me mention that a video on this topic will be showing during the cocktail/mercado at the World Bank table.)

- And here’s something that was done in East Africa. Health and nutrition organizers used cell phones to call village leaders and to tell them, for example: “Do you know that the government of your country has indicated that every pregnant woman should receive four ante-natal visits and 180 iron folate capsules over the course of her pregnancy? And do you know that in x region, pregnant women are receiving these services? Are pregnant women in your area receiving these services? If not, you should demand this.”

Number 3: Building Sustainability

How many programs have we seen, in which a program, achieves some impact, then ends, and progress is halted? This is sometimes particularly true with programs initiated by external agencies.

If I were the Minister of Health—do you think with such suggestions I’ll ever be invited?—I would require that every project, as part of its proposal, include a specific plan detailing exactly how the impact hopefully achieved during the project is going to be sustained once the say 5 year project is completed. We have to be serious about sustainability.

Number 4: Multisectoral Action

I think all of us in this room recognize that while community-based nutrition programs on their own are capable of significant impact, complementary inputs are needed from other sectors to achieve the sustainable long term results we really desire. Clearly the effects of our programs are going to be compromised if, for example, water supply is poor, or if literacy rates are low. We recognize that fully addressing malnutrition problems is a multisectoral endeavor, one involving inputs also from departments dealing with rural development, social welfare, women’s affairs, food, and others—but we seldom act on this recognition. If a government gives priority to reducing malnutrition and ill health at the community level—if it’s a national priority—then ministries beyond health have to be involved, and these efforts have to be systematically coordinated at the local level. This intersectoral coordination is, I think, one of the two biggest obstacles we face in international community-based nutrition. The other is effective referral systems that assure that all referred individuals receive the treatment and the follow-up that they need. Any country which can do both intersectoral coordination and proper referral deserves a gold star if not the Nobel Prize.
Number 5: Monitoring and Evaluation

I’m so pleased that my friend Rafa will be leading a discussion of monitoring and evaluation. Here are some of the points I’m guessing that Rafa will be stressing:

- We’ve had plenty of efficacy studies in nutrition, and not nearly enough field-based evaluations of interventions under field conditions. Let’s rectify the imbalance, and then use good impact effectiveness data for advocacy purposes.

- Our evaluations need to have carefully collected baseline data so that we have a starting point from which we can assess the changes resulting from the program.

- We need to be able to attribute the extent to which the change we’re observing is attributable to our project.

- It’s not good enough to measure the effect of a project on a population as a whole. We need also to be able to measure its effect on, say, the poorest 20% of households, on female headed households, on whatever groups are likely to be most vulnerable.

- Good supervision is absolutely necessary but not sufficient. We need to collect ongoing monitoring data and then use every bit of that data locally—not six months from now but two weeks from now—to fix problems as they arise, to identify and take rapid action when, for example, the percentage of children coming for growth promotion activity in a community falls below a minimum standard, or where the percentage of pregnant women failing to gain at least 1 kg in the past month has exceeded a pre-determined cut-off point.

- And let’s monitor the quality of the services being delivered in our projects through quality assurance mechanisms – teams of experienced professionals who regularly visit these communities, observe the services being delivered, offer suggestions locally, and then feed this information back to project management and also to those responsible for the basic training and refresher training for community-based nutrition and health personnel. There’s no purpose in quickly scaling up projects if the quality of these services is not adequate. We’ll be hearing more about this later in the workshop in a presentation from Guatemala.

Finally, let’s commit ourselves to making information available on every one of our projects—even those which are not successful. Let’s learn from every single project we undertake, and share that information. Let’s make community based nutrition in Latin America and the Caribbean a culture of curiosity—and a culture of action emanating from that curiosity.

Thank you, friends, and best wishes in this meeting and in the work ahead.
## Annex 4: Country program summaries

### EL SALVADOR

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<tr>
<th>Indicator</th>
<th>National Rate</th>
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<tbody>
<tr>
<td>Chronic malnutrition (stunting) rate</td>
<td>21% of children under age five; the rate of stunting in children in rural areas is almost twice that of children in urban areas (18% vs. 10%)</td>
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<tr>
<td>Acute malnutrition (wasting) rate</td>
<td>2% of children under five</td>
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<tr>
<td>Underweight rate</td>
<td>6% of children under five</td>
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</table>
| Micronutrient deficiencies (children under five) | • Iron: 27%  
• Vitamin A: 15%                                                                                                      |
| Micronutrient deficiencies (pregnant women)  | • Iron: 21%  
• Vitamin A: 2%                                                                                                      |
| Overweight and obesity rate (children under five) | 6% are overweight, twice as much as ten years ago.                                                                                       |
| Adult overweight and obesity rate             | 80% of women over 40 are overweight.                                                                                                                                 |

**Programmatic challenges:**
- Turnover of volunteers: Up to 40 percent have quit community work; the main cause is the lack of economic incentives and the limited options for the volunteers to assume leadership and community organization roles.
- Lack of visibility of the strategy, which has been restricted to the rural environment and has had little dissemination to society as a whole.


Note: All nutrition data use the 2006 WHO standards.
The AIN-C strategy

The AIN-C strategy in El Salvador started being implemented in 2001 and has achieved a coverage of 71 percent in the provinces, 57 percent in municipalities and 30 percent in health-care areas. A total of 818 communities are receiving AIN-C services, with an average of 15 participants per community and a total of around 12,000 pregnant women and children under two years of age. El Salvador’s AIN-C program is financed 70 percent by foreign grants and loans, and 30 percent by the national government. At the community level, the program is managed with the cooperation of fixed health-care networks and non-governmental organizations, which are responsible for implementing, financing, and monitoring the program in communities in their geographical areas. At the national level, the Ministry of Health coordinates and supports training and monitoring activities, as well as the evaluation of the community volunteers and of the strategy.

The AIN-C strategy in El Salvador targets all family members, including pregnant women and parents of children under two, to offer care actions and foster the development of social, cognitive, physical and communicational skills and competencies. The program’s activities are conducted in partnership with other sectors at the local level and with the support of the community, and works on issues related to child care, family life, food, health, and nutrition. Activities to promote child growth are based on monthly weight monitoring carried out by community volunteers, who work with an average of 15 children aged 0 to 23 months and/or pregnant women. Also bi-annual meetings are organized with the community, health staff, community associations, and representatives, to report on the nutritional situation of the population and an evaluation of progress and/or existing challenges. Furthermore, health staff and/or promoters distribute essential micronutrients to the target groups, according to national supplementation standards.

The objective of these activities is to improve and/or maintain good nutrition for mothers and children to ensure healthy fetal development, and normal growth and development of children through adequate breastfeeding. Specifically, the program focuses on messages and activities to protect maternal health during pregnancy and promote exclusive breastfeeding and adequate complementary feeding to ensure appropriate growth, including prevention of intrauterine malnutrition, underweight at birth, and chronic and acute malnutrition during the first two years of life. In 2009, following a modification of the AIN-C strategy, the program in El Salvador began to include an additional early stimulation and development component under which the community volunteers invite the mothers and/or caretakers to participate in weekly early development and stimulation workshops, including activities such as playing and communicating with children, and child-care practices, including attentive feeding. Besides adding this new component, the program also adjusted the organization, coordination and role of the community volunteers to expand the program to urban areas and facilitate the distribution of supplementary foods in target areas.
GUATEMALA

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<td><strong>Chronic malnutrition (stunting) rate</strong></td>
<td>49.8% of children under five (the highest rate in LAC region). Indigenous children are most affected, with chronic malnutrition and underweight rates that are twice as high as those of non-indigenous children.</td>
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<tr>
<td><strong>Acute malnutrition (wasting) rate</strong></td>
<td>1.4% of children under five years of age</td>
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<tr>
<td><strong>Underweight rate</strong></td>
<td>13.1% of children under five years of age</td>
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| **Micronutrient deficiencies (children under five)** | ▪ Anemia: 47.7% in children aged 6 to 59 months  
▪ Vitamin A: 16%; 23.7% of indigenous children                                                                                                                                                                                                                                     |
| **Micronutrient deficiencies (pregnant women)** | ▪ Anemia: 29.1%  
▪ Vitamin A: 1.1%  
▪ Iodine: Less than half the Guatemalan households consume iodized salt and 67,000 children are born with mental retardation due to iodine deficiency during pregnancy.                                                                                   |
| **Overweight and obesity rate (children under five)** | 6% are overweight, of which 1% are obese                                                                                                                                                                                                                                                                                                   |
| **Adult overweight and obesity rate** | 67% of adults over age 15 are overweight, and 29% are obese.                                                                                                                                                                                                                                                                               |

**Programmatic challenges:**
- Given the high turnover of staff/educators (up to 60%), there is a need to improve staff retention at the community level.
- Inclusion of health promotion actions in all maternal-child service delivery.

The Integrated Care for Children and Women at the Community level (AINM-C) program was established in Guatemala in 2002 to strengthen the model of extension of health coverage and connect it to the integrated care for childhood diseases (AIEPI). In 2006, community education on health and nutrition was added, as well as the delivery of complementary food (Vitacereal). In 2008 AINM-C was strengthened through the Health and Nutrition Project, supported by the World Bank.

Currently, the AINM-C Program is active in 10 departments of the country’s 22, covering 49 priority municipalities based on indicators of basic needs and/or chronic malnutrition levels. Compared to other community-based nutrition programs in the region, AINM-C targets women explicitly, including pregnant women, lactating women and women of child-bearing age. Services for women include prenatal and post-partum care and family planning. AINM-C covers 209,972 families in 95 jurisdictions, with an average of 2,210 families per jurisdiction, of which 60,606 are children under two and 31,893 are pregnant women. The program has almost 6,000 community volunteers (called madres consejeras), who support the educadoras, who provide health and nutrition services, and participate in monthly meetings with the community.

The objective of AIMN-C is: to reduce maternal and infant morbidity and mortality rates, by reducing chronic malnutrition through the promotion of adequate child care and feeding practices. In the last five years, the program has been revised to update these objectives through the following changes:

- Targeting children under age two
- Implementing quality control of services provided to children under two
- Incorporating a communication strategy to develop and standardize messages at the first and second levels of health care
- Implementing mothers’ support groups
- Applying an adult education methodology to instruct educadoras and mothers on health and nutrition

Currently AINM-C is in the process of strengthening the counter referral system, which is still weak, and reviewing its implementation standards. The objective is for the referral and counter referral system to involve the three levels of care, with emphasis on counter referral, so that 80 percent of the cases may receive care close to the family. These improvements would affect the response capacity of the whole health care system, both governmental and local, and would involve other stakeholders such as the private sector and midwives, providing for improved quality of care and relieving congestion at the second and third level of care.
HONDURAS

<table>
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<tr>
<td><strong>Country Nutrition Context</strong></td>
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<tr>
<td><strong>Chronic malnutrition (stunting) rate</strong></td>
<td>30% of children under five. There are important disparities between urban and rural environments: in one third of Honduras, 50% of the children suffer from chronic malnutrition, and children in rural areas are 2.5 times more affected than those who reside in urban settings.</td>
</tr>
<tr>
<td><strong>Acute malnutrition (wasting) rate</strong></td>
<td>1.4% of children under five years of age</td>
</tr>
<tr>
<td><strong>Underweight rate</strong></td>
<td>8% of children under five</td>
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</table>
| **Micronutrient deficiencies (children under five)** | ▪ Iron: 37% of children between 6 and 59 months of age  
  ▪ Vitamin A: 14% of children under five |
| **Micronutrient deficiencies (pregnant women)**     | ▪ Iron: 21.4%  
  ▪ Vitamin A: 4.8% |
| **Overweight and obesity rate (children under five)**| 6% are overweight and 25% of them are obese. Child overweight rates have doubled over the last five years. |
| **Adult overweight and obesity rate**               | 47% of women of child-bearing age are overweight or obese, of which 19% are obese. |

**Programmatic Challenges:**
- Incorporating the Monitoring and Information System (*Sistema de Informática para el Monitoreo y Evaluación*, SIME) as the main source of information for the AIN-C Program.
- Adaptation of program manuals based on the new experiences in the area of intercultural health.
- Empowering the local, departmental and central level to perform the roles and functions to implement the strategy with decentralized providers.
- Harmonizing the various programs and initiatives dealing with nutrition in government agencies, NGOs and foreign cooperation.

Community-based Integrated Children Care Strategy: AIN-C

The Community-based Integrated Children Care Strategy (AIN-C) of Honduras was implemented in 1991, but since then it has undergone many changes. According to the 2006 Health Survey (ENDESA), the program now reaches almost 30,000 children under two in the provinces and municipalities with the highest rates of malnutrition. The AIN-C activities, including growth monitoring and micronutrient distribution, are carried out in the community through monitors selected by the communities themselves. Height measurement is done at the hospital or in mother and child clinics by a health professional or promoter during the monthly AIN-C meetings. For newborn children, the detailed measurement is done at the clinic or during the first home visit by the monitor and promoter, and every six months until age 24 months (at 6, 12, 18 and 24 months). During the monthly AIN-C meetings, the promoters provide individual advice to the mothers. At meetings held every four months, the promoters analyze children’s growth and health in the communities, identifying issues related to the strategy’s development, child health and actions to address these issues with the participation of the community.

Although AIN-C uses providers other than those included in the basic health package, there is a very close link with the health centers and services. All the monthly meetings of the health-care units are coordinated with the promoters, and in case of detecting signs of danger in a child, such as pneumonia, diarrhea, lack of vaccination and/or malnutrition, the child is referred to a basic health unit. There is also a counter-referral system between the health center and the voluntary staff (currently, 3,600 monitors) to ensure follow up for the child’s treatment in the community.

In the last five years, AIN-C expanded its coverage in 1,038 communities through decentralized providers and it is engaging the municipalities to increase the program’s sustainability. Besides, two new major components were piloted, including:

1. Integration of an early stimulation component in 17 communities, using promoters trained to include early stimulation activities in his/her AIN-C work. Using this model, 55 promoters included early stimulation messages in home visits and in growth-promotion sessions.

2. Development of an AIN-C Monitoring and Evaluation Information System (SIME) with the purpose of facilitating the process of information analysis at the surveillance stage of the strategy. SIME was developed together with the technical staff of the Health Secretariat, including the requirements they specified. Entering its third stage, SIME has the capacity to record the strategy’s most important instruments, generate reports that group data and, in the future, the ability to generate geographic maps that will help in identifying and prioritizing communities based on their social and nutrition characteristics.
NICARAGUA

<table>
<thead>
<tr>
<th>Country Nutrition Context</th>
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<tbody>
<tr>
<td><strong>Indicator</strong></td>
<td><strong>National Rate</strong></td>
</tr>
<tr>
<td><strong>Chronic malnutrition (stunting) rate</strong></td>
<td>22% of children under five years of age</td>
</tr>
<tr>
<td><strong>Acute malnutrition (wasting) rate</strong></td>
<td>1% of children under five years of age</td>
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<tr>
<td><strong>Underweight rate</strong></td>
<td>6% of children under five</td>
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</tbody>
</table>
| **Micronutrient deficiencies (children under five)** | ▪ Iron: 17% of children under five  
▪ Vitamin A: 3% of children under five |
| **Micronutrient deficiencies (pregnant women)** | ▪ Iron: 33%  
▪ Vitamin A: 2% |
| **Overweight and obesity rate (children under five)** | ▪ 7% are overweight, of which 2% are obese |
| **Adult overweight and obesity rate** | 18.7% of adult women (aged 15 or over) are overweight or obese. |

**Programmatic Challenges:**
- Maintaining the PROCOSAN program’s implementation quality through:
  - Updated guides, manuals and standards
  - Monitoring the appropriate use of the guides, manuals and standards
  - Implementation by NGOs supported by MINSA in their work
- Updating data on nutrition practices and behavior for infants and young children to ensure that the key messages still target inadequate practices.
- Lack of evidence on the program’s impact on the reduction of chronic malnutrition (impact evaluation).

Community Health and Nutrition Program (Programa Comunitario de Salud y Nutrición, PROCOSAN)

The Community Health and Nutrition Program (PROCOSAN) was established in Nicaragua in 2001 under the government’s reinforced strategy of economic growth and poverty reduction (ERCERP) to meet the target of reducing chronic malnutrition. In its second phase in 2003, PROCOSAN added a component dealing with community-based integrated care for childhood diseases (AIEPI), with the roles and activities that are generally included in the AIN-C strategy.

Currently, PROCOSAN is implemented in 94 percent of Nicaragua’s provinces, covering a total of 1,850 communities and almost 47,000 children aged 0-24 months and pregnant women. The coverage of pregnant women is still low because the maternal component has recently been introduced in the program. Similar to other programs in the region, the objective is to improve growth and prevent malnutrition and disease in children under two years of age. With the inclusion of pregnant women, the objectives include improving their nutritional condition by monitoring weight gain during pregnancy and providing micronutrients to prevent in-utero malnutrition and low birth weight.

PROCOSAN uses three promoters (brigadistas) per community, with a total of 5,500 brigadistas nation-wide. In each community, the three promoters cover 25 children, and one promoter is added to care for pregnant women. The promoters are responsible for the monthly weight gain monitoring as well as for referral of any children with unsatisfactory weight gain to the health center. The brigadistas also deliver micronutrients supplied by the Ministry of Health (MINSA) and provide counseling during growth monitoring sessions. Every four months, the group of brigadistas requests a meeting with the community and the people responsible for health in the community to review the outcomes of the weight monitoring over the last four-months and, if there has been decline in the community, discuss the possible causes and identify interventions to prevent further worsening of the situation in the following months. Additionally, in the communities where the component on community-based case management is implemented, zinc tablets are provided as part of the treatment for diarrhea.

PROCOSAN operates in partnership with MINSA’s fixed network and health posts, which serve several communities according to their size. In some geographical areas there are non-governmental organizations support MINSA with logistics for training, supervision and materials.. These NGOs are supervised by institutional staff. At the national level, PROCOSAN has been recognized by the Government for National Unity and Reconciliation as a community strategy that is essential in the fight against chronic malnutrition. The program is part of the National Plan for the Eradication of Child Chronic Malnutrition, led by MINSA and other government departments, non-governmental organizations and foreign cooperation agencies.
### PANAMA

**Country Nutrition Context**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>National Rate</th>
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<tbody>
<tr>
<td><strong>Chronic malnutrition (stunting) rate</strong></td>
<td>19% at the national level; 62% in indigenous communities</td>
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<tr>
<td><strong>Acute malnutrition (wasting) rate</strong></td>
<td>1.2%</td>
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<tr>
<td><strong>Underweight rate</strong></td>
<td>3.9% at the national level; 12.4% in indigenous communities</td>
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<tr>
<td><strong>Micronutrient deficiencies (children under five)</strong></td>
<td>- Iron: 36%</td>
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<td></td>
<td>- Vitamin A: 9.4%; 23.7% in Indigenous Communities</td>
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<tr>
<td></td>
<td>- Zinc: 36.2% in Santa Fe and 35.6% in Mironó</td>
</tr>
<tr>
<td><strong>Micronutrient deficiencies (pregnant women)</strong></td>
<td>- Iron: 40%</td>
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<tr>
<td></td>
<td>- Vitamin A: 1.8%</td>
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<tr>
<td><strong>Overweight and obesity rate (children under five)</strong></td>
<td>31.1% are overweight, of which 29.8% are obese</td>
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<tr>
<td><strong>Adult overweight and obesity rate</strong></td>
<td>32.7% are overweight, of which 34.7% are obese</td>
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**Programmatic Challenges:**

- Difficulties maintaining the motivation and adequate training of the *monitoras* to reduce turnover and increase the program's sustainability.

- Integration of the community component into the fixed network, and use of the experiences developed by the *monitoras* and mothers of children aged 0-24 months by the basic health team.


Community-based Integrated Children Care Strategy: AIN-C

The Community-based Integrated Child Care program (AIN-C) in Panama began in February 2008 and it is the newest in the region. While still in the process of expanding, the program covers areas in all of the country’s provinces, including 100 percent coverage in the 5 indigenous districts, targeting children aged 0 to 24 months as its main beneficiaries.

Panama’s AIN-C is based on a combination of activities and interventions using:
1. Community level monitoras
2. Basic health teams
3. The itinerant and/or fixed health network

The interventions are mainly based on the weight monitoring carried out by the monitoras in the community once a month, the height measurements carried out by the basic health teams in health-care facilities or in the community, through the itinerant network every two-months, and the distribution of micronutrients and fortified complementary foods (Nutricereal) for children under two and pregnant women. Two consecutive unsatisfactory weight monitoring measurements according to the growth trend card, are referred to the basic health teams, using the monitora’s community referral form. There is also a community counter-referral system from the basic health team or facility to the community staff, but this mechanism needs to be strengthened to improve the monitoring of malnourished children.

The AIN-C program is implemented by institutional teams and extra institutional organizations which are hired to provide services in the community. At the institutional level, the Project’s Executive Committee is responsible for inter-institutional coordination, together with several national departments and directorates, service providers and technical audits. In spite of the collaboration efforts and the integration of the AIN-C program into the fixed network, the application of community experiences is still a challenge at the national level.

Panama’s AIN-C program is particularly notable for the development of key communication messages in the indigenous districts. These were developed by the Ministry of Health together with other institutions and the target communities where high levels of malnutrition still persist, using a collaborative and participatory process. Formative investigation on child care and feeding practices for children under two provided a framework for targeting messages to each indigenous group in accordance with their traditional practices, availability and consumption of specific foods, and community beliefs. The process of developing training materials using the background study with the communities reflects a good practice to reach the community and support behavioral changes that are not only appropriate and context-specific, but also sustainable within the communities themselves.
References


Martorell, R., R. Flores, and E. Hurtado, 2002. Defining Growth Failure in Growth Monitoring and Promotion Programs: Comparison of Minimum Expected Weight Gain vs. Tendency Methods. Summary of the presentation made to the Minister of Health in Guatemala and USAID staff (December 4).


Schaetzel, T. Enabling Community Workers and Mobilizing Communities, IYCN and USAID.


Chronic malnutrition (or stunting), defined as being too short for a given age, is a serious problem in Central America, causing long-term damage both to individuals and economies as a whole. Many countries in the region have developed community-based nutrition programs to support children’s growth through regular growth measurement and individualized counseling to parents about caring practices, feeding, disease treatment, and appropriate use of health services. The second regional nutrition workshop, “Promoting Healthy Growth to Prevent Chronic Malnutrition: Advances and Opportunities for Community-based Strategies in Central America,” held in Panama City from October 26-28, 2011, explored progress and opportunities for these programs.

This report summarizes discussions during the workshop on four themes that are fundamental to the success of community-based growth promotion programs in the region: (1) monitoring growth, including its purpose and tools that are most appropriate at the community level; (2) behavior change communication; (3) monitoring and evaluation, including the use of cell phones for program monitoring; and (4) additional services to enhance child development outcomes, specifically, micronutrient powders and early childhood development activities. The report also explores ongoing program challenges—for example, issues of sustainability and the use of monitoring data and evaluation results for decision-making to improve program function and impact—and presents opportunities to strengthen community-based growth promotion programs in the future.