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6. Maternal and Child Health and Nutrition

Abstract

Title II development food aid supported more than 15 proven, high-impact HN interventions in the 69 programs reviewed in 23 countries. Promoting optimal breastfeeding, complementary feeding, and feeding of sick and severely malnourished children, and increasing vitamin A supplementation coverage were the most common nutrition interventions; 70 percent of the programs worked on four or more of the ENA. Two-thirds of the programs distributed Title II food rations to women and children; 70 percent of this supplementary feeding used a preventive targeting approach covering all children in the eligible age group, whereas 30 percent targeted food only for recuperation of malnourished children. Common health interventions were hygiene improvement, immunization, treatment of child illness, and birth preparedness and maternity services. Programs achieved impressive improvements in the use of HN services, child feeding and hygiene practices, and child nutritional status by applying effective approaches and integrating services. Most importantly, many children are alive and have been spared ill health and life-long disabilities thanks to Title II development programs. Stunting in children under five years fell an average of 1.32 percentage points per year across 28 programs. The program experiences and results have contributed a wealth of evidence on what works and what does not, consistent with published evidence. For example, the average annual decline in stunting of 1.69 percentage points in programs that provided preventive supplementary feeding was twice that achieved in recuperative feeding only or in no-food-ration programs. Furthermore, programs with greater success reducing stunting provided interpersonal nutrition counseling and home visits, and targeted children under two or three years. Less successful programs did not use these effective, population- and community-based SBCC strategies, and many implemented a stand-alone Positive Deviance/Hearth (PD/H) approach, focused on recuperating malnourished children versus preventing undernutrition. Food rations given to all household members, in addition to individual mother-child rations, were not associated with greater declines in undernutrition. Household rations increase cost and reduce coverage; evidence is needed to substantiate their merit. In FY 2009, US\$92.3 million was spent on Title II HN activities reaching nearly two million beneficiaries; this represents approximately 29 percent of the total cost of Title II development programs and excludes water, sanitation, and HIV. In Africa, programs spent only 17 percent of the total regional Title II development resources on HN—an underinvestment problem. The policy implications of the assessment are provided in Box 6.15 and the conclusions and recommendations are provided in Sections 6.6.1 and 6.6.2.

6.1 Introduction

6.1.1 Policy and Program Environment

For at least four decades, the Title II program has been a major source of USG resources to reduce maternal and child undernutrition in developing countries. Reducing undernutrition saves lives and is vital to achieving USAID/FFP’s Strategic Plan objective—“Reducing food insecurity in vulnerable populations.” Indeed, two of the four indicators used by USAID/FFP to measure the people-level impact of its Title II development programs are *reducing stunting* and *reducing underweight* in children under five years of age. According to the Strategic Plan, Title II development programs are intended to “protect and enhance human capabilities” through MCHN interventions. Table 6.1 shows illustrative activities “to reduce the prevalence of chronic undernutrition among young children” from the Strategic Plan. Additional illustrative activities from the Strategic Plan “to enhance the nutritional status of women” and “to identify, treat and prevent recurrence of cases of acute undernutrition” are shown later in this chapter.

Throughout the FAFSA-2 time period, USAID/FFP considered HN one of eight priority technical sectors supported by Title II development programs.

(See Box 6.1 for the definition of the HN technical sector.) This chapter reviews Title II MCHN activities implemented during the FAFSA-2 time period. Title II-assisted HIV activities are reviewed in Chapter 8.¹⁵⁹

What MCHN services does Title II support? The three core services to be provided in MCHN Title II development programs are: (1) community-based SBCC,¹⁶⁰ (2) preventive and curative HN services, and (3) supplementary feeding as elaborated in Box 6.1. The USAID/FFP guidance promoting these services is sound and built on a solid foundation of state-of-the-art science. That science includes broad international consensus on the basic MCHN interventions in the package, based on evidence of their effectiveness (Bhutta et al., 2008; Klemm et al., 2009; Jones et al., 2003; SUN, 2010). The delivery of the package of preventive MCHN interventions should be population-based, following the public health principle of reaching everyone in the target geographic area based on age and physiological

¹⁵⁹ In FY 2009, Title II HIV activities comprised 21 percent of all HN activities in Africa, less than 2 percent in LAC, and 0 percent in Asia according to annual reporting Tracking Tables submitted to USAID/FFP by Awardees.

¹⁶⁰ See Section 6.3.3.4 for a definition of SBCC and an explanation of why the term now includes social communication.

Table 6.1. Illustrative Activities from the 2006–2010 Strategic Plan Related to Sub-IR 2.1, Human Capabilities Protected and Enhanced

<i>Illustrative Activities: To reduce the prevalence of chronic undernutrition among young children</i>	
Non-Food Assistance	Food Assistance
<p>The Title II program:</p> <ul style="list-style-type: none">• Provides individualized counseling to caregivers on appropriate IYCF and health-seeking practices.• Provides and/or facilitates access to other essential services, such as growth monitoring, health education, and immunizations.• Educates parents and caregivers about how to improve the nutritional status of their children.• Provides training and supports the implementation of community-based nutritional rehabilitation activities (e.g., Hearth approach).• Promotes and supports peer-networks to sustain positive IYCF behaviors and to prevent recurrence of negative behaviors.	<p>The Title II program:</p> <ul style="list-style-type: none">• Provides food as an incentive to encourage parents to participate in the community-based MCHN programs and to offset the opportunity costs of participation.• Provides food to supplement inadequate diets.

Source: This table is taken verbatim from the USAID/FFP Strategic Plan, p. 66.

Box 6.1. USAID/FFP Definition of Its Health and Nutrition Technical Sector

“Objectives include reducing the prevalence of chronic undernutrition among young children; identifying, treating and preventing recurrence of cases of acute undernutrition; preventing, treating and mitigating the impact of chronic diseases such as HIV and TB; and enhancing the nutritional status of women. Activities include interventions to improve maternal and child survival, health, nutrition, productivity, growth and development—promotion of improved feeding behaviors, such as exclusive breastfeeding and appropriate complementary feeding of infants and young children; and, optimal dietary intake before, during and after pregnancy for women; prevention and treatment of preventable diseases, including diarrhea, malaria, and intestinal parasites; increased micronutrient consumption of women and children; and, improvements in ante, intra, and postpartum care, including newborn care. Activities also include interventions to improve treatment, care and support of people living with HIV. Food rations are used to prevent and treat malnutrition while supporting participation in activities that improve overall survival, health and nutrition.”

Source: USAID/FFP Annual Results Reporting Guidance for FY 2009.

status. It should also be community-based, i.e., doing interventions such as SBCC to improve IYCF practices in the same community where people live. A popular term for the nutrition interventions recommended by USAID/FFP is ENA (Guyon and Quinn, 2011; CORE Group, 2010; FANTA, 2010). The term and concept—ENA—will be used as an organizing principle for presenting FAFSA-2 findings on nutrition interventions supported by Title II (see Box 6.2). Supplementary feeding is an important additional nutrition intervention supported by Title II and reviewed here.

Nutrition interventions in Title II are expected to be complemented by essential preventive and curative health services through collaboration with national and local government systems or other partners and by health behavior change.

Since the MCHN services that need to be delivered in a complete, integrated program are many, it is beyond the scope and resources of individual Title II programs to support all of these services directly. Prioritizing what to support depends on national norms, partnering with others, and closing gaps. The comparative advantage of Title II development programs is delivering supplementary feeding and community-based SBCC interventions, where outreach by health systems is weak or absent. The

Box 6.2. Essential Nutrition Actions

- Promotion of optimal breastfeeding during the first six months
- Promotion of optimal complementary feeding starting at six months with continued breastfeeding to two years of age and beyond
- Promotion of optimal nutritional care of sick and severely malnourished children
- Prevention of vitamin A deficiency in women and children
- Promotion of adequate intake of iron or folic acid and prevention and control of anemia for women and children
- Promotion of optimal nutrition for women
- Promotion of adequate intake of iodine by all members of the household

See <http://www.coregroup.org> for nutrition and ENA programming tools.

programs also play a critical role in facilitating participation in health services by Title II participants and outreach by the health system to deliver services closer to the community to increase coverage.

Whom should Title II MCHN programs target?

The USAID/FFP Strategic Plan target group for MCHN activities is pregnant and lactating women and children under two, because they are vulnerable due to their physiological status (see Box 2.1 in Chapter 2). This particular target group was mentioned specifically in the USAID/FFP Proposal Guidelines for FY 2002–FY 2004 and FY 2009–FY 2011, with *preventing* undernutrition emphasized in the guidelines in the later years. It has been known for several decades that nutrition programs in developing countries, including Title II, should target children under two or three years of age; USAID/FFP has specifically promoted reaching children under two years. However, for CMAM in countries with a high prevalence of wasting in children, the recommended age group is children under five years for screening, referral, and treatment.¹⁶¹

The focus on pregnant and lactating women and children under two in USAID/FFP guidance is based on extensive scientific evidence. Programs to improve the health and nutritional status and survival of mothers and children will have the greatest impact if they target people in the age groups and physiological status during which most of the problems occur and can best be prevented or reversed. The period between a woman's pregnancy and her child's second birthday, popularly referred to as the first "1,000 days,"¹⁶² is a unique window of opportunity when better nutrition can have a high impact on reducing death and disease and avoiding irreversible harm (Black et al., 2008; Victora et al., 2008). Of special relevance to Title II is the fact that "[r]esearch from several program sites has found that supplementary feeding is more effective in improving child growth and preventing growth faltering in younger children than in older children,

with the greatest benefits occurring during the first and second years of life" (FANTA, 2010).

The first two years of life are normally a time of rapid growth and a critical time for cognitive development. However, this is when most growth faltering and related cognitive impairment occur in children in developing countries due to inadequate dietary intake and infection. Analysis by Victora et al. (2010) of child anthropometric data from 54 countries using World Health Organization (WHO) child growth standards found that, although most children are born with normal weight and length, early growth faltering starting in the first six months of life was even faster than assumed and that the window of opportunity for preventing stunting ends at two years of age. It is common after two years of age for children with low height-for-age to remain stunted, with their weight normally proportional to their height. The average adult height deficit found to be associated with a deficit in height-for-age of 1 z-score at two years of age is 3.2 cm (Victora et al., 2008). See Annex 6.1 for graphs of the rapid decline into low weight- and height-for-age in the first two years of life taken from evaluation survey cross-sectional data reported in Title II development program documents from Ghana, India, and Indonesia reviewed for the FAFSA-2. The graphs illustrate how children's weight and height-for-age z-scores remain low after two years of age, and the urgency of preventing undernutrition early in life.

6.1.2 Methods

The performance of the Title II MCHN programs reviewed was judged by the following criteria: (1) whether they targeted appropriate beneficiaries and (2) whether they incorporated appropriate interventions and approaches. The FAFSA-2 HN reviewer developed and used an Excel spreadsheet to tally the numerous interventions, program approaches, documents read, evaluation survey limitations, indicators used, and whether improvements were achieved for all of the programs assessed. This helped tremendously for describing the breadth of Title II MCHN activities and their results, and identifying gaps

¹⁶¹ Sources: PM2A TRM (FANTA, 2010) and the USAID/FFP FY 2012 and FY 2013 RFAs for Title II development programs.

¹⁶² <http://www.thousanddays.org>. Accessed February 10, 2012.

Box 6.3. Limitations of the FAFSA-2 Review of MCHN Components of Title II Programs

The completeness and accuracy of this assessment is limited by the completeness and accuracy of the program documents and results data reported by Awardees. It was not possible for the FAFSA-2 team to check the quality of the reported evaluation data or to conduct new analyses of survey datasets. However, if survey limitations were reported or observed by the team, the problems were documented and these data were not used. Indicators that measured knowledge instead of actual practice at the highest outcome level were also eliminated from the review of results. The Title II reports had more information on *what* interventions and approaches were implemented and the results achieved than on *how* programs were designed and implemented; the quality of implementation; or the extent of coverage, participation, or exposure of the beneficiaries to the interventions. This review could have been improved by having more information to explain *why* certain results were or were not achieved and to describe program models. Fortunately, some of the evaluations reported on quality issues. The FAFSA-2 team was able to observe the quality of MCHN service delivery during field visits to seven ongoing programs in five countries.

(see Box 6.3 for limitations of the review). Most of the assessment was based on the massive task of reading 518 program documents, as described under methods in Section 1.4, and on field visits to seven ongoing Title II development programs with MCHN activities in five countries.

The general term “preschool children” is used throughout this chapter to refer to children that were Title II development program beneficiaries. Use of this vague term is unavoidable because the mix of programs reviewed did not all target the same age group of children. The variations seen in age cutoffs for participation were 24 months, 36 months, 59 months, and 72 months. There was also considerable heterogeneity across programs in the age groups measured for outcome and impact indicators.

This chapter first describes basic facts about the MCHN programs in the FAFSA-2 universe. Next, findings are presented on age groups targeted in the Title II programs reviewed. The chapter then proceeds to describe in turn each of the nutrition and health interventions implemented and by how many of the programs (the “what” and “how many”). The outcomes achieved (the “so what”) are found at the end of each intervention subsection. After presenting each of the interventions and their outcomes, the next section describes and analyzes the program approaches used (the “how”). Because

most approaches supported multiple interventions, they are discussed only once, rather than under each intervention, to avoid repetition. A brief summary of the rationale for and state of the art of the interventions and approaches to which the Title II programs were compared is also included in each subsection. Toward the end of the chapter, the nutritional status impact of the overall Title II development program is reported. Finally, issues and opportunities identified for program improvement, conclusions, and recommendations are provided.

6.2 Basic Facts about Programs in the FAFSA-2 Universe

6.2.1 Projects and Countries

The FAFSA-2 review of MCHN activities followed the same rule used in the 2002 FAFSA of including only programs with at least one-third of Title II development resources dedicated to HN, for the sake of consistency (Bonnard et al., 2002).¹⁶³ This resulted in 69 programs in 23 countries

¹⁶³ Several of the programs that did some MCHN work but were below the threshold of 33 percent of resources dedicated to HN had low HN budgets because they did no direct MCHN food distribution and followed a low-cost PD/H approach for recuperating malnourished children, e.g., Africare/Burkina Faso, OICI/Guinea, WV/Rwanda, CARE/Sierra Leone, and CRS/Zambia.

for the assessment, with 34 programs in Africa, 12 programs in Asia, and 23 programs in LAC (see the FAFSA-2 universe in Table 1.3). These programs represent 68 percent of all programs in the FAFSA-2 universe of 101 programs. The programs reviewed were predominantly rural, with only those of CARE, MC, and WV in Indonesia and CARE/Bangladesh FY 2005–FY 2010 reporting urban activities. Several programs that did meet the HN funding threshold reported that the HN component was underfunded due to budget constraints caused by food monetization problems.¹⁶⁴

Nine of the Ethiopia programs in the FAFSA-2 universe were not included in the MCHN review because they were not doing HN. Their primary focus was on assisting the Government of Ethiopia’s national PSNP. Ethiopia is the second-most populous country in Africa, with 10 percent of the entire population of sub-Saharan Africa.¹⁶⁵ It has been a large recipient of U.S. development and emergency food aid.¹⁶⁶ Ethiopia’s national stunting prevalence was 51 percent in children under five years of age in 2005, fifth highest in the developing world (Kothari and Abderrahim, 2010). Given its large population, Ethiopia is a major contributor to the high burden of stunting in Africa and the world. In 2005, Ethiopia also had a national prevalence of acute malnutrition of 12 percent, a serious level according to WHO. Thus, not having Title II MCHN activities in Ethiopia disproportionately handicapped USAID/FFP from meeting its goal of reducing child undernutrition, especially in Africa.

6.2.2 Resources and Beneficiaries

In the FY 2009 Tracking Table analysis, 76 percent of Title II development programs (34/45) reported some resources for HN, and 78 percent (35/45)

reported some HN beneficiaries—all non-HIV. These programs used 90,683 MT of Title II commodities to reach 1,849,662 beneficiaries with HN activities at a total annual cost of US\$92.3 million.¹⁶⁷

In the 2002 FAFSA, there was a concern that the percent of Title II development resources dedicated to household nutrition activities had fallen from 50 percent in 1998 to 35 percent in 2001. This decline was not reversed during the FAFSA-2 time period. The percent of the total cost of Title II programs spent on HN was 40 percent at the start of the period in FY 2003 and 38 percent at the end in FY 2009, including HIV and WASH.¹⁶⁸ If HIV and WASH programming are excluded from this calculation, then the remaining HN activities comprised 29 percent of the total cost of Title II programs in FY 2009.

The problem of underinvesting specifically in the HN technical sector was limited to the Africa region, where only 17 percent of Title II development resources were spent on HN in FY 2009, excluding HIV activities and WASH, or 21 percent including HIV activities (see Table 6.2). Programs in Africa contrast sharply to programs in Asia, which spent a proportion on HN more than four times greater (70 percent), and programs in LAC, which spent a proportion three times greater (53 percent).^{169, 170} These same discrepancies between Africa and the other regions were present in FY 2003, with Africa

¹⁶⁴ The Africare Chad/Mali, Africare/Niger, and CRS/Liberia programs. The Africare/Burkina Faso program, which did not meet the threshold, also mentioned HN funding shortages due to monetization problems.

¹⁶⁵ “2012 World Population Data Sheet” found at http://www.prb.org/pdf12/2012-population-data-sheet_eng.pdf. Accessed October 25, 2012.

¹⁶⁶ Ethiopia was a top recipient of Title II development food aid in FY 2009 and FY 2010 according to the USAID/FFP Fact Sheets on the overall program for those years.

¹⁶⁷ This excludes FY 2009 Title II PM2A research programs in Burundi and Guatemala, which were just beginning in late FY 2009, and the Afghanistan program, because they are not part of the FAFSA-2 universe.

¹⁶⁸ For this analysis, HIV and WASH were added to the FY 2009 HN technical sector because these were included in the HN technical sector in 2003 and earlier years.

¹⁶⁹ There was only one LAC program with HN funding coded as HIV and no programs in Asia. Therefore, excluding HIV funding does not change the percentages spent on HN in these regions.

¹⁷⁰ Given that Ethiopia was the largest recipient of Title II development food aid in FY 2009, but programs there attributed only 0.19% of their total cost to HN, the analysis was repeated without Ethiopia. Excluding Ethiopia, the percent invested in HN by Africa Title II programs in FY 2009 was still low compared to other regions, namely, 22 percent of total cost spent on HN excluding HIV activities and 28 percent with HIV.

Table 6.2. Percent of Total FY 2009 Title II Development Program Cost Attributed to Health and Nutrition Activities by Region (excludes WASH)

Region	Number of Programs	Percent of Total Program Cost for Health and Nutrition—No HIV	Percent of Total Program Cost for Health and Nutrition—including HIV
Africa	33	17	21
Asia	3	70	70
LAC	9	53	54
All Regions	45	29	33

Title II programs spending only 28 percent of their total budget on HN, in contrast to programs in Asia, which spent 45 percent, and those in LAC, which spent 52 percent.¹⁷¹ This raises the question of why so many Title II development programs in Africa had small or no HN components during the FAFSA-2 time period; nearly two-thirds of the programs in the FAFSA-2 universe were in Africa. Such programs are inconsistent with achieving one of the main impact indicators of the Strategic Plan, namely, reducing child undernutrition. Ensuring that most Title II development programs in Africa have adequately funded and well-designed HN components is critical to achieving the objective of the Strategic Plan, because 85 percent of the current USAID/FFP focus countries are in Africa and programs in these countries receive more than two-thirds of the Title II development resources.

During the later years of the FAFSA-2 time period (FY 2007–FY 2010), there were two sources of annual reporting on resources spent on specific technical sectors. The main one was composed of Excel Tracking Tables submitted by Awardees to USAID/FFP in which all Title II commodities received and beneficiaries reached were reported against eight technical sectors. In addition, Title II Awardees reported to USAID Missions, which submitted information to Washington in the automated Foreign Assistance Tracking System (FACTS) on people reached; indicators achieved; and resources for standard program areas, elements, sub-elements, and indicators in the U.S. Foreign Assistance Framework.

In FY 2011, USAID/FFP ceased to use the eight technical sectors for classifying what Title II does.

Annual reporting from that point forward uses 14 program elements selected from the standard list used by all of USAID that best describe the main interventions in Title II programs, five of which are in “Program Area 3.1: Health.”¹⁷² This change is excellent because the prior reporting by broad technical sectors, e.g., HN, or in the USAID FACTS information system did not capture the breadth of program elements and sub-elements to which Title II programs contributed. Using the FAFSA-2 tally, the Title II programs reviewed worked in six of the nine program elements in Program Area 3.1: Health, namely, HIV/AIDS, Malaria, MCH, Family Planning and Reproductive Health, Water Supply and Sanitation, and Nutrition.¹⁷³ Title II worked on 18 of 52 (35 percent) of all sub-elements under these six program elements. In contrast, in the official FACTS reporting prior to FY 2011, Title II MCHN programs may have been counted using only the standard indicator “number of children reached by USG-supported nutrition programs” or only under the MCH or Nutrition Program Element, when they actually worked on several program elements. The FY 2010 rack-up of Title II reporting by program elements shared with the FAFSA-2 team by USAID/FFP illustrates this underrepresentation of Title II. Not one Mission reported Title II resources under the Malaria or Family Planning and Reproductive Health Program Element, despite the work of a number of Title II programs on these types of interventions. Thus, to enhance appreciation of the broader contributions of Title II programs, this chapter indicates the program elements and sub-

¹⁷¹ Includes HIV and WASH.

¹⁷² See Table 3.3, “Alignment of Title II Development Programs with the U.S. Foreign Assistance Framework,” in Chapter 3.

¹⁷³ “Foreign Assistance Standardized Program Structure and Definitions.” 2010. <http://www.state.gov/documents/organization/141836.pdf>. Accessed August 23, 2012.

elements that Title II programs supported when describing their MCHN interventions and outcomes.

6.3 Program Approaches and Interventions

6.3.1 Nutrition Interventions and their Outcomes

6.3.1.1 Targeting Women and Children in the First 1,000 Days

Maximizing the nutritional impact of Title II resources by targeting the right people is a basic Title II development program principle. So how well did the Title II programs reviewed in FAFSA-2 comply with USAID/FFP guidance on this? The FAFSA-2 team answered this question by examining the age groups of children eligible for supplementary feeding (see Table 6.3). In 33 programs that gave food rations for prevention, nearly all were reaching children under three years, but only 39 percent were targeted appropriately to children 6–23 months, and only 7 percent of the recuperative feeding was targeted to children 6–23 months in the 14 programs that distributed food rations only for recuperation of malnourished children based on low weight-for-age. More than half the recuperative feeding only programs distributed food rations to children over three years, in addition to children from six months to three years of age, despite the evidence that growth retardation in older children is difficult to reverse.

Programs in LAC came closest to following the USAID/FFP guidelines: 87 percent enrolled only children under two or three years. However, in the Africa and Asia regions, only 42 percent of programs limited participation to children under two or three years.

It is of concern that more than two-thirds of the 47 supplementary feeding programs reviewed in the FAFSA-2 did not limit eligibility to children under two years. Awardees designed, and USAID/FFP approved, many programs that included older children. This was not consistent with the USAID/FFP Strategic Plan, which specified children under two as the target group, or with Proposal Guidelines issued by USAID/FFP that called for targeting children from 6 to 23 months.¹⁷⁴ The failure in many cases to target Title II food aid to younger children was a missed opportunity to increase the nutritional impact of the program and to reach more pregnant

¹⁷⁴ There was specific language giving priority to under twos in USAID/FFP's Title II development program Proposal Guidelines in FYs 2002 (p. 3), 2003 (p. 3), and 2004 (p. 6). The language in FYs 2002 and 2003 was as follows: "Research indicates that the most important age group to reach is very young children from the age of 6 months to two years. Malnutrition in this age group has a lasting impact on a child's ability to mature and grow mentally and physically." In FY 2004, pregnant and lactating women were added as follows: "Research indicates that the most important age groups to reach are pregnant and lactating mothers and children under two years. Malnutrition in these groups has a lasting impact on a child's ability to mature and grow mentally and physically." Working with this target group was also stressed in Proposal Guidelines for FYs 2009 and 2010 and in RFAs for FYs 2011, 2012, and 2013.

Table 6.3. FAFSA-2 Age Range for Supplementary Feeding Eligibility Reported by Title II Development Programs with MCHN Direct Distribution

Age Range of Indicator	Percent of Programs with Prevention Rations (33 Programs)	Percent of Programs with Recuperation Only Rations (14 Programs)
<i>Up to six years</i>		
6–59 months	9	57
6–71 months	6	
<i>Up to three years</i>		
6–35 months	46	36
<i>Up to two years</i>		
6–23 months	39	7

and lactating women and children 6–23 months in time to prevent children from suffering permanent disabilities or death.

One argument given for enrolling all children under five years is that programs also work on Integrated Management of Childhood Illness (IMCI) in children across this age range. However, these illnesses are also more prevalent in the first two years of life. Episodes of diarrhea, the infection with the greatest impact on child growth, are two to three times more frequent in children under two than in older preschoolers (Dewey and Mayers, 2011). Furthermore, the objective of the USAID/FFP Strategic Plan is reducing undernutrition. Therefore, working on IMCI is important, but should not be a justification for expanding the target group beyond 24 months. If younger children are reached, there will likely be a spread effect in the community benefiting older children as well, with better community case management of infections. One challenge is that Title II programs work within host country government norms, which may target children under five years with growth monitoring

and promotion and other nutrition services. Policy dialogue by USAID to change such norms is required at a national level. With more and more countries joining the SUN Movement, which emphasizes the 1,000-day window of opportunity from pregnancy to a child’s second birthday, unsound targeting policies will hopefully become less of a challenge going forward.

6.3.1.2 Essential Nutrition Actions

The performance of Title II programs in working on six of the seven ENA interventions, namely, changing individual behaviors to improve dietary intake, feeding, and care practices and increasing coverage of micronutrient supplementation interventions through the health system, is shown in Table 6.4. Title II development programs reported working on all the ENA interventions except promoting adequate intake of iodine. Support from USAID to address iodine deficiency worldwide is programmed through UNICEF. Therefore, USAID programs usually do not work directly on salt fortification or treating iodine deficiency,

Table 6.4. FAFSA-2 Title II Development Programs Delivering Essential Nutrition Actions (ENA)

ENA Intervention	Number of Programs	Percent of Programs (N = 69)	Results (%) [*]	
			Had Indicator	Improved Indicator (N)
1. Promotion of optimal breastfeeding during the first six months	64	93	81	71 (49)
2. Promotion of optimal complementary feeding starting at six months with continued breastfeeding to two years of age and beyond	62	90	49	70 (30)
3. Promotion of optimal nutritional care of sick and severely malnourished children	53	77	49	71 (31)
4. Prevention of vitamin A deficiency in women and children (supplementation)	43	62	32	68 (19)
5. Promotion of adequate intake of iron or folic acid and prevention and control of anemia for women and children (supplementation)	12	17	16	20 (10)
6. Promotion of optimal nutrition for women (apart from supplementary feeding)	32	46	11	86 (7)

^{*} The denominator for “Had Indicator” represents the 63 of the 69 HN programs in the FAFSA-2 universe that had been under way long enough to have had at least a mid-term evaluation, if not a final evaluation. The denominator for “Improved Indicator” represents the number of programs (N) that had reached the stage in their implementation when they had collected and reported evaluation data for that indicator.

but may focus on SBCC. In countries with iodine deficiency and iodized salt, consumption of iodized salt is good to promote.¹⁷⁵ The work of Title II programs on each of the remaining six ENA is discussed in the following sections. But first, how do individual Title II programs stack up in terms of comprehensiveness, i.e., delivering/promoting all or most of the remaining six ENA to their target populations? Three programs reviewed did not work on any ENA interventions.¹⁷⁶ Of the 66 programs that delivered ENA interventions, only 9 percent did all six—all in Asia. The average Title II program delivered four ENA interventions. An impressive 70 percent of programs worked on four or more of the ENA. Title II programs have to prioritize what interventions they will support based on available resources, what they can reasonably expect to accomplish, and what is already being offered by complementary programs in their catchment areas. The fact that 30 percent of programs did three or fewer of the ENA may not be of concern if the complete package was being delivered through the combined efforts of Title II and other programs. This is a question that the FAFSA-2 is unable to answer.

The most common interventions were the three on IYCF practices (breastfeeding, complementary feeding, and feeding sick or severely malnourished children). Less common were women's nutrition interventions, other than supplementary feeding (46 percent of programs). Few programs included improving iron and folic acid intake and reducing anemia through supplementation for women or children (17 percent). In contrast to the neglect of interventions to address anemia, 62 percent of the 69 programs were working to improve coverage of vitamin A supplementation for children and women (postpartum).

The work Title II programs did on ENA can also be categorized using the Nutrition Program Element and its sub-elements in the USG “F” standardized

definitions. When nutrition activities are reported this way, 93 percent of the Title II programs reviewed worked on “Individual Prevention Programs” and 62 percent on “Population-Based Nutrition Services” (Sub-Elements 3.1.9.1 and 3.1.9.2, respectively).

6.3.1.3 *Breastfeeding*

Rationale. Exclusive breastfeeding in the first six months of life and continued breastfeeding from 6 to 11 months is the top-ranked intervention for preventing the most child deaths in low-income settings (Jones et al., 2003). Breastfeeding has many well-documented nutrition, health, developmental, and economic benefits. Yet, often breastfeeding practices are sub-optimal. A review of data on exclusive breastfeeding from zero to six months in the most recent Demographic and Health Surveys (DHS) for 17 of the 20 countries that were a USAID/FFP priority during the FAFSA-2 time frame revealed a prevalence of 50 percent or less in all countries except Madagascar (67 percent), Malawi (53 percent), and Zambia (61 percent).¹⁷⁷ The practice is almost nonexistent in Chad and Niger, with exclusive breastfeeding rates of only 2 and 8 percent, respectively.

What programs did. It was most encouraging to find that 93 percent of the Title II development programs reviewed promoted optimal breastfeeding practices—the most common nutrition intervention delivered. SBCC was used to promote early initiation of breastfeeding, exclusive breastfeeding during the first 6 months of life, and continued breastfeeding through 24 months of age. One program noted that an important cause of not continuing to breastfeed after 18 months of age was women getting pregnant again. Short inter-pregnancy intervals are indeed a threat to continued breastfeeding, and family planning can prolong breastfeeding duration by lengthening the interval. Baby bottles are also an obstacle (see Box 6.4).

Outcomes. Breastfeeding practices, primarily initiation within one hour of birth and practicing

¹⁷⁵ According to UNICEF (2011), global coverage of iodized salt reached 71 percent in 2009.

¹⁷⁶ ADRA/Kenya, WV/Kenya, and ACDI/VOCA/Rwanda programs from FY 2005 to FY 2010 delivered broad nutrition education to improve household diets.

¹⁷⁷ See <http://www.statcompiler.com> and WHO, 2010a. The USAID/FFP priority countries with no data were Afghanistan, Burundi, and South Sudan.

exclusive breastfeeding in the first six months of life, were the most common IYCF behavior indicators measured by Title II programs. Some programs measured breastfeeding indicators that were not useful, such as starting breastfeeding within eight hours of giving birth and knowledge of the importance of exclusive breastfeeding versus actually practicing it. From FY 2007 onward, the practice of exclusive breastfeeding has been a USAID/FFP required indicator.¹⁷⁸

Of the 49 programs that evaluated useful breastfeeding indicators, 71 percent reported increasing optimal practices. Major increases in exclusive breastfeeding rates for infants in the first six months of life were achieved by several programs. The results of six programs that measured the standard exclusive breastfeeding indicator, and,

¹⁷⁸ Useful references on the state of the art for IYCF indicators are WHO, 2008 and 2010a.

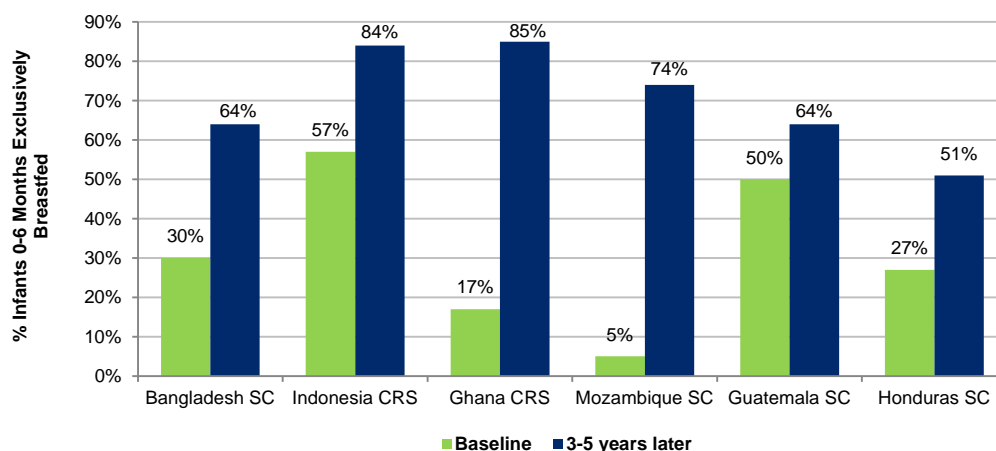
thus, could be compared, are shown in Figure 6.1. Across these six programs, exclusive breastfeeding rates quadrupled, on average, after three to five years of SBCC. The impressive gains prove that, with effective behavior change, sub-optimal practices are amenable to change. Rates achieved were greater than the national prevalence of exclusive breastfeeding in the DHS. The increases in exclusive breastfeeding in Title II development programs compare favorably with published results from similar programs (Quinn et al., 2005).

A special evaluation research study of the CARE/India FY 2002–FY 2006 program, funded by USAID/India, with a quasi-experimental design, documented a dramatic increase in initiation of breastfeeding in the first hour of life, from 5 percent at baseline to 59 percent in the final evaluation in the program district in the state of Uttar Pradesh, and a reduction in prelacteal feeds from 92 percent to 44 percent (Dreyfuss et al., 2008). In the program

Box 6.4. Baby Bottles: An Obstacle

A threat to exclusive breastfeeding that Title II programs faced was that baby bottles were used to give young children sugary liquids, e.g., coffee, tea, soft drinks, and juice, which can cause diarrhea and tooth decay; fill the child with liquid and sugar, rather than nutrients; and cause nipple confusion that leads to premature weaning. Baby bottles were considered upper-class and urban. Use of bottles was encouraged by relatives working in cities or abroad. CRS/Guatemala (FY 2007–FY 2011) reported that its program had to tackle this practice with SBCC.

Figure 6.1. Increased Exclusive Breastfeeding for Infants 0–6 Months: Results of Some Title II Development Programs



district in Andhra Pradesh state, breastfeeding in the first hour increased from 22 percent to 36 percent, and there was a reduction in prelacteal feeds from 62 percent to 49 percent. The improvements were significantly better than those seen in the comparison group at $p < 0.05$. Neonatal health was an important component of this program, and, therefore, extra effort was put into improving early initiation of exclusive breastfeeding, so critical to the survival of the newborn.

6.3.1.4 Complementary Feeding

Rationale. While successful breastfeeding interventions have large effects on child survival, their effect on stunting is small compared to complementary feeding (Bhutta et al., 2008). Thus, focusing on improving both breastfeeding and complementary feeding practices is indispensable.

At the beginning of the FAFSA-2 time period in 2003, an important development was WHO's publication of the *Guiding Principles for Complementary Feeding of the Breastfed Child*. This key reference makes clear the different, concurrent good practices it takes to achieve optimal complementary feeding for children 6–23 months of age. As a memory aide and training and communication tool, the LINKAGES Project developed the acronym “FADUA” for the WHO *Guiding Principles for Complementary Feeding* (frequency, amount, density/quality, utilization, active feeding)¹⁷⁹ in its Bolivia and Ghana programs (LINKAGES Project, 2004). The goal is to get mothers/caregivers to introduce complementary foods at six months with continued breastfeeding, and to meet all of the FADUA principles for feeding children 6–23 months of age, which is a real challenge. However, complementary feeding practices in developing countries can be improved through effective SBCC (Caulfield et al., 1999; Bhutta et al., 2008).

The FADUA principles and data on practices in USAID/FFP priority countries (DHS) and in Title II

programs are explained in Table 6.5. There was a paucity of data on complementary feeding practices in the Title II programs reviewed, in part due to the lack of well-defined, standard indicators for measuring practices during most of the FAFSA-2 time frame. During that period, USAID supported research to clearly define standard complementary feeding indicators (WHO, 2008; WHO, 2010a; WHO, 2010b).¹⁸⁰ Prior to that pioneering work, there was only one WHO-recognized indicator on “timely introduction of complementary foods” that, as a one-time behavior, did not capture the multidimensionality of feeding practices needed. Once the new complementary feeding indicators were available, USAID/FFP chose the “minimum acceptable diet” indicator to replace the indicator “children 6–23 months with three appropriate infant and young child feeding practices” required since 2007 (FFPIB 07-02, 2007; FFPIB 11-03, 2011b).¹⁸¹ A breastfed child 6–23 months of age has a “minimum acceptable diet” if the diet meets both “minimum dietary diversity” and “minimum meal frequency.”

To date the “minimum acceptable diet” indicator has mainly been measured in baseline surveys in newer Title II programs. Awardees have found low rates, e.g., 11 percent (CARE/Bangladesh 2011); 12 percent (CRS/Malawi 2010); and 17 percent (ACDI/VOCA/Bangladesh 2011). The low percentage of children with a “minimum acceptable diet” in 13 USAID/FFP priority countries in a WHO publication of DHS data illustrates what a huge problem poor complementary feeding practices are (WHO, 2010b). Across all 13 countries, 25 percent or less of children ate a “minimum acceptable diet,” and in 75 percent of the countries the rate was 16 percent or less.¹⁸²

¹⁸⁰ This research was conducted by investigators at FANTA, WHO, UNICEF, IFPRI, Macro International, and University of California – Davis.

¹⁸¹ The required “minimum acceptable diet” indicator has been used since FY 2009 (prior to FFPIB 11-03 in 2011). This indicator is not interchangeable with the prior indicator “children 6–23 months with three appropriate infant and young child feeding practices,” because the definitions of the two indicators differ.

¹⁸² No data were available for Afghanistan, Burundi, Chad, Guatemala, Mauritania, Sierra Leone, or South Sudan.

¹⁷⁹ UNICEF uses the similar acronym “FATVAH” (frequency, amount, thickness, variety, active feeding, and hygiene) for optimal complementary feeding principles.

What programs did. The FAFSA-2 found that, although 90 percent of Title II programs reported working to improve complementary feeding practices, few programs described specific behavior change strategies to improve them. One of the biggest gaps is that few Title II programs did formative research on IYCF practices to learn what mothers are feeding, how much, how often, why mothers do what they do, the role and attitude of family members, and barriers and facilitators to improving these practices. This information is indispensable to strategically design and implement effective counseling and behavior change strategies. Most programs also did no formative research or

quantitative evaluation to measure whether their educational efforts led to improved practices. The FAFSA-2 review did find that a number of programs had supplied CHWs with illustrated, age-specific counseling cards on optimal IYCF practices to use for SBCC, often taking advantage of materials produced by other programs. Other approaches included homestead food production to increase dietary diversity and community cooking demonstrations of nutritious recipes for complementary foods. All of these are discussed later in this chapter in Section 6.3.3. Results from the few Title II programs that did measure change in complementary feeding practices are reported

Table 6.5. Complementary Feeding of the Breastfed Child: FADUA Definition and Data from DHS and Title II Programs

Principle	WHO Guidance (2003)	Practices: DHS Data in Children 6–23 months (WHO, 2010b)	Practices: FAFSA-2 Title II Data
<u>F</u> requency	Increase feeding frequency with age: 2–3 times/day at 6–8 months; 3–4 times/day at 9–23 months.	Only 30%–55% met “minimum meal frequency” in 11 FFP priority countries. But 81% did in Bangladesh and 76% did in Madagascar.	Children 6–23 months with “minimum meal frequency” from baseline surveys: <ul style="list-style-type: none"> CARE/Bangladesh 2011 – 45% ACDI/VOCA/Bangladesh 2011 – 56% CRS/Malawi 2010 – 50%
<u>A</u> mount	Introduce small amount of food at six months and increase quantity as child gets older, with continued breastfeeding. Approximate energy needs from complementary foods are 200 kcal/day at 6–8 months, 300 kcal/day at 9–11 months, and 550 kcal/day at 12–23 months.	No data	Only the CARE/India program (FY 2002–2006) had data. It increased the percent of children 12–23 months that ate at least half the recommended quantity between baseline and endline from 2% to 7% (Barabanki, Uttar Pradesh) and from 20% to 45% (Karimnagar, Andhra Pradesh).
<u>D</u> ensity/ <u>Q</u> uality	Increase food consistency or thickness with age, avoiding watery preparations and adding fat/oil to maximize energy/nutrient density per volume eaten. Improve diversity or diet quality. Children should eat daily at least four foods from these seven food groups: grains, roots, and tubers; legumes and nuts; dairy products; flesh foods (meat, fish, poultry, and liver/organ meats); eggs; vegetables and foods rich in vitamin A; other fruits and vegetables.	≤ 16% met “minimum dietary diversity” in six FFP priority countries. Rates were very low in Ethiopia (4%) and Niger (5%), but better (30%–40%) in Chad, Malawi, Madagascar, and Zambia. Lack of diversity is a bigger problem than frequency.	Children 6–23 months with “minimum dietary diversity” from baseline surveys: <ul style="list-style-type: none"> CARE/Bangladesh 2011 – 16% ACDI/VOCA/Bangladesh 2011 – 29% CRS/Malawi 2010 – 25%
<u>U</u> tilization	Practice good hygiene, proper food handling, and storage.	No data	59% of programs evaluated hygiene practices and 74% reported improving practices.
<u>A</u> ctive Feeding	Feed infants directly and assist older children to feed themselves, encouraging children to eat and offering them more, if they are still hungry, but not forcing them.	No data	CARE/India (FY 2002–2006) increased the percent of children 12–23 months “usually fed by mother” between baseline and endline from 33% to 52% (Barabanki, Uttar Pradesh) and from 64% to 79% (Karimnagar, Andhra Pradesh).

In Guatemala, a mother with good complementary feeding practices actively feeds her child enriched porridge.



SHARE Guatemala

under “Outcomes,” at the end of this section, and in Table 6.5. Findings on each of the FADUA principles are presented next.

Frequency. The bottom line is that meal frequency needs to be increased for around half of all children 6–23 months of age in the USAID/FFP focus countries (see Table 6.5). Key constraints to preparing food frequently are time, fuel, and safe water. Women’s heavy workloads and lack of time make frequent food preparation and feeding difficult because of the time they must spend fetching fuel and water and working away from the home, e.g., in agriculture in Africa. Children may be left behind with siblings. As school enrollment goes up, especially for girls, even siblings are not available to provide child care, as mentioned by Africare/ Uganda. Women need affordable, convenient, and nutritious fortified complementary foods, but these are often not available to the poor in rural areas who need to prepare children’s meals from scratch.

Amount. Many children do not eat enough to meet their requirements for the energy, protein, and fat needed for rapid growth. Feeding extra food for

catch-up growth after illness is critical, but not widely practiced, nor are offering children second helpings and feeding to appetite. There is often a *quantity* problem. The “minimum acceptable diet” indicator does not measure the quantity of food consumed and provides only a rough proxy. It may lead some to conclude that children are eating an adequate amount to achieve age-specific recommended nutrient intake just because they are eating frequently. The importance of stressing that young children need to eat enough and of increasing the energy and nutrient density of their diets was lost sight of in several Title II programs where all that was talked about was improving the *quality* of the diet or dietary diversity. This was often the case in programs promoting vegetable gardens as a micronutrient intervention. While increasing the intake of green leafy vegetables improves the quality of the diet and may improve micronutrient status, it alone does not address the deficiency of macronutrients in the child’s diet that contribute to stunting and underweight. Producing and consuming crops rich in energy, as well as vitamins and minerals, was the exception, e.g., the cultivation of orange sweet potatoes (OSP) in home gardens in a number of Title II programs in Africa. What is needed to achieve adequate dietary intake is a balanced diet with enough food in terms of quantity, diversity, and quality.

Title II programs did not collect or report data on the amount of food consumed by children 6–23 months compared to requirements, except the CARE/India FY 2002–FY 2006 program, thanks to the special evaluation research study funded by USAID/India. “Because the quantities of solids consumed in the study areas were very low, the indicator used for evaluation purposes was the proportion of children consuming *at least half* the recommended quantity of solids per day” in the evaluation in India (Dreyfuss et al., 2008, p. 82). In other words, so many children were eating fewer than half of the age-specific recommendations for kilocalorie intake of semi-solid/solid foods that, if the investigators had reported the percent of children that ate the full recommended amount, there would have been no one to report! The positive changes in complementary feeding practices as a result of the

CARE program are discussed under “Outcomes” and shown in Figure 6.2. Those with an asterisk improved significantly more than the comparison group ($p < 0.05$).

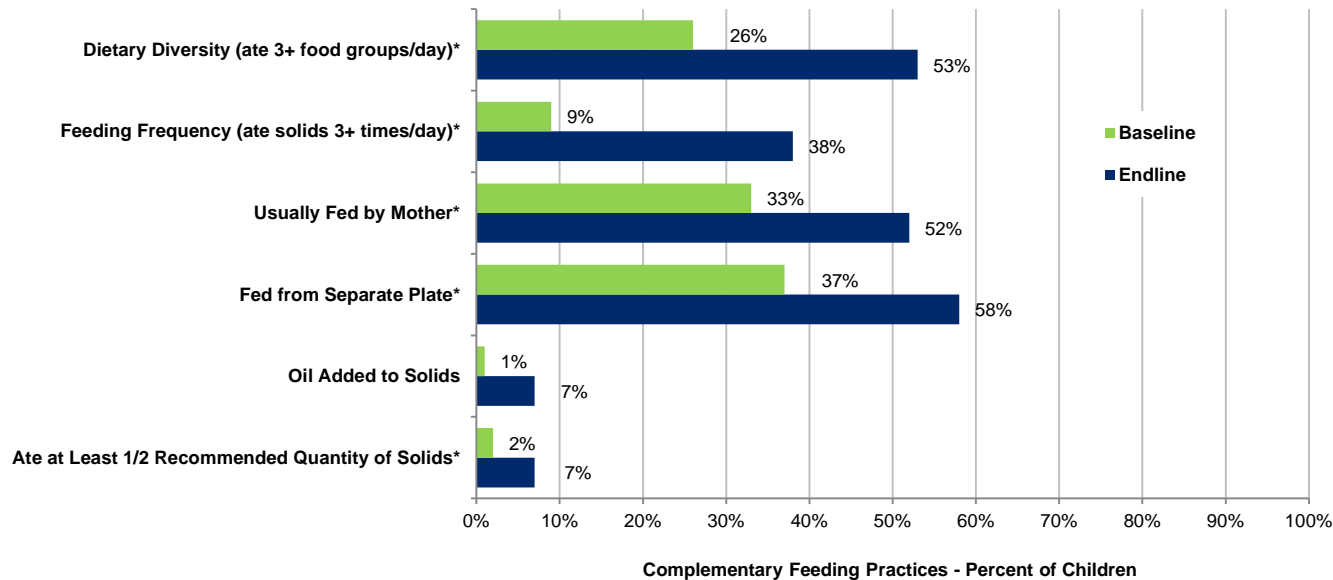
Box 6.5 provides an excellent example of findings in Malawi from USAID- and World Bank-funded formative research on IYCF (Picado et al., 2011). This research using the Trials of Improved Practices (TIPs) methodology illustrates the type of studies that need to be done in Title II programs. A major finding was how much less young children were eating than the amount needed to meet recommendations for kilocalorie intake from semi-solid/solid foods. The researchers determined the energy content of the local improved porridge recipe used by mothers and caregivers and calibrated how much would need to be fed using local feeding utensils, namely, 16 tablespoons (240 ml) of porridge for children 12–23 months per meal. What they found at the start of the study was that mothers were feeding far too little, i.e., only 5 tablespoons (75 ml) of porridge per meal. Mothers increased the amount of porridge fed per meal to 7–9 tablespoons after being counseled—a 40–80 percent improvement, but still only *about half* what the children needed to eat for adequate nutrient intake. Getting children to consume the right

amount is a big challenge that Title II programs do not seem to be focusing enough on, starting with not doing formative research. Exceptional programs with effective complementary feeding counseling materials had: (1) developed nutritious recipes based on research on the local diet and nutrient content to meet recommended kilocalorie intake, for example, porridge recipes; and (2) calibrated commonly used feeding utensils that would contain or measure the right amount of the recipe to meet the age-specific recommendations for children’s kilocalorie intake of semi-solid/solid foods at each meal. These specifics—what to feed (with recipe details) and how much of it to feed (measured with local feeding utensils)—were included in illustrated counseling materials used to teach mothers in more effective programs.

Density/Quality. Most children have poor quality diets in the USAID/FFP priority countries (see Table 6.5). Inadequate dietary diversity is more widespread than feeding young children infrequently. Nearly half of all MCHN programs reviewed supported homestead food production to improve dietary diversity.

Consumption of sweet or salty snacks, junk food, and soda by very small children undermines dietary

Figure 6.2. The Impact of the CARE Title II Program on Complementary Feeding of Children 12–23 Months in Barabanki District, Uttar Pradesh, India



Box 6.5. Malawi IYCF Study

“For almost all children [12–23 months], the overall quantity of food must be addressed: a combination of frequency and amount per meal plus encouragement to finish what is served. Meal frequency was relatively good, although some mothers should be encouraged to offer healthy snacks. The emphasis needs to be on the amount of food offered per meal. All but one mother was well below the recommended amount of about one cup of food (240 ml [16 tablespoons]) per meal (on average, children received about five tablespoons [75 ml]). As with the younger age group, the greatest increase was by two to four tablespoons per meal. On a positive note, no adverse reactions were reported from children eating more; in fact, mothers said they were happy to see that their children were not hungry, did not beg for tea, and had improved appetites. A variety of tools to help mothers visualize appropriate quantities for the child’s age would be useful. The child feeding bowl, such as those found useful in other countries, could be tested and modified for Malawi.”

Source: Picado et al., 2011.

quality. The mid-term evaluation of the CRS/ Guatemala FY 2007–FY 2011 program found that families spent up to 200 quetzales (US\$25) a month on junk food for children that could have been used to buy more nutritious foods. Similar challenges were seen in the urban MC/Indonesia FY 2005–FY 2008 program, and reported in the Malawi TIPs study (Picado et al., 2011).

Water, water in everything, but nothing to eat. Required energy and nutrient *density* is often not achieved when the custom is to feed young children prepared foods that contain a lot of water, e.g., cooked bulky staples, watery gruels, and drinks,

as complementary foods in a number of countries, e.g., Bangladesh, Guatemala, and Malawi. When consuming these foods, the child’s small stomach rapidly fills mainly with water and not the needed nutrients. In cooking demonstrations in several of the programs visited in Guatemala, even the Title II corn-soy blend (CSB) was being made into a watery traditional corn flour drink, *atole*, instead of promoting thicker, more energy dense CSB recipes. Improving energy and nutrient density means getting more calories, protein, fat, and micronutrients into the meal usually by reducing the amount of water used in the recipe. Increasing food consistency gets more food into a smaller space (the child’s stomach), so that the child will not become full before getting what she or he needs to develop and grow. Nutrient and energy density can be improved by adding fat, animal products, fruits, or vegetables to porridge. Adding fat/oil increases the energy content of a recipe both through the kilocalorie content of the fat/oil and by reducing the amount of water needed to cook grains, thus, increasing consistency; this was an excellent improved feeding practice promoted by a number of Title II programs. Germinating grains (sprouting or malting) and then drying the sprouts and making flour was also an improved feeding practice. Germination of cereals and tubers serves to pre-digest them, increasing amylase enzymes and reducing the amount of water needed to cook them. This technique was promoted by Africare in programs in Mozambique and Uganda; households successfully germinated sorghum in Uganda.

Utilization. To ensure that complementary foods eaten are fully utilized by the body and not lost to malabsorption and diarrhea, good hygiene is necessary to prevent infections or parasites from contaminated hands, bowls, or spoons used to feed the child. Foods need to be stored safely or served immediately after preparation to prevent food-borne illness. Feeding bottles should be avoided because they are difficult to keep clean. Continued breastfeeding from 6 to 23 months, a practice promoted by Title II programs, reduces infection while improving dietary intake. Many programs worked to improve hygiene practices (see Section 7.3.5 on hygiene promotion as part of WASH and Section 6.3.2.5 later in this chapter).

Active Feeding. Active feeding is also referred to as responsive feeding or maternal child care practices. Talking to children, making eye contact, minimizing distractions, and making meals time for learning and love are all good practices. Feeding children from their own plate or bowl is desirable and helps them signal if they are full or still hungry, while also helping determine if the quantities served and consumed are adequate. Whether programs promoted active feeding was not discussed in most reports, and the only results measured were from CARE/India (see Table 6.5).

Outcomes. Only half the programs (49 percent) had complementary feeding behavior change indicators versus 81 percent that had breastfeeding indicators. This is in part due to the 2007 instructions in FFPIB 07-02 on “required standard indicators,” which gave Awardees the choice of reporting on one or more of a list of six behavior change indicators that included “% of children 0–5 months of age who are fed exclusively with breast milk” and “% of children 6–23 months of age who receive a minimum acceptable diet (apart from breast milk),” or four indicators on the percent of caregivers demonstrating proper hygiene—personal, food, water, or environmental. Most Awardees decided not to measure and report on the most challenging—complementary feeding—a loophole that USAID/FFP closed several years later by requiring Awardees to report on *all* indicators that apply to the work they are doing from the same menu of six indicators. The lack of good indicators to measure complementary feeding practices in the first half of the FAFSA-2 time frame is another explanation. Good indicators to measure complementary feeding behavior change are now available and required. However, there were still a number of recent programs without the “minimum acceptable diet” indicator or any complementary feeding indicators. For example, none of the three programs visited in Niger had complementary feeding indicators—two of the programs started in FY 2007 and one in FY 2008. Indicators were harmonized across the three Guatemala programs that started in FY 2007, but unfortunately they did not include “minimum acceptable diet” or any other complementary feeding indicator. Some programs had indicators that could

not be included in the review because they were too vague and set the performance bar very low, e.g., “% of children 6–23 months who received complementary feeding during the last 24 hours.”

Of those programs that measured useful indicators of complementary feeding practices, 70 percent reported improving these practices. The four Haiti programs were the only ones to provide reliable survey data with statistical tests of significance on changes in “minimum acceptable diet” between the baseline and final evaluation. Children 6–23 months consuming a “minimum acceptable diet” increased from 30 percent to 44 percent in the CRS program, from 25 percent to 34 percent in the SC program, and doubled from 14 percent to 28 percent in the CARE program (all significant at $p < 0.01$). SC noted that the improvement was due to increasing appropriate meal frequency from 31 percent to 42 percent, but not diversity. The increases are encouraging, but also sobering because fewer than half of the children consumed a “minimum acceptable diet” by the end of the programs. Dietary diversity improved in the WV program, but the “minimum acceptable diet” indicator deteriorated significantly ($p < 0.01$) from 35 percent to 11 percent, because of declines in the percent of mothers that fed children frequently enough. However, no explanation was provided for why practices may have worsened, illustrating how critical it is to do formative research to find answers.

The evaluation research done on the CARE/India FY 2002–FY 2006 program provided the only reliable Title II survey data with statistical tests of significance of success in getting mothers to practice the FADUA principles while feeding children 12–23 months (Dreyfuss et al., 2008). Figure 6.2 shows the large improvements between the baseline and final surveys for dietary diversity (26 percent to 53 percent), feeding frequency (9 percent to 38 percent), active feeding by mother (33 percent to 52 percent), and child eating from a separate plate (37 percent to 58 percent) in one of the program districts studied in the state of Uttar Pradesh. These increases were significantly greater than those in the comparison district at $p < 0.05$. Where the program struggled and had little success was getting mothers

to feed an adequate *quantity* of solid foods to meet age-specific recommendations for kilocalorie intake. Only 7 percent of children 12–23 months ate *at least half* the recommended quantity of solid foods by the end of the program, compared to 2 percent at baseline—statistically significant, but far short of the amount of energy intake needed for normal growth and far too few caregivers adopted the practice. Most disturbing are the 93 percent of mothers that could not be convinced to do even that. Similarly, the program was able to increase only from 1 percent to 7 percent the mothers that added oil to the child’s food.

6.3.1.5 *Feeding the Sick or Severely Malnourished Child and Community-Based Management of Acute Malnutrition*

Rationale. Adequate feeding during and after illness to ensure adequate nutrient intake and promote catch-up growth are key to reducing the negative effects of infection on growth. The ways that improved nutrition can lessen the impact of infection on child nutrition status are summarized from a review by Dewey and Mayers (2011) in Box 6.6. In this review, four intervention trials that provided macronutrient or micronutrient supplements to children reduced or eliminated the negative effects of diarrhea on growth. Similarly, supplementary feeding provided to young children by many Title II programs can play an important role in convalescence during and catch-up growth after illness.

What programs did. Many Title II programs (77 percent) promoted improved practices for feeding the sick child. The most common practices promoted and measured were: (1) increasing frequency of breastfeeding for sick children; (2) continuing to feed during illness and not reducing the amount; (3) increasing fluid intake during illness for children 6–23 months, including breast milk; and (4) increasing variety, frequency, and amount of food after illness until the child regains weight and is growing well. These behavior change efforts were linked to work by the programs on Community-Integrated Management of Childhood Illness (C-IMCI).

Feeding the severely malnourished child. A number of programs used direct distribution of Title II commodities to recuperate malnourished children and promote catch-up growth; this is discussed in Section 6.3.1.9, “Supplementary Feeding.”

CMAM. Screening of children under five years to detect severe acute malnutrition (SAM) and referral of SAM cases to health services for therapeutic feeding, as well as follow-up through home visits, are important. Illustrative activities recommended in the USAID/FFP Strategic Plan “to identify, treat, and prevent recurrence of cases of acute undernutrition” are shown in Table 6.6. Most Title II programs (65 percent) detected and referred children with acute malnutrition to local health services for rehabilitation (CMAM). These are the main roles Title II programs play in support of CMAM and therapeutic feeding of children with SAM. The screening and referral of cases of SAM in the community by Title II programs, coupled with their activities to prevent undernutrition, are vital in countries with a high prevalence of global acute malnutrition (GAM) of 10 percent or more.

Only four Title II programs worked directly on CMAM—one each in Malawi and Niger, and two

Box 6.6. “Improved Nutrition May Reduce the Negative Impact of Infections on Growth by:

- a) Strengthening the immune system;
- b) Compensating for malabsorption, reallocation, or losses of key nutrients;
- c) Allowing for catch-up growth following infection;
- d) Enhancing appetite; and
- e) Favoring the growth of beneficial gut microorganisms.”

Source: Dewey and Mayers, 2011, p. 136.

Table 6.6. Illustrative Activities from the 2006–2010 Strategic Plan Related to Sub-IR 2.1, Human Capabilities Protected and Enhanced

<i>Illustrative Activities: To identify, treat, and prevent recurrence of cases of acute undernutrition</i>	
Non-Food Assistance	Food Assistance
<p>The Title II program:</p> <ul style="list-style-type: none"> • Develops and uses surveillance systems to identify cases of acute undernutrition. • Educates and supports mothers, families, and communities in changing critical feeding and care practices for infants and young children. 	<p>The Title II program:</p> <ul style="list-style-type: none"> • Provides food as part of: <ul style="list-style-type: none"> – Community-based therapeutic feeding programs, or – Therapeutic feeding center programs.

Source: This table is taken verbatim from the USAID/FFP Strategic Plan, p. 65.

in Haiti. These programs provided supplementary feeding using Title II commodities to children 6–59 months with moderate acute malnutrition (MAM), either once they had graduated from CMAM or to prevent SAM. Title II programs assisting CMAM in Niger and Malawi were doing no preventive supplementary feeding, just targeting food rations to children with MAM. Children with MAM were most often referred to Title II programs for supplementary feeding by CMAM programs in health services. As expected, no programs reviewed reported doing therapeutic feeding for SAM, because Title II programs did not have access to the necessary ready-to-use therapeutic food (RUTF) during the FAFSA-2 time frame like they do now.

It has generally proven difficult to successfully implement CMAM and interventions to prevent chronic undernutrition in the same community due to very different goals and services provided by each. Operations research and implementation experience are needed to test models that effectively integrate the two approaches and “enable a more comprehensive continuum of care from prevention to treatment” (Bergeron and Castleman, 2012, p. 242).

Outcomes. Only half the programs (49 percent) measured results for sick child feeding practices, and 71 percent of those that evaluated these indicators reported improving these practices. However, the Title II programs working on CMAM did not report specific results, such as the outcomes of screening, referral, supplementary feeding, or recovery and relapse rates.

6.3.1.6 Vitamin A Supplementation

Rationale. Micronutrient supplementation for preschool children (vitamin A and zinc) was the intervention ranked #1 among 30 proposals for solving the world’s main development problems in the 2008 Copenhagen Consensus, because of the tremendously high benefits compared to costs.¹⁸³ High coverage of children 6–59 months of age with vitamin A supplements twice a year has been achieved in many countries using a Child Health Day model (Klemm et al., 2009). This successful delivery approach, namely, outreach from government health facilities to provide immunization, vitamin A supplements, and other services closer to where people live, will be discussed later in this section. Yet improvements are still needed in coverage of vitamin A supplementation in many of the neediest developing countries.

What programs did. Many Title II development programs (62 percent) worked to increase both coverage of women postpartum and children 6–59 months of age with vitamin A supplements. The supplements were provided by ministries of health and distributed by health workers, per national norms, while Title II programs did community mobilization and outreach to promote participation by program beneficiaries, often distributing food supplements at the same Child Health Days as an

¹⁸³ Copenhagen Consensus 2008, “Outcome – The Experts.” <http://copenhagenconsensus.com/Projects/Copenhagen%20Consensus%202008/Outcome.aspx>.

incentive to increase attendance. Title II programs provided organizational and logistical support to ministries of health, e.g., transport, funds for fuel, or per diems to health staff to come to communities from the health center. The program documentation did not separately describe activities to promote coverage of postpartum women versus children.

Outcomes. One-third of the programs had results indicators on the percent of children receiving vitamin A supplements, and 68 percent of those that had evaluated vitamin A supplementation reported increased coverage. The 2007 joint evaluation of the four Haiti Title II programs reported a large, statistically significant increase in children from 12 to 60 months of age that received vitamin A supplements from 44 percent to 75 percent between baseline and endline ($p < 0.01$). Evaluation research of the CARE/India FY 2002–FY 2006 program also found significantly greater increases between baseline and endline than the comparison group in children 12–23 months that received vitamin A in the program districts in Andhra Pradesh state (55 percent to 79 percent) and in Uttar Pradesh state, a dramatic fourfold increase from 18 percent to 69 percent ($p < 0.05$) (Dreyfuss et al., 2008).

6.3.1.7 *Iron and Folic Acid Supplementation for Anemia Prevention and Control*

Rationale. The consequences of iron deficiency and anemia are increased maternal and perinatal mortality, increased numbers of preterm births and low birth weight babies, impaired cognitive development, and reduced work productivity (FANTA, 2006). As one Title II program reported, anemia drained women's energy, discouraging them from participating in project activities for their empowerment and advancement. Thus, anemia exacerbates the problem of heavy workloads for women. Recent DHS data for 10 of the USAID/FFP priority countries show that 21–69 percent of women of reproductive age are anemic, a medium to high public health threat according to WHO.¹⁸⁴ The data also illustrate that anemia is not limited to pregnancy.

Iron deficiency is the principal cause of anemia in all regions, but anemia may also be caused by hookworm, HIV, malaria, and high fertility, with the latter two being major causes in Africa (FANTA, 2006; Galloway, 2003). Inadequate dietary intake and poor absorption of iron from plant foods and beverages with inhibitors (e.g., tannins) are the main reasons for iron deficiency, as well as the low intake of animal foods from which iron is more bioavailable. To address inadequate intakes and provide for the increased requirements of pregnancy and lactation, most countries' health systems routinely distribute iron and folic acid supplements to pregnant and lactating women. There are many logistical challenges to ensuring an adequate supply of supplements. It is regrettable that distribution of iron and folic acid supplements is rarely part of the services delivered at Child Health Days, in contrast to vitamin A supplements. Behavior change to create demand is also needed.

Linked to maternal anemia, child anemia is also very high in the same countries, ranging from 39 percent to 85 percent per DHS data.¹⁸⁵ Child anemia has not been a focus of most ministries of health. Few countries have a national policy for iron supplementation for children or fortification of complementary foods and other staples. Furthermore, in endemic malaria areas, which includes the USAID/FFP focus countries in Africa, WHO's guidelines currently caution against universal iron supplementation for children, although a recent review suggests that supplementation is not harmful (Ojukwu et al., 2009), and WHO is considering revised guidelines. Until there are national programs to prevent and reduce child anemia, and the WHO guidelines are revised, it will be difficult for Title II programs in Africa to address child iron deficiency anemia.

What programs did. Maternal iron and folic acid supplementation, done by only 12 programs, was the ENA intervention least frequently supported by Title II development programs, in contrast to the previously mentioned DHS data on what a huge nutritional problem anemia is in the countries

¹⁸⁴ See <http://www.statcompiler.com>. Non-pregnant women 15–49 years of age with hemoglobin < 12 g/dl.

¹⁸⁵ Children 6–59 months of age with hemoglobin < 11 g/dl.

where Title II programs work. It is encouraging to see that FTF places high priority on implementing interventions to reduce anemia as evidenced by its required indicator “prevalence of anemia among women of reproductive age” to measure achievement of the IR “Improved use of maternal and child health and nutrition services.”¹⁸⁶ Hopefully, Title II development programs will follow suit and place more emphasis on what they can do to reduce anemia in women and children.

Outcomes. Of the 10 programs that evaluated receipt of iron and folic acid supplements by pregnant and lactating women, only 20 percent improved coverage. The documentation does not provide insights into this low success rate. Low coverage may have been due to logistical constraints in government health services to making the tablets available in adequate amounts, beyond the control of the Title II program; women not having been convinced of the benefits versus side effects through effective SBCC; or Title II programs not having trained health workers adequately or prioritized increasing coverage.

According to the evaluation research on the CARE/India program, the program significantly increased the percent of pregnant women receiving iron and folic acid tablets from 41 percent to 55 percent in the project district in Uttar Pradesh state compared to the comparison district ($p < 0.05$). No increased coverage was achieved in the program district in Andhra Pradesh, but the program did significantly increase the percent of women that consumed all of the iron and folic acid tablets they received, from 25 percent to 57 percent (Dreyfuss et al., 2008). However, the changes in supplementation coverage and consumption were not enough to reduce the prevalence of anemia among pregnant women (Baqui et al., 2006). The Government of India had a policy on providing pediatric iron to children over one year of age. The CARE/India program significantly increased coverage with pediatric iron from 0 percent at baseline to 30 percent at endline in the program district studied in Andhra Pradesh and to 69 percent in the program district in Uttar

Pradesh. Gains in coverage occurred during the second year of the intervention. However, few children reported consumption of more than a handful of tablets (Dreyfuss et al., 2008). CARE/Indonesia used its *hearth* centers for pregnant women to focus on reducing anemia, and measured hemoglobin, but did not show improvement.

6.3.1.8 Maternal Nutrition

Rationale. The USAID/FFP Strategic Plan calls for activities to “enhance the nutritional status of women” (see Table 6.7). Impacts of recent food price crises have been found to first manifest themselves in a worsening of maternal nutritional status (Shrimpton et al., 2009). “Because of gender inequality, the mother is often the last to benefit in a household when things are going well, and the first to be sacrificed when things are going poorly” (UNSCN, 2010, p. 6). Whether this is true and there actually is discrimination against women, leading to inequitable intra-household food distribution, needs to be verified through research on the dietary intake of different household members and the determinants for those behaviors in each program setting. As explained by Millman and DeRose (1998), women may or may not suffer more food deprivation than men and generalizations that are not evidence-based should be avoided. However, pregnancy and lactation do increase women’s nutrient requirements, and there is no debate that women in the developing world often do not increase their food intake or reduce their energy expenditure (workload) enough to meet those requirements. Thus, women living in food insecure households are vulnerable because of their reproductive roles (physiological status). If dietary intake is not sufficient to support optimal pregnancy outcomes and lactation, undernutrition results for both the mother and her child and the child’s risk of dying is increased. Title II MCHN programs are expected to place high priority on delivering services to pregnant and lactating women to prevent these negative outcomes.

A key measure of women’s nutritional status is body mass index (BMI), an indicator of weight adequacy in relation to height in adults. It is calculated as

¹⁸⁶ <http://feedthefuture.gov/progress>. Accessed February 6, 2012.

Table 6.7. Illustrative Activities from the 2006–2010 Strategic Plan Related to Sub-IR 2.1, Human Capabilities Protected and Enhanced

<i>Illustrative Activities: To enhance the nutritional status of women</i>	
Non-Food Assistance	Food Assistance
<p>The Title II program:</p> <ul style="list-style-type: none"> • Educates women, families, and communities on how to improve the nutritional status of women. • Enhances access to micronutrient supplements by women in communities with high prevalence of iron deficiency, anemia, and vitamin A deficiency. • Promotes the consumption of iodized salt. • Provides improved household technology to reduce excessive energy expenditure on food processing and production tasks by women. • Provides and/or facilitates access to other essential services for comprehensive care during pregnancy, at birth, and postpartum; treatment of infections; improved hygiene and sanitation; and nutrition information and counseling for adequate quantity and diversity of diets. • Educates families and communities about the importance of delaying the age of marriage and first pregnancy for adolescent girls. 	<p>The Title II program:</p> <ul style="list-style-type: none"> • Provides food to non-pregnant adolescent girls to improve pre-pregnancy body mass index (BMI). • Provides food to pregnant women to ensure adequate weight gain during pregnancy. • Provides food to women during lactation and inter-pregnancy intervals to ensure maintenance or achievement of adequate BMI.

Source: This table is taken verbatim from the USAID/FFP Strategic Plan, p. 67.

weight (in kg) divided by height squared (in meters). The acceptable BMI range for adults is 18.5 to 24.9. Low BMI indicates thinness or wasting, which is indeed a problem for women in 12 of the 17 USAID/FFP priority countries with data. A prevalence of wasting (BMI < 18.5) in women of 10.0–19.9 percent is considered “poor” and of medium public health significance by WHO, and a prevalence of 20.0–39.9 percent is “severe” and of high public health significance (CORE Group, Nutrition Working Group, 2010). Low BMI may be due in part to HIV in countries with generalized epidemics, especially in Africa. Table 6.8 presents DHS statistics on the prevalence of low BMI (< 18.5) in non-pregnant women 15–49 years of age in 17 USAID/FFP priority countries. These data are presented to make the case that women’s nutrition is a major problem that warrants interventions using Title II resources. Bangladesh, Burkina Faso, Chad, Ethiopia, and Madagascar had “severe” levels of wasting in women. “Poor” levels were found in DRC, Haiti, Liberia, Mali, Niger, Sierra Leone, and Uganda. In countries with “poor” or “severe” levels of wasting in women of reproductive age, prevalence may be higher among adolescent women 15–19 years of age. For example, in the 2007 DHS

in Bangladesh, 34.9 percent of women 15–19 years of age had low BMI versus 29.7 percent of women 15–49 years of age. As stated under “Gender Equity” or “Gender” in the USAID/FFP Proposal Guidelines for FY 2010 and RFAs for FY 2011, FY 2012, and FY 2013: “Many women are married and bear children during their adolescent years, at a time when they have the least access to resources and decision-making power in the household, which affects food utilization and nutrition outcomes.” Therefore, interventions to improve women’s nutrition in adolescence are especially important.

Several countries had the opposite problem of high rates of overweight in women (BMI ≥ 25.0), exceeding 20 percent, namely Guatemala, Haiti, Liberia, Mauritania, and Sierra Leone. This presents a different malnutrition problem to be tackled. Being overweight may increase the risk of developing many health problems, including diabetes, heart disease, stroke, cancer, and pregnancy complications.¹⁸⁷ Another challenge is the high prevalence of extreme shortness (< 145 cm tall) in

¹⁸⁷ U.S. National Institutes of Health Weight-Control Information Network. http://win.niddk.nih.gov/publications/health_risks.htm. Accessed January 24, 2012.

Table 6.8. Prevalence of Low and High BMI in Non-Pregnant Women 15–49 Years of Age in USAID/FFP Priority Countries (BMI: weight in kg/height in m²)

USAID/FFP Priority Countries	Year of DHS/ RHS*	WHO Level of Prevalence/ Public Health Significance for Low BMI**	Nutritional Status of Non-Pregnant Women 15–49 Years of Age	
			Percent Underweight BMI < 18.5	Percent Overweight BMI ≥ 25
Bangladesh	2007	High/Severe	29.7	11.8
Burkina Faso	2003	High/Severe	20.8	9.3
Chad	2004	High/Severe	22.1	7.1
DRC	2007	Medium/Poor	18.5	11.3
Ethiopia	2005	High/Severe	26.5	4.4
Guatemala	2008/09	Normal	1.6	50.5
Haiti	2005/06	Medium/Poor	15.5	21.2
Liberia	2006	Medium/Poor	10.0	20.5
Madagascar	2008/09	High/Severe	26.7	6.3
Malawi	2004	Low/Monitoring required	9.2	13.6
Mali	2006	Medium/Poor	13.5	17.6
Mauritania	2000	Low/Monitoring required	8.6	42.7
Mozambique	2003	Low/Monitoring required	8.6	14.2
Niger	2006	Medium/Poor	19.2	13.0
Sierra Leone	2008	Medium/Poor	10.9	27.3
Uganda	2006	Medium/Poor	12.1	16.5
Zambia	2007	Low/Monitoring required	9.6	19.2

* Source: DHS or Reproductive Health Survey (RHS) data from <http://www.statcompiler.com> and Kothari and Abderrahim, 2010.

** Source: WHO Expert Committee, 1995.

women 15–49 years in rural areas of Bangladesh and Guatemala, which is associated with increased risk of obstructed labor and other delivery complications, maternal mortality, and low birth weight.¹⁸⁸ This shortness can be traced back to becoming stunted in early childhood.

The *6th Report on the World Nutrition Situation* (UNSCN, 2010) looked at the importance of maternal nutrition in the intergenerational transmission of growth failure and found that, as the rates of low BMI in women fall, so do the prevalence of low birth weight and underweight in children; maternal nutrition is the determinant and child nutrition is the result. Furthermore, improving the quantity and quality of the pregnant woman's diet can improve birth weight, even in small women,

with greater impact if women are reached in the first six months of pregnancy or earlier (UNSCN, 2010).¹⁸⁹

Women's heavy physical workloads are a big determinant of their being underweight and of intrauterine growth retardation, when energy expenditure exceeds energy intake. Heavy work demands, especially outside the home, can also lead to neglect of child care and feeding, contributing to child undernutrition. Few programs focused on getting women to rest or involving men to assume

¹⁸⁸ Bangladesh 2007 DHS; Guatemala 2008/09 National Maternal and Child Health Survey (ENSMI).

¹⁸⁹ A concern that increasing weight (size) of babies born to small mothers by maternal dietary supplementation might increase head size and thereby maternal mortality due to obstructed labor, or cephalo pelvic disproportion, is not supported by the evidence. The UNSCN 2010 review cited studies in the Gambia and Malawi that found no cephalo pelvic disproportion, even when food supplements were given to short women or adolescents (Ceesay et al., 1997; Brabin et al., 2002).

some of the women's chores during pregnancy and lactation. CARE/India FY 2002–FY 2006 promoted rest by pregnant and lactating women for two or more hours in the afternoon. It would be useful for programs to measure reducing pregnant and lactating women's workloads as a behavior change outcome indicator. It is encouraging to see that the USAID/FFP FY 2012 and FY 2013 RFAs for Title II development programs call for applicants to assess the impact of proposed activities on women's workloads.

Also, pregnant women's smoking or drinking alcohol endanger the mother's health and put the unborn child at risk of low birth weight and fetal alcohol syndrome in some countries, e.g., in Burundi, Rwanda, and Uganda. Alcoholism among men in northern Uganda was reported to be a major problem that contributes to women's heavy workloads. Furthermore, gender-based violence by men against women is another factor that is often exacerbated by men's heavy drinking. The threat of violence can impair a mother's ability to participate in Title II program activities (difficulty getting permission) and to care for young children (due to depression that undermines her caring capabilities). A Title II program can engage in community-based awareness-raising to shift norms and practices—promoting positive approaches to conflict resolution and cooperation within households. Working with men and not just women is essential. These could be new areas for Title II programs as they work more on gender integration. They were not promoted in the Strategic Plan or Proposal Guidelines during the FAFSA-2 time frame. Thus, it is not surprising that the FAFSA-2 did not encounter Title II programs trying to change these harmful behaviors.

Measuring women's nutrition. The nature and magnitude of the undernutrition problem are important to determine in each program context. This is true for maternal as well as child nutrition. An important step in designing and evaluating program interventions should, therefore, be measuring women's nutritional status. A major advance in 2011 was that USAID/FFP added “women's BMI” and “women's dietary diversity score” as standard indicators for evaluating Title II

programs (FFPIB 11-03, USAID/FFP, 2011). Both will also be required in FTF programs. The indicator “women's dietary diversity score” is a good marker not only for the micronutrient adequacy of women's diets, but also for household food security (Arimond et al., 2011). It has also been found to correlate well with the dietary diversity of women's children from 6 to 23 months of age using DHS data for Cambodia, Ghana, and Haiti.¹⁹⁰ Programs need to improve women's dietary diversity to improve women's health and nutritional status and to ensure healthy pregnancy and birth outcomes.

What programs did. Requiring measurement of women's nutrition is important, given the women's BMI data presented in Table 6.8, which indicate that wasting in women is a major problem in 12 of 17 USAID/FFP priority countries.¹⁹¹ During the FAFSA-2 time frame, only eight Title II MCHN programs measured women's anthropometry.

Only one program used “women's BMI” as an impact indicator (CRS/Niger). In this program, low BMI (< 18.5) in women of reproductive age rose to “severe” levels, from 18 percent in 2008 to 31 percent in 2010 during the drought/food crisis. The CRS/Niger program design did not include direct MCHN food distribution for women or children, and no food or other women's nutrition interventions were added after the mid-term evaluation, which said that the program should focus more on women's nutrition. The Africare/Uganda program had proposed to measure maternal BMI as a results indicator in the IPTT in its proposal, but later dropped it; no information was reported on why.

¹⁹⁰ Melissa Daniels's presentation at the Infant and Young Child Nutrition Project (IYCN) Conference on “Preventing Maternal Malnutrition: Evidence, Challenges and Opportunities.” August 16, 2011. Washington, DC. See <http://iycn.wpengine.netdna-cdn.com/files/Melissa-Daniels-Presentation.pdf>.

¹⁹¹ Women's BMI was measured in the baseline surveys for the three Bangladesh FY 2010–FY 2015 programs of ACDI/VOCA, CARE, and SC and for the previous SC program. The prevalence of low BMI (< 18.5) was similar to the national average of 33 percent in the 2007 DHS, a “severe” level per WHO.

Researchers evaluating the CARE/India FY 2002–FY 2006 program measured women’s BMI and found a very high prevalence of wasting (BMI < 18.5) among pregnant and non-pregnant women in an intervention and comparison district in each of two of the project states (Uttar Pradesh and Andhra Pradesh). It was particularly alarming in the Andhra Pradesh intervention district that more than 50 percent of mothers of children 6–23 months were underweight for their height—“very high level” rates per WHO (Dreyfuss et al., 2008). However, the program was able to achieve significant improvements in the nutritional status of both pregnant and postpartum women in both program districts in both states. This was an unexpected positive result. Nevertheless, even with the improvements, the prevalence of low BMI remained at a very high level (> 40 percent). Greater improvements in women’s nutritional status will be needed to translate into gains in child nutritional status (Dreyfuss et al., 2008).

The CRS/Malawi FY 2009–FY 2014 and CARE/Haiti programs measured pregnant women’s mid-upper arm circumference (MUAC) to target Title II supplementary feeding only to wasted pregnant women with MUAC < 22.5 cm, indicating fetuses at greater risk of intrauterine growth retardation. During the FAFSA-2 team’s visit to Malawi, the team was told by CRS that it had restricted eligibility due to budget constraints. CARE/Haiti reported that FANTA had recommended using MUAC to target food rations to wasted pregnant women, but CARE found that the MUAC cutoff lacked sensitivity because it excluded too many underweight women and their unborn children that could have benefited from food rations. In contrast to targeting food rations only to wasted pregnant women, as done in programs in Haiti and Malawi, the state of the art is to provide food supplements to *all* pregnant women in food insecure target areas, given the risks of low birth weight and its lifelong negative impact on height, cognitive function, and intellectual development (UNSCN, 2010).

Interventions. The majority of Title II MCHN programs (62 percent) provided food rations to pregnant and lactating women, an excellent

intervention that should continue. If food rations are consumed as intended and increase women’s dietary intake, supplementary feeding can ensure that women receive needed nutrients. However, women’s diets may not improve with supplementary feeding, due to sharing rations with other family members or substituting the donated foods for other home foods they would have eaten anyway. Food rations for pregnant and lactating women can also provide an incentive for these often hard-to-reach women and their babies to participate in maternal and neonatal health interventions and preventive behavior change. Of the 22 programs with no direct MCHN food distribution, many of which were focused on recuperating malnourished children using the Positive Deviance/Hearth (PD/H) approach, only 8 programs (36 percent) addressed women’s nutrition. Programs that provided rations for recuperative feeding of malnourished children also tended not to focus on maternal nutrition. Although providing food to non-pregnant adolescent girls to improve pre-pregnancy BMI was an illustrative activity in the USAID/FFP Strategic Plan, FAFSA-2 did not find examples of Title II MCHN programs doing this.

Behavior change. The neglect of women’s nutrition in Title II development programs was a finding of the 2002 FAFSA (Bonnard et al., 2002). During the FAFSA-2 time frame, close to half of the Title II programs (46 percent) used SBCC to improve women’s diets, reduce women’s workloads, and promote other practices to improve maternal nutrition. While this is positive, there is clearly room for improvement in the programs that did not include it. However, programs with SBCC to improve women’s dietary intake were not measuring the USAID/FFP required behavior change indicators (“consume food rich in vitamin A, iron, or calcium”).

The CARE/India program FY 2002–FY 2006 promoted the following dietary advice to pregnant and lactating women during home visits and educational talks at monthly Nutrition and Health Days and growth promotion sessions by village promoters: (1) eat one additional meal every day, (2) eat all available foods in the house, and

(3) eat the program food ration. The Africare/Uganda program promoted communal or household vegetable gardens, including orange and yellow sweet potatoes, fruit tree growing, and small live-stock rearing (rabbits and pigs) to increase income as well as household dietary diversity, especially of women and young children. This program helped improve the traditional high carbohydrate diet that was protein-poor and lacked micronutrients.

Outcomes. Only seven Title II programs (11 percent) had women's dietary improvement indicators; 86 percent of these reported improvements in their program evaluations. The Africare/Uganda program increased the mean women's dietary diversity score from 4.2 to 7.3 over the life of the project. The mean children's baseline and final dietary diversity scores also improved and were similar to the women's scores. The increased consumption of vegetables, fruits, and rabbit meat by the end of project were noteworthy.

The CARE/India FY 2002–FY 2006 intervention yielded tangible improvements in the dietary intake and nutritional status of both pregnant and postpartum women in both states (Uttar Pradesh and Andhra Pradesh). Although nutrition advice was targeted to women during pregnancy and the first six months postpartum, broad improvements in dietary intake among all women were observed in both states, through increasing the number of meals and/or snacks eaten. Consumption of at least three meals a day increased, but snack consumption decreased in the program district studied in Andhra Pradesh, where the vast majority of women already consumed three meals a day. In the program district in Uttar Pradesh, only 25 percent of women ate three meals a day at baseline, but both meal and snack consumption increased at endline. In both states, these changes in meal and snack consumption occurred among pregnant and recently delivered women, as well as among mothers of children 6–23 months of age (Dreyfuss et al., 2008).

There were multiple improvements in the diversity or quality of women's diets in the CARE/India program in both states. Recent consumption of legumes, dark green leafy vegetables, and yellow-orange fruits increased among all groups of women

in Andhra Pradesh. In Uttar Pradesh, only yellow-orange fruit intake increased significantly among all women, but pregnant women and mothers of children 6–23 months increased their weekly intake of meat, fish, chicken, and eggs. Women that had recently delivered increased their dairy intake. Dietary messages delivered to women during pregnancy and the early postpartum period appeared to have had a positive effect on all women's diets.

CARE/India also promoted that pregnant and lactating women rest for two or more hours in the afternoons. In one state (Uttar Pradesh), the program managed to significantly increase ($p < 0.05$) pregnant women resting, from 27 percent at baseline to 39 percent at endline, but not lactating women. The Bangladesh FY 2005–FY 2010 programs of CARE and SC also promoted more daytime rest than usual for pregnant women and were able to achieve increases. For example, in the SC program, women resting more in their most recent pregnancy increased significantly, from 46 percent at baseline to 96 percent at endline according to the final survey report ($p < 0.01$).

6.3.1.9 *Supplementary Feeding*

Rationale. Providing food rations (supplementary feeding) to pregnant and lactating women and preschool children in food insecure communities is a core nutrition service in Title II MCHN programs. Food assistance is given to families for the primary purpose of improving the quantity and quality of dietary intake to meet nutrient requirements for: (1) rapid growth and development and catch-up growth during recovery from infections and undernutrition in young children, and (2) increased demands of pregnancy and lactation. Title II blended foods, such as CSB, are more nutritious, energy- and protein-dense, convenient-to-prepare complementary foods than foods that most participating families can access otherwise.¹⁹² Vegetable oil in rations plays an important role in increasing energy density and providing essential fatty acids when added to

¹⁹² The recent FAQR conducted for USAID/FFP by Tufts University recommended further improving the formulation of CSB and ensuring that it is always consumed along with vegetable oil (Webb et al., 2011).

complementary foods. It is often scarce in the diet of food insecure populations because of high cost. Fortification of Title II commodities with vitamins and minerals contributes to higher micronutrient intakes. An important additional role of MCHN rations is to provide an incentive to engage food insecure, time-constrained mothers, caregivers, and families to participate in training, behavior change activities, and preventive and curative HN services, by compensating for their opportunity costs. The goal is improved pregnancy outcome—increased birth weight and length, and prevention or treatment of undernutrition in children. It has been known for at least three decades that supplementary feeding alone is not sufficient to improve nutritional status. It needs to be integrated with community-based SBCC, the ENA interventions, WASH, and essential preventive and curative health services (Anderson, 1977; Anderson et al., 1981).

One reference on the merits of supplementary feeding is a study that compared the effectiveness of conditional cash transfers in the Honduran government's MCH safety net program and supplementary feeding in the CARE/Honduras Title II MCHN program. The study found that provision of food rather than cash induced stronger links with health services, including increased visits for preventive MCH services. Furthermore, supplementary feeding, but not cash transfers, had significant positive effects on average household and child calorie consumption and on the calorie and protein consumption of women and adolescent girls (Sanghvi et al., 1995). More recently, supplementary feeding made the list of effective child nutrition interventions in the *Lancet* review because providing food rations to children in populations with “insufficient food” had a significant impact on reducing stunting, with or without SBCC (Bhutta et al., 2008). Based on that finding in the *Lancet* review, supplementary feeding is one of the 13 highly cost-effective interventions to prevent and treat undernutrition in the package promoted by the SUN Movement (SUN, 2010). The meta-analysis by Bhutta et al. (2008) defined populations with “insufficient food” as those with an average income of US\$1 or less per day. The USAID/FFP priority countries were also selected

based on a high prevalence of people living on US\$1 or less per day (extreme poverty), as well as a high prevalence of stunting and of undernourished people (FAO indicator of caloric availability). Furthermore, Title II programs work in the most food insecure rural communities in those countries. Thus, since Title II programs serve populations with “insufficient food,” greater nutritional impact would be expected by offering an integrated package of HN interventions that include MCHN supplementary feeding.

An even more compelling justification for doing MCHN supplementary feeding in USAID/FFP priority countries is the fact that in 16 of these 20 countries, with recent DHS data, all but Guatemala had levels of acute malnutrition greater than 5 percent in children under five years (Kothari and Abderrahim, 2010). The prevalence of acute malnutrition in 10 of the countries was 10 percent or more, the WHO threshold for a serious emergency situation.

What programs did. The main target groups for supplementary feeding during the FAFSA-2 time period were intended to be pregnant and lactating women and children 6–23 months of age based on USAID/FFP's Strategic Plan (see Box 2.1 in Chapter 2) and Proposal Guidelines. However, as seen earlier in Table 6.3, 70 percent of Title II MCHN supplementary feeding programs distributed rations to older children, along with younger children, despite USAID/FFP guidelines and despite the evidence of greater benefit in younger children.

The FAFSA-2 team expected to find a supplementary feeding component in all Title II programs reviewed with MCHN objectives, given the benefits of this intervention, the availability of U.S. food aid, and the emphasis in the Strategic Plan on the use of food to enhance human capital through take-home MCHN rations. This expectation was bolstered by the previously mentioned evidence on effectiveness and need. However, contrary to the expectation and justification for MCHN supplementary feeding, many programs did not include this intervention. That was surprising, especially in countries with acute malnutrition rates greater than 15 percent, the WHO critical level, and

poor or severe levels of wasting in women, such as the case in Burkina Faso, Chad, Mali, Madagascar, and Niger. See Figure 6.3 for the distribution of Title II programs with and without MCHN supplementary feeding in Africa and Figure 6.4 for the worldwide distribution.

Title II development programs with no supplementary feeding. A major finding is that 22 of the 69 MCHN programs reviewed (32 percent of all programs) did *no* direct food distribution to women or children; 19 of these were in Africa.¹⁹³ Most of the no-food-assistance programs (81 percent) were doing a PD/H approach.¹⁹⁴

One example of a program that did not provide food supplements to very vulnerable mothers and young children is the CRS/Niger program, where 15 percent of children under five years of age suffered from acute malnutrition, a prevalence that has changed little since the first DHS in 1992. The mid-term evaluation of the CRS/Niger no-food-assistance program found that the only program districts where underweight in children 0–59 months of age had been reduced were those where WFP had intervened during the drought emergency with blanket supplementary feeding for these children. Furthermore, in the same CRS program, low BMI (< 18.5) in women of reproductive age rose to severe levels, from 18 percent in 2008 to 31 percent in 2010 (during the drought/food crisis), but there was no food aid provided or other action taken. The impact of drought and food price increases on maternal and child nutrition have likely been more severe in countries like Niger than they would have been had there been supplementary feeding programs to prevent undernutrition. Not preventing undernutrition through supplementary feeding, where possible, in countries with chronically high rates of wasting increases the cost of emergency

¹⁹³ The absence of direct MCHN food distribution in the 22 programs was confirmed by cross-checking the USAID/FFP database for AERs.

¹⁹⁴ The remaining MCHN programs that did no direct food distribution and no PD/H implemented a variety of approaches to improve nutrition, including support groups (1 program), homestead food production (1 program), growth promotion (1 program), nutrition education using community extension agents (3 programs), and radio messages (1 program).

Figure 6.3. Title II MCHN Programs in Africa by Type of Food Ration

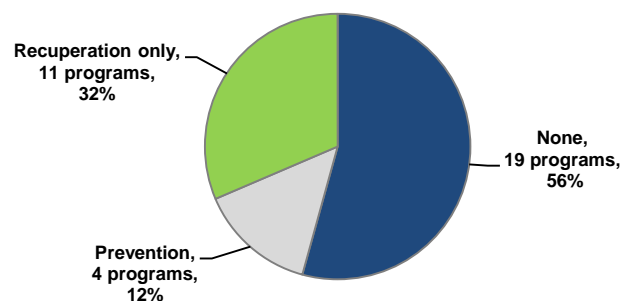
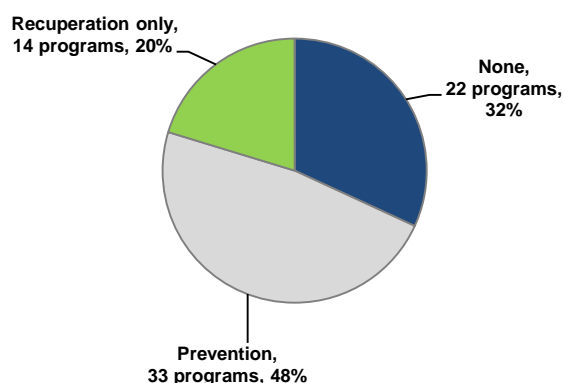


Figure 6.4. Title II MCHN Programs Worldwide by Type of Food Ration



relief by USAID/FFP, OFDA, and other international organizations. Treating child acute malnutrition with RUTF is more expensive than prevention. Furthermore, when a crisis occurs, being able to reprogram food commodities already in-country for a development program speeds up the emergency response. The irony is that some of the Title II Awardees with no preventive supplementary feeding in Niger were implementing the OFDA emergency programs for CMAM. It should be noted that the other two Niger MCHN programs, while providing supplementary feeding, were not maximizing its potential for preventing child undernutrition. Africare/Niger limited food distribution to young children only in the lean season and CPI/Niger targeted only acutely malnourished children, while both programs appropriately gave food to all pregnant and lactating women all year.

In certain cases, programs did not implement direct food distribution at the request of the host

government. Some governments were opposed to broad food distribution for preventive MCHN supplementary feeding because they did not want to receive U.S. food aid containing genetically modified corn and soybean. Other governments feared that supplementary feeding might create dependency, might not be sustainable, or might be an acknowledgment of hunger in their countries, e.g., Malawi, Niger, and Uganda. However, these governments were not opposed to less targeted use of food as an incentive for attending literacy classes or for social protection of PLHIV and vulnerable adults. At the community level, only giving food aid to adults for social protection and not to women and children in the 1,000 days for prevention sends the wrong message to community leaders and households that there is no maternal and child undernutrition problem, and that is why no food is being given. In terms of sustainability, an important argument is that the benefits of achieving normal physical growth and mental development through supplementary feeding during the 1,000 days are sustained throughout that individual's lifetime. Governments opposed to preventive MCHN supplementary feeding may favor RUTF distribution for treatment of acute malnutrition, if donors provide it, e.g., in Malawi and Niger. With donors supplying the expensive RUTF, the host governments do not have to worry about how much more cost-effective it would have been to prevent than to treat the acute malnutrition. For example, Plumpy'Nut[®] used for therapeutic feeding for SAM may cost US\$2,500 per MT vs. CSB used for preventive supplementary feeding, which costs around US\$300 per MT.¹⁹⁵

The Malawi and Uganda governments have championed the international SUN Framework for their countries, which includes supplementary feeding as one of the 13 effective interventions to be scaled up for women and children in the first 1,000 days. The fact that some governments' policies discouraging preventive supplementary feeding for women and children are inconsistent with SUN and with the FAFSA-2 findings should be used by

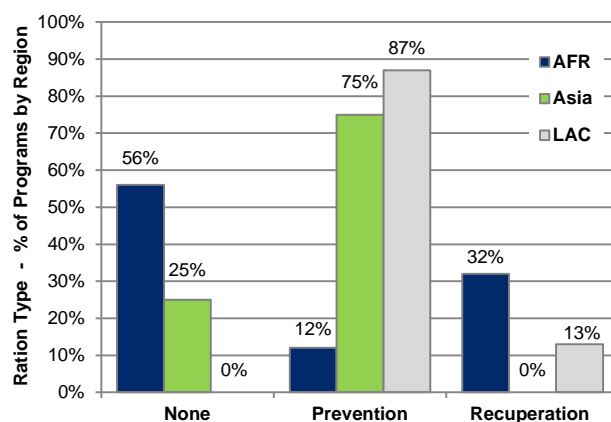
¹⁹⁵ The World Bank has estimated the cost of treatment of SAM with RUTF to be US\$200/child/episode vs. the cost of supplementary feeding to prevent or treat moderate malnutrition to be US\$40–\$80/child/year (Horton et al., 2010).

USAID to have a dialogue with these governments to get them to change unsound policies. It is also contradictory that some of the same governments have approved preventive supplementary feeding programs by WFP.

Preventive and recuperative supplementary feeding in Title II development programs.

Programs doing MCHN supplementary feeding used two main types of targeting: prevention and recuperation. Common characteristics of these two types of supplementary feeding in the programs reviewed, as well as advantages and disadvantages, are described next. As seen in Figure 6.4, nearly half of all Title II MCHN programs reviewed (48 percent) did preventive supplementary feeding and 20 percent provided recuperative feeding only. Of the 47 MCHN programs worldwide that provided Title II supplementary feeding, 33 (70 percent) did prevention and 14 (30 percent) did recuperation only. However, the decision to use preventive or recuperative targeting strategies for supplementary feeding varied widely by region. Figure 6.3 and Figure 6.5 show the regional distribution of Title II programs with MCHN supplementary feeding for prevention or recuperation, as well as programs with no supplementary feeding. There were only four prevention programs in Africa (12 percent of Title II MCHN programs in that region), compared to high numbers in Asia and LAC, where prevention was the norm: 75 percent and 87 percent of all Title II MCHN programs, respectively. In contrast, recuperation-only programs were more common

Figure 6.5. FAFSA-2 Types of Title II MCHN Food Rations by Region



in Africa (11 programs or 32 percent of all Title II MCHN programs in that region), compared to *no* recuperation-only programs in Asia and three recuperation-only programs in LAC (13 percent of all LAC Title II MCHN programs in that region).

Prevention model. Prevention programs targeted food rations to all members of the target group (defined by age and physiological status) in the selected geographic area, irrespective of their current nutritional status. The target group was pregnant and lactating women and preschool children greater than six months of age.¹⁹⁶ As a rule, prevention programs included community-based SBCC to improve IYCF practices. Receipt of rations was conditioned on mothers and children participating in certain preventive or curative HN services, e.g., monthly CBGP or Child Health Days. Therefore, in addition to the direct nutritional benefits of the food ration, the conditionality increased participation in important services, similar to the way conditional cash transfers operate. One rationale for age-based targeting of children is that in the food insecure rural communities where Title II works, even the upper-income quintiles may be food insecure and their children's growth faltering; thus, they can benefit from supplementary feeding in addition to SBCC to improve feeding practices. Furthermore, targeting only the extremely poor has a high administrative cost and can be divisive in the community. In peri-urban areas, programs may need to target the poor, if there are wide disparities between income groups. For well-nourished children, food supplements and other program services help prevent or correct mild growth faltering; whereas for children that are already malnourished, food rations, if consumed in the intended quantity to significantly increase dietary intake, contribute to nutritional recuperation.

Thus, prevention programs actually both prevent and treat undernutrition, with their effectiveness for nutritional recuperation dependent on the size, nutrient content, and intake of the ration, and the degree of undernutrition. A number of programs

(45 percent) classified in the FAFSA-2 as preventive supplementary feeding, because this was their main targeting strategy, also offered recuperative feeding to children they identified as underweight during growth monitoring and promotion.

Recuperation model. Recuperative feeding only programs in the FAFSA-2 provided food rations only to treat children that were already malnourished, usually defined by low weight-for-age. Four of the recuperation-only programs targeted food rations to children with MAM (low weight-for-height) in CMAM services. Recuperation programs sometimes provided food supplements to pregnant and lactating women, but the focus was on malnourished preschool children over six months of age.¹⁹⁷ Participation was time-limited, with graduation once the child gained a certain amount of weight or achieved normal nutritional status, and much shorter than in the prevention model. Programs referred children to health services if they did not recover within the stipulated time, or if they were severely underweight or wasted. These programs may not provide any population-based community services—no SBCC to improve IYCF practices or preventive and curative health services, which are essential. This was the case in 29 percent of the recuperative feeding only programs reviewed, two of which were visited by the FAFSA-2 team. Since no food rations are provided to most mothers and young children in return for participating in HN services, this lack of an incentive or compensation for mothers' opportunity costs contributes to lower coverage.

Prevention versus recuperation. Research has shown that supplementary feeding for prevention has a greater impact on reducing child undernutrition compared to recuperation programs. A USAID-funded, cluster-randomized trial compared the two types of supplementary feeding in Haiti and found at the end of the three-year intervention that stunting, underweight, and wasting were 4–6 percentage points lower in communities enrolled in the prevention model than in communities that

¹⁹⁶ Age eligibility in supplementary feeding programs reviewed varied considerably across a range from 6 to 72 months. See Table 6.3 for the various age eligibility criteria used in preventive and recuperative feeding only programs.

¹⁹⁷ Age eligibility in supplementary feeding programs reviewed varied considerably across a range from 6 to 72 months. See Table 6.3 for the various age eligibility criteria used in preventive and recuperative feeding only programs.

received the recuperation model (Ruel et al., 2008).¹⁹⁸ Based on these findings, USAID/FFP has promoted prevention programs more vigorously in its Proposal Guidelines and RFAs since FY 2009, branding this PM2A, following the model tested in Haiti (FANTA, 2010). Additional USAID-funded research on PM2A is ongoing in the CRS/Burundi and MC/Guatemala Title II programs (FY 2009–FY 2014) to better define if *household* rations in addition to individual mother-child rations increase participation in preventive and curative HN services and impact on nutritional status, and, if so, the most cost-effective ration size, as well as the minimum duration of participation.¹⁹⁹ The potential role of specialized foods, such as LNS and micronutrient powders, is also being tested; all of this research is being conducted by FANTA. Given the newness of PM2A, the only programs reviewed for MCHN in the FAFSA-2 that were doing this approach are the FY 2010–FY 2015 Title II programs of ACDI/VOCA, CARE, and SC in Bangladesh, a country visited by the FAFSA-2 team.

Drawbacks of recuperation-only programs. The FAFSA-2 team had the opportunity to visit three recuperation-only feeding programs in Malawi, Niger, and Uganda. Two of the programs were not doing any community-based SBCC to prevent undernutrition by improving IYCF practices.²⁰⁰ The focus was almost entirely on screening and food distribution. Children were weighed and MUAC was measured to screen for eligibility for rations, but not to detect early growth faltering due to inadequate weight gain or to counsel mothers on optimal IYCF

and how to get the child to gain weight again. Mothers and children had to travel for miles to come to the central undernutrition screening or food distribution sites, instead of the program coming to the community. If a mother or caregiver did not have a malnourished child, she left with nothing—no food ration, no counseling, and the misperception that her child was fine. Many children were not doing well—they were stunted or not gaining adequate weight—but had not lost enough weight to cross below the cutoff point for being malnourished enough to be eligible. Others were well nourished. Mothers of children that were underweight (z-score < -2) or suffering from MAM got all the attention and lots of food aid. This seemed to be a perverse incentive for encouraging families to have a malnourished child—to qualify for the ration—rewarding bad IYCF behavior. Furthermore, mothers and children may be missed when food distribution is centralized away from the village, because the distance mothers must travel may keep them from participating with young children, along with the opportunity costs and their past experience with getting nothing at these sessions.

Only 7 percent of the recuperation programs reviewed limited participation to children under two years (versus 39 percent of prevention programs). In contrast, 36 percent of recuperation programs targeted malnourished children up to three years of age and most (57 percent) targeted children up to six years of age (see Table 6.3). Since most stunting occurs before two years of age, low weight-for-age in children above two years is often due to their being too short and their weight being proportional to their retarded height. Stunted older children with low weight-for-age, but normal weight-for-height, tend not to recover from low weight-for-age, and, if they do, it indicates that they have become overweight for their height.

The above limitations could explain in part why the nutritional impact of recuperative feeding only programs has been disappointing. (See Box 6.7 for an example of lessons learned in Guatemala by one Awardee on the drawbacks of recuperative feeding.) To reward good behavior in its FY 2007–FY 2011 program, SHARE/Guatemala tested giving a mother

¹⁹⁸ In the prevention model, severely malnourished children (weight-for-age z-scores < -3) 24–59 months of age received rations for recuperative feeding.

¹⁹⁹ The PM2A research programs are not in the FAFSA-2 universe because they are studies with recent start dates. However, the FAFSA-2 team met with MC about PM2A during its visit to Guatemala.

²⁰⁰ Not working at the community level would be a negative in a prevention program as well as a recuperation program. However, all of the preventive supplementary feeding programs reviewed, including the three preventive supplementary feeding programs visited by the FAFSA-2 team, did community-based SBCC. This contrasted sharply to the absence of community-based activities in several recuperative feeding only programs, including two visited by the FAFSA-2 team.

much-prized sugar if her child's nutritional status improved from one month to the next. One could debate the pros and cons of giving a non-nutritious product like sugar with its empty calories as a reward in a country like Guatemala where adult overweight is on the rise. However, the concept of rewarding good behavior is sound.

While providing assistance to USAID/FFP and USAID Missions to shape country-specific guidelines for new Title II programs in Afghanistan, DRC, and Uganda, FANTA has found recuperative feeding to be especially problematic in these post-conflict settings.²⁰¹ It appears that recuperation models are more destabilizing for food security in post-conflict settings because of the lack of equity in food distribution. Families do not understand why some children get food and others do not and this leads to conflict between community members and with program staff. This is understandable when development food aid programs follow protracted emergency programs in which all family members got blanket feeding through WFP, which is withdrawn once “peace” is established. There appeared to be a tendency for USAID and implementing partners to prefer to do recuperative feeding to clearly distinguish the development program from the prior blanket relief feeding. But the recuperative approach has not worked well.

Findings substantiating the disadvantages of recuperative feeding in post-conflict settings come from formative research done in northern Uganda by FANTA-2 and MC to inform the design of an SBCC strategy for improving IYCF practices in the MC Title II development program. The population had lived in refugee camps for several decades and returned to their villages only in the past few years to rebuild their lives and reclaim their farms. Community members reported that parents waited for their children to become more malnourished so that they could qualify for the food ration. They did not understand the eligibility criteria. “Respondents referred to some households that tended to keep their children hungry or had many babies (i.e., the woman

²⁰¹ Sethuraman, Kavita. FANTA. November 29, 2011. Personal communication.

Box 6.7. Recuperative Feeding is Problematic

SHARE/Guatemala learned through experience that targeting rations only to malnourished children is detrimental to achieving program goals because: (1) participation at monthly education sessions drops if there is no ration, and the program cannot reach the critical mass necessary to have community-level impact; (2) it can be a perverse incentive—some extremely poor, rural families have a tendency to “sacrifice” the nutrition of one member—in this case, a child potentially eligible to receive a ration—to access food that benefits the whole family; and (3) community promoters and members may falsify nutritional status data of children to enable more households to access rations, thereby jeopardizing the validity of M&E data.

Source: World SHARE, Inc., 2000, Development Activity Proposal FY 2001–05 for Guatemala, p. 25.

was always pregnant) as a strategy to continue to get relief food. It was unfortunate that for some families food relief was the only means of survival, as it contributed greatly to the food in the home, and the caretakers had to use unconventional means to continue to get food” (Mwadime et al., 2012). Indeed, during the field visit to the MC program, the FAFSA-2 team learned that an audit had found that women were falsifying pregnancy to qualify for food rations. Mothers in a focus group discussion in the FANTA-2 formative research reported that: “Another [issue] is from us, the mothers. When a mother’s child has been weighed but the name happens not to appear among the eligible beneficiaries, she gets annoyed and starts to quarrel with those whose names appear on the list... So there are many quarrels and grudges between families.” While these findings are negative, they will help MC/Uganda improve its Title II program and illustrate why doing formative research is indispensable.

Sustainability of prevention programs. A criticism of prevention programs with large household rations is that this much food may create issues with the Bellmon Amendment,²⁰² dependency, and sustainability concerns, because a family reached during the first 1,000 days receives food supplements continuously for about two-and-a-half years. For example, the 2008 final evaluation of the four Bolivia programs that had a large, 29.9 kg monthly ration reported that some communities lost up to half their participants when food assistance was stopped as the program was ending. SC had an innovative, more sustainable targeting strategy in its Bangladesh FY 2005–FY 2010 and Haiti programs, based on the assumption that the main constraint was inappropriate dietary practices and not food shortages, and that the project’s income-generating activities would improve food security. In Bangladesh, small rations of 4 kg per month were given as an incentive to participation. Furthermore, women were eligible only for preventive food rations for one pregnancy cycle during the life of the Title II program, i.e., a ration for the pregnant woman through six months of lactation and then for the child from 6 to 23 months. They focused on first-time mothers or first-time-in-the-program mothers. Using food assistance, the purpose was to teach mothers desirable HN and child care practices and have mothers be able to do these on their own later on without food aid. While such a targeting strategy limited eligibility for food rations to one pregnancy cycle, it did not exclude mothers from participating in SBCC and other preventive and curative HN services during subsequent pregnancies. This approach had been recommended in FANTA’s 1999 publication on improving targeting of food rations. Some experts say this may be an unrealistically short participation period to achieve lasting positive behavior change, that this kind of targeting could be difficult to control, and that this approach will not be effective if food security does not improve. It is also possible that this strategy may be less appropriate in many countries in Africa with much higher fertility rates than Bangladesh (see Table 6.11), because in

a high-fertility setting more mothers would give birth to more than one child during a five-year program, and birth outcomes and child nutritional status could be negatively affected by the lack of food supplements. However, another argument for limiting participation to one pregnancy cycle is to avoid the unintended effect of encouraging mothers to have more children, or to not space pregnancies at least three years apart, in order to receive food rations. The FAFSA-2 team heard reports from Awardees that women had falsified pregnancies to qualify for food aid in the Burundi PM2A study and in the MC/Uganda program. CRS/Burundi reported that they wanted to target food rations to women for only one pregnancy cycle, but were not allowed to pursue this under the PM2A research because it would confound the study.

Little rationale for ration design. There was tremendous variation in rations, ranging from programs that gave none to a recuperation program that gave 38 kg per month to a malnourished child and pregnant or lactating mother pair. Some of the variants are: age groups covered; length of participation; and how many of those eligible in a family get rations at the same time, e.g., just one pregnant or lactating woman or child at a time or both the pregnant or lactating woman and one or more children concurrently? Are household rations given and to how many members? Do household rations attempt to close the energy or other nutrient gaps of every family member or just of women and children in the 1,000 days? Is the size of individual rations increased sufficiently to compensate for sharing with other family members or substituting the ration for other household foods the mother and child may have eaten? Are rations given only to women for one 1,000-day cycle during a five-year program or are women eligible again every time they get pregnant? Are rations given all year or only in the lean or hungry season? Which commodities and how much of each are used? Is the ration conditional or unconditional? Are only the poor and extremely poor eligible or is everyone in the age/physiological status group in the community eligible? What are the entry and exit criteria? What geographic or cultural factors need to be considered?

²⁰² See Section 3.6.1.3 for a discussion of Bellmon Amendment issues.

Each of these differences has major cost and effectiveness implications, determining how many people can be reached with scarce resources, whether programs can be done at scale, and whether they achieve net increases in dietary intake and nutritional status improvements for the beneficiaries. Operations research is needed to strengthen the evidence base on design features of food-assisted, undernutrition prevention programs that will maximize impact at the lowest possible cost. But FAFSA-2 did not find any examples of this type of research. As a result, supplementary feeding, a specialty of Title II, was the MCHN intervention for which there was the least guidance available to implementers.

Most supplementary feeding programs distributed rations in dry form to families to take home once a month from a central location. Rations were rarely harmonized across the same types of programs in the same country; the four Bolivia programs were the exception. Variations greater than 33 percent without sufficient justification were seen when comparing rations across programs in some countries. See an example in Table 6.9 from programs in Guatemala showing the fixed monthly rations that eligible households received. Ration size/type in those programs did not vary with the number or type of eligible target group members in the household. The program with the largest ration previously had a ration that was in line with the other two programs at the time its proposal was approved, but was later increased by 26 percent. Furthermore, in the joint final evaluation in 2006 of the prior programs of the same three Awardees in Guatemala, the Awardee with the biggest ration in 2011 had the biggest, most

expensive ration per capita in its prior program, but achieved the least nutritional impact. Bigger was not better.

Most of the imprecision in the rations is due to the total lack of data on actual dietary intakes of mothers and children, gaps compared to recommended nutrient intakes, and the impact of the rations on intake in the types of populations served by Title II development programs. The only dietary intake data available for Title II development programs were collected in a USAID-funded five-country study of CARE Title II programs more than 30 years ago (Anderson et al., 1981). Nor are there data on intra-household distribution of the rations. The Tufts University FAQR found the same thing and recommends “attempts to narrow the gaping chasm between knowledge of dietary realities and program design” (Webb et al., 2011). Program designers make guesses or use gross national data on average energy gaps estimated by FAO in its “depth of hunger” indicator. In the absence of target area-specific dietary intake data, the FAFSA-2 team came to the conclusion that centrally planned, standardized nutrient content for worldwide MCHN rations would be no worse than those being distributed now, and probably a more cost-effective use of scarce food resources to benefit more people. The variation in the average dietary energy deficit of undernourished people calculated by FAO in 2005–2007 for the USAID/FFP priority countries is small—a mean kcal gap/day of 305 ± 62 (standard deviation [SD]).²⁰³ The second alternative is to collect the dietary

²⁰³ See <http://www.fao.org/publications/sofi/food-security-indicators/en/> for country data on “Depth of the food deficit.”

Table 6.9. Guatemala Title II Programs (FY 2007–FY 2011), MCHN Component, Preventive MCHN Rations for Pregnant or Lactating Women or Children 6–35 Months of Age

Implementer	Ration Size (kg/household/month)				Total
	Rice	Pinto Beans	CSB	Oil	
Awardee #1*	2.72	2.72	6.36	2.00	13.80
Awardee #2*	3.63	3.18	4.54	2.00	13.35
Awardee #3*	4.54	4.54	6.81	2.50	18.39
PM2A Research**	6.00	4.00	4.00	1.85	15.85

* All three regular programs had a total annual cost in the range of US\$4.3 million to US\$4.5 million.

** Children enrolled for supplementary feeding in PM2A are 6–23 months of age.

data required to make the rations more precise, at least periodically in USAID/FFP focus countries. The Tufts FAQR also noted that the USAID/FFP Commodities Reference Guide used to plan rations is outdated and should be revised to improve its usefulness for planning rations (Webb et al., 2011).

6.3.2 Health Interventions and their Outcomes

Undernutrition in children is caused by inadequate dietary intake, disease, or a combination of the two (see Figure 1.1). Infections negatively affect child growth by reducing appetite, impairing absorption of nutrients, increasing nutrient requirements and losses, and diverting nutrients away from growth (Dewey and Mayers, 2011). They are also major killers of children. Therefore, essential preventive and curative health services and behavior change should be part of an integrated package of interventions in Title II MCHN programs. This section presents the health interventions supported by Title II programs and the outcomes achieved.

A number of Title II MCHN program Awardees have also received grants from USAID's Child Survival and Health Grants Program (CSHGP)

and benefited from the TA and tools provided by USAID in support of these grants.²⁰⁴ The increased technical capacity of organizations that participated in CSHGP no doubt strengthened their work on HN interventions in Title II. However, some USAID staff familiar with both programs have questioned why there has not been even more cross-fertilization within these organizations.

Table 6.10 shows the percent of Title II programs working on interventions under USAID's MCH Program Element and the results achieved. Each intervention (sub-element) is presented next.

6.3.2.1 Birth Preparedness and Maternity Services

Rationale. According to the GHI Strategy, 358,000 women die annually from largely preventable complications related to pregnancy or childbirth; millions more women suffer often debilitating pregnancy-related infections.²⁰⁵

²⁰⁴ See <http://www.mchipngo.net/controllers/link.cfc?method=home>, <http://www.coregroup.org>, and <http://www.k4health.org>.

²⁰⁵ <http://www.ghi.gov/resources/strategies/159150.htm>. Accessed March 19, 2012.

Table 6.10. FAFSA-2 Title II Development Programs Contributing to U.S. Foreign Assistance Program Area 3.1, Health: Program Element 3.1.6 – MCH

MCH Sub-Element Number	MCH Sub-Element	Number of Programs	Percent of Programs (N = 69)	Results (%)*	
				Had Indicator	Improved Indicator (N)
3.1.6.1	Birth Preparedness and Maternity Services	40	58	44	85 (27)
3.1.6.3	Newborn Care and Treatment	6	9	3	50 (2)
3.1.6.4	Other Immunization**	50	72	57	82 (34)
3.1.6.5	Polio**				
3.1.6.7	Treatment of Child Illness (includes oral rehydration therapy [ORT])	44	64	52	71 (31)
3.1.6.8	Household Level Water, Sanitation, Hygiene, and Environment	54	78	59	74 (35)

* The denominator for "Had Indicator" represents the 63 of the 69 health and nutrition programs in the FAFSA-2 universe that had been under way long enough to have had at least a mid-term evaluation, if not a final evaluation. The denominator for "Improved Indicator" represents the number of programs (N) that had reached the stage in their implementation when they had collected and reported evaluation data for that indicator.

** It is not possible to disaggregate these two sub-elements from the available documentation.

What programs did. Many Title II programs (58 percent) focused on increasing the use of earlier and more frequent prenatal care and postnatal care by women. A few programs assisted women to better recognize danger signs during pregnancy and delivery, promoted delivery by trained providers, and encouraged women to seek care in the case of obstetric emergencies. More concretely, several programs helped families prepare birth plans and arrange for emergency transport so that they would not lose time in getting to a health facility in the case of delivery complications, e.g., Bolivia (ADRA, CARE, and FH), and Honduras (ADRA, SC). The Africare/Chad program included training of traditional birth attendants (TBAs); as a result, during deliveries, TBAs reduced the use of physical force that can be harmful while extracting the baby, and women experienced less pain in childbirth according to participants. The CRS/Niger program provided donkey carts to villages for emergency transport in case of obstetric and other health emergencies. Bicycle ambulances were also mentioned in the CRS/Malawi FY 2009–FY 2014 program. Providing supplementary feeding to pregnant and lactating women in many preventive programs made contact with and referrals of these women easier.

Outcomes. Nearly half of the programs had results indicators for maternal health interventions (44 percent). Of the 27 programs that evaluated these indicators, 85 percent achieved improvements in use of maternal health services, most often in prenatal care coverage. Where use of prenatal care was already high, e.g., the CARE/India program in the state of Andhra Pradesh, where 86 percent of women received prenatal care at baseline, it was difficult for programs to increase it further. However, in the program district in Uttar Pradesh where coverage was low, significantly greater increases than the comparison group ($p < 0.05$) were achieved—women that had one prenatal visit rose from 35 percent at baseline to 53 percent at endline, and those that had three visits rose from 11 percent at baseline to 25 percent at endline (Dreyfuss et al., 2008). The percent of pregnant women that received home visits by HN workers more than doubled as

a result of the program. The joint 2007 evaluation of the four Title II programs in Haiti reported that coverage of women with postnatal care increased significantly ($p < 0.01$), from only 17 percent at baseline to 51 percent at the end of the program, whereas the increase in use of prenatal care from 86 percent at baseline to 95 percent at endline was not significant, given the high initial coverage.

6.3.2.2 *Newborn Care and Treatment*

Rationale. Since the late 1990s, there has been increasing attention in USAID child survival programs to reducing neonatal mortality, which has remained relatively high despite declines in infant and child mortality overall. In developing countries, most infant deaths occur in the first month of life and most newborn deaths occur in the first week of life. Most births and newborn deaths occur at home, outside the formal health care system. Thus, interventions are needed at household and community levels that link with the health care system for treatment of life-threatening conditions. These include essential newborn care and improving care-seeking for newborn illnesses (Baqui et al., 2006).

What programs did. Only a handful of Title II programs (9 percent)—in Guatemala, Honduras, and India—were doing neonatal health interventions. In each case, the work was made possible by additional bilateral funding from USAID Missions, TA from the Basic Support for Institutionalizing Child Survival (BASICS) project, or other funding sources. Programs providing supplementary feeding to pregnant and lactating women had the advantage of being able to identify and reach newborns early, in the first days of life when they are most at danger. This early contact facilitated timely enrollment of newborns in CBGP, making sure breastfeeding was exclusive and started in the first hour after birth, and referrals of newborns with health problems.

Outcomes. Only the two CARE/India Title II programs from FY 2002–FY 2006 and FY 2007–FY 2010 measured neonatal health care indicators. An evaluation study by researchers from the Johns Hopkins School of Public Health of the CARE

newborn health and survival intervention was funded by USAID/India and offers valuable lessons (Baqui et al., 2006). This was the first time that the large-scale effectiveness of a neonatal health package implemented through a platform of existing governmental and non-governmental organization services had been examined in a low-resource setting. There were dramatic improvements in essential newborn care practices achieved through home visits and effective behavior change strategies, i.e., sterile cord cutting, delaying bathing the baby for at least six hours, drying and wrapping the newborn before the placenta was delivered, initiation of breastfeeding within one hour of birth, and giving colostrum. The comparison area saw no change in these indicators. However, the project had no impact on neonatal mortality.

The researchers offered the following explanations for why the CARE/India program did not improve newborn survival. While increases in home visits to newborns in the first week of life by the village promoter or auxiliary nurse midwife were significant in the intervention area, they remained too few: Fewer than one-fourth of newborns were visited or checked by a trained provider in the first week of life. Timely identification and treatment of neonatal complications, as well as extra care for low birth weight newborns, were challenges. Having a skilled attendant at birth and using trained providers for complications remained low. The project had more impact on increasing the use of prenatal than postnatal services. The quality of counseling during home visits was weak. The study concluded that, while there were improvements in newborn care, much work still needs to be done to effectively deliver essential newborn care at scale to reduce deaths.

The evaluation of the overall CARE/India program in 2006 found that it had been difficult for CARE and the village promoters to focus adequately on the critical nutrition interventions, namely, SBCC to improve IYCF practices for children after the first month of life through two years of age. There was greater attention to newborn health in the first month of life and less attention thereafter. Trying

to effectively deliver both nutrition and neonatal health interventions was an overload for the same community worker. The trade-offs for spending more time on the newborn intervention appeared to be infrequent home visits to children 6–23 months, no program involvement with improving CBGP, and failure to significantly improve complementary feeding practices. The project recommended three home visits to mothers and newborns in the first week of life, the critical time period to prevent neonatal mortality. However, from 6 to 12 months, when growth faltering accelerates and complementary feeding advice and optimal practices are particularly important, the project recommended contact with mothers only every three months. From 12 to 23 months of age, contacts were recommended every six months, whereas there should be at least monthly contact with mothers/caregivers and children 6–23 months of age. The main intervention that nutrition and neonatal health programs share is promotion of early and exclusive breastfeeding. That is a good fit and essential to do in Title II programs in any case, but the trade-off of expanding into clinical newborn care may be inadequate attention to the ENA.

6.3.2.3 Immunization

Rationale. Immunization against vaccine-preventable diseases is a major child survival intervention. Measles has extremely negative impacts on nutritional status, and preventing it through immunization prevents undernutrition. USAID (2009) reported a nearly fourfold increase in immunization coverage in developing countries between 1980 and 2006, from about 20 percent to 77 percent. Many actors played a role in achieving this impressive result, including Title II development programs.

What programs did. Of the programs reviewed in the FAFSA-2, 72 percent facilitated immunization by promoting it, using food rations as an incentive, monitoring coverage, and providing logistical support to health services for outreach. More information on how programs boosted immunization coverage, most importantly using Child Health Days

to make immunization more accessible, can be found in Section 6.3.3.

Outcomes. The majority of the Title II programs (57 percent) had an immunization coverage indicator, and 82 percent of those that evaluated immunization coverage increased it. The 2007 joint evaluation of the four Haiti Title II programs reported a statistically significant increase in children 12–60 months of age that were fully vaccinated, from 39 percent to 63 percent between baseline and endline ($p < 0.01$).

6.3.2.4 *Treatment of Child Illness*

Rationale. The essential IMCI services are: oral rehydration therapy (ORT) and zinc for diarrhea (in some countries); antibiotics for pneumonia; and medications for malaria, where it is endemic. Access to care and information, behavior change, and successful referrals are critical. Title II programs have worked on IMCI since the concept was first introduced in the 1990s, mainly assisting referral of sick children to health care facilities. New *during* the FAFSA-2 time period was the realization by international and host country public health experts of the importance of timely detection and treatment of child illnesses, not only at health facilities, but *in the community* by trained CHWs in partnership with health facilities. Mothers/caregivers are often unable or unwilling to travel to health centers; there are time and cost constraints. Thus, in the same way that nutrition interventions need to be community-based in partnership with health facilities, so does treatment of common childhood diseases. This community-based approach is known as C-IMCI.

What programs did. Most Title II MCHN programs (64 percent) supported treatment of child illness. Community case management has been integrated well with CBGP in several countries, including in Title II programs in Bolivia, Guatemala, Honduras, and Nicaragua. SC/Honduras promoted rational use of drugs by health workers to tackle overprescribing, which leads to drug resistance. The Awardees rarely treated child illness directly, but rather they provided critical support for logistics, strengthening

local health staff capacity, improved outreach, and conducted SBCC.

Outcomes. About half of the Title II programs had indicators on treatment of child illness (52 percent), and 71 percent of those that evaluated these indicators reported improvements.

6.3.2.5 *Hygiene, Deworming, and Diarrhea Prevention*

Rationale. Interventions to improve hygiene practices are discussed in Section 7.3.5 on WASH. However, the impact of improved hygiene practices is discussed briefly here, given their critical role in preventing diarrhea and growth faltering. While respiratory infections and malaria contribute to growth faltering, diarrhea is particularly important (Black et al., 2008; Dewey and Mayers, 2011). Behavior change for hygiene improvement can be effective for preventing diarrhea. Intestinal parasites contribute to undernutrition through robbing children of nutrients, reducing the absorption of food, and causing bleeding and anemia. Deworming is a cost-effective way to prevent these problems, especially in areas where the prevalence of worm infestation is greater than 20 percent. It also increases vitamin A absorption (WHO/UNICEF, 2004). Thus, deworming drugs for children and improved hygiene practices, including handwashing, are 2 of the 13 evidence-based direct nutrition interventions in the SUN Framework.

What programs did. Hygiene improvement was the most common health intervention, in 78 percent of all Title II programs. See Box 6.8 for frequently promoted hygiene improvement behaviors.

Deworming. One-third of Title II programs worked to ensure that participating children were dewormed, either providing anthelmintic medications from the Awardees non-Title II resources or facilitating contact with and outreach by health services. Programs should also deworm pregnant women after the first trimester. However, the documentation was not clear whether programs were deworming pregnant women or just deworming children. Given the high cost-effectiveness of deworming,

Box 6.8. Essential Hygiene Actions

- Treatment and safe storage of drinking water
- Handwashing with soap or ash at critical times (i.e., after defecation or handling children's feces, before preparing food, before feeding children, and before eating)
- Safe disposal of feces
- Proper storage and handling of food to prevent contamination
- Community construction and use of affordable latrines

more Title II programs should make it part of their intervention package in the future by promoting it, facilitating delivery of anthelmintics by ministries of health, or providing anthelmintics through complementary non-Title II resources.

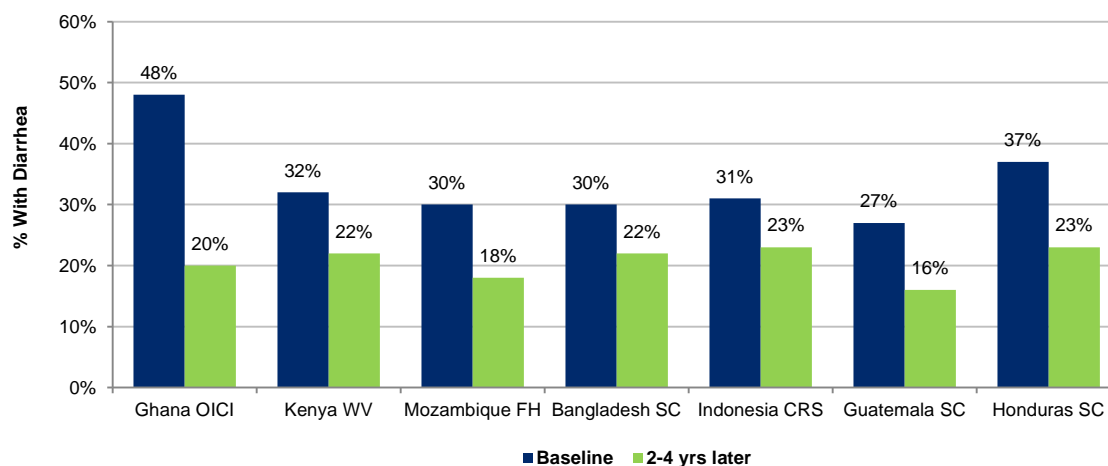
Reduction of exposure to indoor smoke from cooking. Although it may seem an outlier here, USAID Sub-Element 3.1.6.8 for Household Level Water, Sanitation, Hygiene and Environment includes fuel-efficient stoves to reduce indoor smoke, which is hazardous to human health (Smith et al., 2004; Bruce et al., 2006). Including improved cook stoves in Title II programs was first recommended by USAID/FFP in its FY 2008 Proposal Guidelines. A number of programs assisted participants with smokeless, fuel-efficient cook stoves intended to save time and money, have a positive environmental effect by reducing pollution and firewood whose use contributes to climate change, and improve health by reducing exposure to toxic indoor smoke. However, the degree of fuel efficiency and adoption by households depends on the design of the stove. An evaluation of fuel-efficient stoves in camps for internally displaced

persons (IDPs) in northern Uganda found that some stoves tested consumed more fuel than an open fire (AED, 2007) and recommended that more attention be paid by USAID-assisted NGOs to demonstrating the capacity of particular stoves to reduce energy consumption before they are produced and distributed on a large scale. While the evaluation by the AED team did not specify whether the NGO activities reviewed were Title II-funded or not, it did report that NGOs with standardized stove production via paid specialist staff or mass production were better able to ensure efficient combustion than NGOs that relied on beneficiaries to construct their own stoves. More time needs to be spent on client education to ensure adoption and correct use of stoves. The final evaluation of the WV/Uganda Title II program supporting fuel-efficient stoves for beneficiaries in IDP camps referenced the findings of the AED evaluation as cause for concern.

Outcomes. Many Title II programs included indicators on hygiene practices (59 percent). Of those programs that evaluated change in hygiene practices, 74 percent reported improvements. More significant is the actual reduction in the prevalence of diarrhea in young children. Preventing diarrhea and actually measuring the results are important in Title II programs, because reducing diarrhea is key to reducing undernutrition and preventing child deaths. Forty percent of Title II programs measured changes in diarrhea prevalence. Half of these programs succeeded in reducing the prevalence of diarrhea. The results of seven programs that measured change in the prevalence of diarrhea in preschool children in a standard way, and, thus, could be compared, are found in Figure 6.6.²⁰⁶ They achieved an impressive average annual four percentage point reduction in diarrhea. No outcomes were reported by programs that introduced fuel-efficient stoves.

²⁰⁶ Diarrhea was defined as more than three loose stools passed in a 24-hour period in the prior two weeks and was measured by caregiver's recall. Age groups of preschool children measured by programs varied as follows: 0–23 months in Bangladesh, Honduras, and Mozambique; 0–35 months in Ghana; 6–59 months in Kenya; 0–59 months in Indonesia; and 6–36 months in Guatemala.

Figure 6.6. Reductions in Diarrhea Prevalence in Preschool Children—Results after 2–4 Years in Some Title II Programs



6.3.2.6 Family Planning and Healthy Timing and Spacing of Pregnancies

Rationale. Family planning saves lives and is one of the most cost-effective MCH interventions (Smith et al., 2009). For example, in Zambia, every one dollar invested in family planning saved four dollars in other development areas.²⁰⁷ Family planning can contribute to better maternal and child nutritional status by delaying the first pregnancy, lengthening the interval between pregnancies, and reducing family size (Rutstein, 2008; WHO, 2005). Recent evidence from USAID-supported research in Bangladesh found that family planning is also an important poverty reduction intervention, because it increases incomes, women’s opportunities, school attendance, and family well-being (Gribble and Voss, 2009).

There is a large unmet need for family planning in the world; more than 215 million women do not want to become pregnant, but are not using a modern method of contraception.²⁰⁸ The unmet need for family planning is high in all of the USAID/FFP priority countries for which DHS data are available, with unmet need greater than 30 percent in Haiti, Ethiopia, Liberia, Mali, Mauritania, and Uganda (see Table 6.11). Many women, particularly in

rural areas, do not have access to family planning services.

According to the DHS data, fertility is high in the USAID/FFP Africa priority countries. While populations in other regions have doubled, Africa has grown twice as fast, quadrupling since 1950, from approximately 230 million to around 1.02 billion in 2010.²⁰⁹ High population density in several of the USAID/FFP priority countries, including Bangladesh, Burundi, Guatemala, Haiti, Malawi, and Uganda, may exacerbate conflict; environmental degradation; and competition for scarce water, arable land, and other resources.

Children born less than two years apart are three times more likely to die before reaching age five and 50 percent more likely to be stunted and underweight, compared to those born three to five years apart (Rutstein, 2008; WHO, 2005). Yet DHS found that most children in the USAID/FFP priority countries were born after a shorter than desirable birth interval, except in Bangladesh, which has had a successful national family planning program for several decades (see Table 6.11). Low birth weight increases with early marriage and pregnancy, and is the start of much of the problem of underweight in children (UNSCN, 2010). See Box 6.9 for key messages promoted to achieve healthy timing and spacing of pregnancies (HTSP).

²⁰⁷ USAID. “Family Planning. The World at 7 Billion.” http://transition.usaid.gov/our_work/global_health/pop/news/wpd11.html. Accessed August 30, 2012.

²⁰⁸ Ibid.

²⁰⁹ Ibid.

Table 6.11. Fertility, Family Planning, and Birth Intervals in USAID/FFP Priority Countries

USAID/FFP Priority Countries	Year of DHS/RHS	Total Fertility Rate	% of Married Women Using Any Method of Family Planning	% of Married Women with Unmet Need for Family Planning	% Births with Interval < 36 Months
ASIA					
Bangladesh	2007	2.7	55.8	16.8	36.9
LAC					
Guatemala	2008–09	3.6	54.1	20.8	56.1
Haiti	2005–06	3.9	32.0	37.5	54.8
AFRICA					
Burkina Faso	2003	5.9	13.8	28.8	50.6
Chad	2004	6.3	2.8	20.7	66.1
DRC	2007	6.3	20.6	24.4	65.1
Ethiopia	2005	5.4	14.7	33.8	56.0
Liberia	2006	5.2	11.4	35.6	49.0
Madagascar	2008–09	4.8	39.9	18.9	56.7
Malawi	2004	6.0	32.5	27.6	50.1
Mali	2006	6.6	8.2	31.2	62.8
Mauritania	2000	4.5	8.0	31.6	53.1
Mozambique	2003	5.5	25.5	18.4	55.2
Niger	2006	7.0	11.2	15.8	60.8
Sierra Leone	2008	5.1	8.2	27.6	49.7
Uganda	2006	6.7	23.7	40.6	68.8
Zambia	2007	6.2	40.8	26.5	54.9

Source: DHS or RHS data from <http://www.statcompiler.com>.

Box 6.9. Healthy Timing and Spacing of Pregnancies: Key Messages

- Wait until at least age 18 before becoming pregnant
- Wait at least 24 months after a birth before trying to become pregnant again
- Wait at least six months after a miscarriage or abortion before trying to become pregnant again
- Limit pregnancies to a mother's healthiest years: 20–35

With all of the arguments in favor, it was surprising that neither family planning nor HTSP was included as illustrative activities to achieve the USAID/FFP Strategic Plan result of “human capabilities protected and enhanced” and the objective of “reducing food insecurity in vulnerable populations.” Family planning and HTSP were also not mentioned in the USAID/FFP Proposal Guidelines for any year throughout the FAFSA-2 time period.

There were positive developments in FY 2011, with the GH Office of Population and Reproductive Health (GH/PRH) and USAID/FFP encouraging more integration of family planning services in Title II programs. As a boost, they held a workshop, organized by ICF Macro and the Maternal and Child Health Integrated Program (MCHIP), in Washington, DC, on October 13, 2010, at which three Title II Awardees shared their field experiences on the integration of family planning.²¹⁰ As a result of the workshop, at USAID’s request, FANTA-2 revised the PM2A technical reference materials (TRM) in November 2010 to include family planning as a useful complementary health service in Title II

²¹⁰ ADRA/Madagascar, SC/Uganda, and WV/Haiti, done with competitively awarded Flexible Fund grants from GH/PRH to complement Title II food resources.

MCHN programs. In 2011, GH/PRH called for proposals from Title II Awardees to use Flexible Funds for the integration of family planning into food assistance programs, as they had done in earlier years.

The USAID/FFP FY 2012 and FY 2013 RFAs for Title II development programs encourage applicants to include improving access and quality of family planning services in their proposals as part of the minimum package for preventing chronic malnutrition in the first 1,000 days. Furthermore, starting in FY 2011, USAID/FFP included “family planning and reproductive health” among 14 program elements to be used by Awardees to describe their programs in annual reports. Strategic coordination and integration is one of the GHI’s key principles; integrating family planning and maternal and child health care is an excellent example now being promoted (Ringheim et al., 2011; Ringheim, 2012).

What programs did. It was encouraging that family planning services were integrated into 24 Title II programs (35 percent of all), with 13 of these programs explicitly promoting HTSP, despite it not being included in program guidance (see Table 6.12). Awardees worked in partnerships with ministries of

Table 6.12. FAFSA-2 Title II Development Programs Contributing to U.S. Foreign Assistance Program Area 3.1, Health—Malaria and Family Planning Program Elements

Health Program Element	Health Sub-Element	Number of Programs	Percent of Programs (N = 69)	Results (%) [*]	
				Had Indicator	Improved Indicator (N)
Malaria 3.1.3	Malaria Prevention: ^{**} 3.1.3.2 Insecticide Treated Nets to Prevent Malaria 3.1.3.4 Intermittent Preventive Treatment for Pregnant Women	16	23	11	67 (6)
Family Planning and Reproductive Health 3.1.7	Family Planning Service Delivery and Communication: ^{**} 3.1.7.1 Service Delivery 3.1.7.2 Communication (Family Planning)	24	35	10	83 (6)

^{*} The denominator for “Had Indicator” represents the 63 of the 69 health and nutrition programs in the FAFSA-2 universe that had been under way long enough to have had at least a mid-term evaluation, if not a final evaluation. The denominator for “Improved Indicator” represents the number of programs (N) that had reached the stage in their implementation when they had collected and reported evaluation data for that indicator.

^{**} It is not possible to disaggregate these two sub-elements from the available documentation.

health, private family planning providers, and other USAID projects, which supplied the contraceptives and delivered the family planning services. The Awardees organized outreach for convenient delivery of family planning information and services to participants in other Title II program activities, sometimes at the same place and time. They played an important role in facilitating logistics, mobilizing the community, and implementing SBCC. This integration was made possible in several cases by additional USAID funding, e.g., from bilateral funds in the CARE/India FY 2002–FY 2006 program, and with Flexible Fund grants from GH/PRH in ADRA/Madagascar, SC/Guatemala, SC/Uganda, and WV/Haiti FY 2000–FY 2007 programs. In Haiti, the Awardees collaborated with USAID’s bilateral family planning project implementer, Management Sciences for Health.

In most cases, Awardees made community-based family planning services and information available by partnering with ministries of health and other family service providers that had the contraceptives and health workers to deliver them to Title II clients.

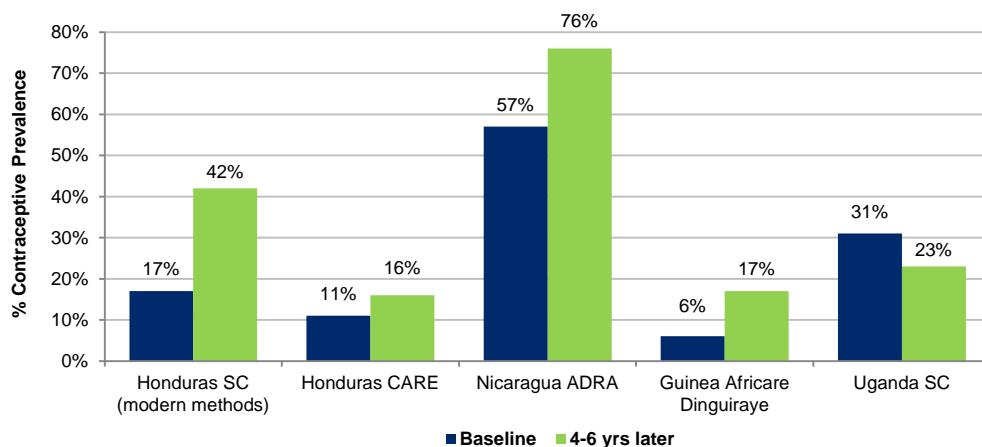
Outcomes. Ten percent of programs measured a family planning use indicator and, of these, 83 percent increased family planning use. The average increase was two percentage points per year across five programs that measured change in the contraceptive prevalence rate in a standard way, and, thus, could be compared (see Figure 6.7). The

biggest success was the SC/Honduras program, which increased use of *modern* family planning methods from 17 percent to 42 percent in four years. In contrast, in the SC/Uganda program, use of family planning actually fell during the project due to men’s discouraging attitude toward contraceptives. The project began men’s groups to address this barrier during its final year. Much more work to educate and convince men is important. According to SC, the Title II program in Uganda, working in collaboration with a pilot project of Family Health International, succeeded in demonstrating the feasibility of community-based distribution of Depo-Provera. This contributed to major reform in national policy, making Uganda the first country in Africa to allow community-based delivery of Depo-Provera.²¹¹ Madagascar then followed Uganda’s policy of allowing CHWs to provide Depo-Provera, and so have seven other African countries, greatly increasing access to this popular contraceptive.

CARE/Bangladesh FY 2005–FY 2010 worked on women’s empowerment. The goal was not family planning, but one of several impressive results was a statistically significant increase in women’s

²¹¹ Mwebesa, Winifrede, SC Senior Reproductive Health Advisor. Presentation on “Family Planning in the Title II Enhancing Food Security through Poverty Alleviation Project in Nakasongola District, Uganda from FY 2003–2008” at the USAID Flexible Fund Partners’ Meeting on Integrating Family Planning and Title II Food for Peace Programs in Washington, DC, October 13, 2010.

Figure 6.7. FAFSA-2 Use of Family Planning by Women of Reproductive Age—Results of Some Title II Programs



decision-making power to buy contraceptives ($p < 0.0000$). CARE achieved this by organizing community-level Empowerment, Knowledge, and Transformative Action (EKATA) groups of 20 women and 10 adolescent girls each that provided a platform for empowering women and girls through education, solidarity, group planning, and rights advocacy.

Healthy timing and spacing of pregnancy. Of 13 Awardees that promoted increased spacing between pregnancies, the effect on the length of birth intervals was evaluated in five programs. As seen in Box 6.10, increases in the average birth interval in Haiti after four years of intervention ranged from 9 months to 11.3 months among four Title II programs (statistically significant at $p < 0.01$). The prevalence of children born at short intervals of less than three years decreased across the four programs from 68 percent at baseline to 50 percent at endline. Short birth intervals were correlated with more diarrhea and more stunting. In evaluation research on the CARE/India FY 2002–FY 2006 program, 36 percent of program cohort mothers had birth

Box 6.10. Big Increase in Birth Intervals in Haiti

The 2007 joint evaluation of four Title II programs in Haiti from FY 2002 to FY 2008 (CARE, CRS, SC, and WV) reported that each program significantly lengthened the number of months between births ($p < 0.01$). The mean birth interval across the four programs increased by nearly one year, from 31.9 months at baseline to 42.4 months at endline, four years later. This increase is much greater than that of only four months between the Haiti DHS surveys in 2000 and 2006, from a mean interval of 30 months to 34 months. The biggest increase in birth interval of 11.3 months was achieved by WV, due in part perhaps to the additional resources they received in a grant from GH/PRH.

intervals of at least 24–47 months versus 30 percent in the comparison group, a statistically significant difference ($p < 0.05$) (Dreyfuss et al., 2008).

A concern has been raised that Title II supplementary feeding for pregnant or lactating women and young children could have a pronatalist effect. To date, there is no evidence on which to judge whether this is true. The success of the previously referenced Title II programs in increasing the use of family planning and lengthening birth intervals is very encouraging. These results suggest that Awardees could mitigate a pronatalist effect, if any, by actively promoting longer birth intervals and partnering to increase access to and use of family planning information and services.

6.3.2.7 Malaria Prevention

Rationale. Malaria has negative impacts on health and nutritional status and caused 8 percent of the deaths of children under five years in 2005 (USAID, 2009). It is important to prevent and treat malaria in endemic areas, mainly in Africa. Cost-effective preventive interventions are ITNs and antimalarial intermittent preventive treatment (IPT) during pregnancy. By preventing malaria, IPT and ITN in pregnancy also prevent low birth weight and anemia caused by malaria.

What programs did. Sixteen programs (23 percent) did malaria prevention (see Table 6.12); 15 of them were in Africa (44 percent of all Africa programs) and one in India. The small number is due in part to the fact that many of the Title II programs reviewed were not in malaria-endemic areas. Some of the Africa programs did social marketing to sell affordable ITN, e.g., ADRA/Madagascar, while others promoted use of ITN given free by other programs, e.g., with assistance from the U.S. President's Malaria Initiative or the Global Fund. Ministries of health provided antimalarial drugs for IPT that the programs promoted.

Outcomes. Eleven percent of Title II programs had indicators to measure their malaria prevention results, such as use of ITN or IPT. Two-thirds of the programs that evaluated malaria prevention interventions achieved improvements.

6.3.3 Approaches and Processes

Insights gleaned during the FAFSA-2 on a number of approaches and processes used in the MCHN components of Title II programs are described in this section. These are the delivery science or implementation details that make or break a program. The most common approaches used, which varied by region, are summarized in Table 6.13.

6.3.3.1 Community Health Workers or Volunteers

It is absolutely essential to the success of Title II or any other MCHN program to have well-selected, trained, motivated, supported, skilled CHWs at an appropriate ratio to the number of households to be covered to allow frequent contact with the target group in the first 1,000 days. In asking the question “what triggers (and sustains) periods of rapid improvement in child nutrition?” the *6th Report on the World Nutrition Situation* found that in most cases both the improved socioeconomic environment and wide coverage of community-based HN programs played a role (UNSCN, 2010). “Achieving a high ratio of community workers to families is a key measure of the potential for impact,” based on the key role they played in most of the countries with large reductions in undernutrition (UNSCN, 2010, p. 45). While community workers or volunteers have many different titles depending on the country or program, the FAFSA-2 uses the generic term “community

health worker” or “CHW.” Principal responsibilities of CHWs are community mobilization, identifying and enrolling everyone in the 1,000-day window, SBCC for ENA and health practices, detecting people with HN problems and referring or treating them, and recordkeeping. In some cases, depending on a country’s ministry of health (MOH) norms, CHWs may distribute vitamin A, iron and folic acid, antibiotics, contraceptives, oral rehydration salts, and deworming and other medications.

While community workers are indispensable for delivering preventive MCHN services, as noted previously, many priority countries do not have such workers in every community as part of established national government programs. One major exception is India, with its village HN promoter (the *anganwadi* worker), through the national Integrated Child Development Services scheme. Therefore, in most other countries, a key role of Title II programs is selecting, training, motivating, and paying village workers to implement the MCHN preventive interventions, unless they can be persuaded to volunteer. In many countries, community members will not work without some remuneration, especially if they are at a supervisory level. Programs ask a lot of volunteers. Several people interviewed in the Title II community commented that it seems easier for faith-based organizations to motivate people to volunteer. The downside of volunteers is that there can be high turnover. In many Title II programs, CHWs were paid with a FFW ration or cash from the program budget.

Table 6.13. FAFSA-2 Common Approaches for MCHN in Title II Development Programs Worldwide and by Major Geographic Region

Approaches	AFRICA 34 Programs (%)	ASIA 12 Programs (%)	LAC 23 Programs (%)	Worldwide 69 Programs (%)
Child Health Days	26	58	43	38
Interpersonal Counseling	50	100	70	70
Home Visits	35	67	57	57
Growth Monitoring and Promotion	59	100	78	78
Homestead Gardens	56	25	46	46
PD/H	59	50	46	46

Client-worker ratio. One concern of the FAFSA-2 was that some Awardees decided not to have any CHWs, or to reduce their number below a critical level, perhaps due to tight budgets. Instead, rather than being community-based, these programs were facility-based; expected women and children to travel to sessions at central locations for 10–15 villages—distant from their homes; or increased the ratio of clients to CHWs, which contributed to infrequent or no contact in the community. Most Title II Awardees did not describe in detail how many community workers they planned to have; their progress in recruiting and training the intended number of community workers; and the client-worker and supervisory ratios, in their proposals, annual reports, or evaluations. This limits USAID/FFP’s ability to detect when programs are understaffed for community work. Best practice is not to exceed about 20 children per CHW, if the worker is a volunteer who is expected to deliver the growth promotion package and who works only a limited amount of time (Griffiths et al., 1996). A full-time, paid worker might be able to cover up to 100 children, if only 20 or so would need close follow-up (Griffiths et al., 1996). Obviously, the cost and number of workers will be higher in countries with high fertility rates. Some good examples from Title II programs are SC/Mozambique, where each CHW served two groups of 15 families each for a total of 30 families, and Care Groups in the CRS/Malawi program. Care Groups usually have one volunteer for 10 families. In the CRS/Malawi FY 2009–FY 2014 program, there was one paid promoter to oversee seven Care Groups. Each Care Group had 11 volunteers. One volunteer visited 10 households. So there was one paid promoter supervising 77 volunteers that visited 770 households.

Contrast these examples to the facility-based Title II program of one Awardee that the FAFSA-2 team visited in Niger with one paid project health agent for 80 villages. This made it impossible to do community work. The proposal did not describe how the project would establish a presence in every community and deliver services there. The Awardee planned to get nurses from the MOH

health posts to visit 60 villages only 3–4 times per year by paying for gas, supplies, and daily stipends, which is far too infrequent contact. Instead of working in communities, the modus operandi was to call mothers and children to large sessions for 10–15 villages at distant clinics for undernutrition screening and recuperative food distribution. A similar approach of delivering food at central locations outside the community and not having ongoing services in the community was used in another recuperative feeding Title II program visited in Uganda.

The FAFSA-2 team also visited a program in Guatemala that had cut back on the number of CHWs and supervisors approved in its proposal to one Mother Leader for 140 households, versus the original plan of having one for every 25 children under 36 months of age. They eliminated the supervisors that used to cover nine Mother Leaders each. The mid-term evaluation flagged this, saying, “Currently there are too few CHWs to adequately cover participating households (each CHW covers, on average, 140 households), and not enough PROMASA II project personnel to supervise their work. In this estimation, with 15 months remaining in the five-year project, the frequency of contact between CHWs and project participants—combined with other important factors beyond the project’s control—will probably not prove sufficient enough to translate into the planned level of end-of-project impact” (Heffron et al., 2010). These changes were not formalized in an amendment to the agreement approved by USAID. That same Awardee had a newer program in Bangladesh in which they had eliminated CHWs during the design, which was inconsistent with the evaluation finding that CHWs were critical to the success of that Awardee’s prior Title II program in Bangladesh. The reason given for doing so was that the CHWs in the prior program had not been absorbed by the MOH. Instead of CHWs, they planned to have an all-volunteer Village Health Committee. It is unrealistic to expect a committee to deliver the SBCC and the frequent contacts needed for ENA and the health interventions in the community. In its concern about sustainability after the program, this Awardee’s

decision to eliminate CHWs will likely reduce the effectiveness of delivery of MCHN services and SBCC in the ongoing program.

Motivation. In its FY 2008 Annual Report, SC/Mozambique shared findings from research on its program done for a master's degree thesis by a public health student on "Community Volunteers' Motivation." Motivations included: (1) self-development, (2) impact of their interventions, (3) personal satisfaction, (4) pride and status, (5) desire for training in maternal care, and (6) hope for future opportunities. Community-level factors included: (1) community development, (2) community demand, and (3) community cohesion.

Specialized vs. multipurpose workers. Valuable lessons can be learned from programs that share insights into approaches that did not work. Two programs hoped to cut costs by using agricultural extension workers as multipurpose nutrition promoters, in addition to their agricultural work. This did not work well for CARE/Mozambique because the program found it needed a dedicated nutrition promoter in the village who could spend more time, and locally adapt messages and counseling to the situation. Similar constraints were seen in the CRS/Niger program, visited by the FAFSA-2 team, where the only worker was a zone agent agronomist responsible for 4–5 villages who spent very little time on HN.

Capacity strengthening. Capacity strengthening is critical to the success of Title II MCHN programs. While many programs mentioned that they had trained CHWs and often government health service providers from nearby health facilities, there was not enough detail provided in the program documentation to be able to assess the quantity and quality of capacity building, nor the methods used. Findings gleaned from the documentation suggest that training was sometimes an end in itself, and not the beginning of capacity strengthening, with follow-up by trainers/supervisors to do the necessary hand-holding to yield solid mastery in the field. Many Awardees considered capacity building their main sustainability strategy to leave something behind,

so that programs would continue after graduation. Box 6.11 provides some insights from Awardees regarding capacity building.

Supervision. Good supportive supervision of CHWs is also essential. The key features are joint problem solving and in-service training of CHWs by supervisors. CARE/India developed the *Supervisor's Checklist* to improve supervision of village nutrition promoters in its FY 2002–FY 2006 and FY 2007–FY 2010 programs (Bongiovanni et al., 2007). Involving MOH staff in supervising community volunteers was a feature of WV's sustainability plan for its Honduras program.

Box 6.11. Awardees' Insights on Capacity Building in Title II MCHN Programs

Learning by doing and seeing real cases are more effective than theoretical training, according to WV/Honduras. It also considered involving MOH staff in the training of volunteers to be the key to sustainability.

SC/Honduras found that learning shared among CHWs is more effective than formal training. Selected CHWs, with some coaching and using local modalities and their own words, can transmit knowledge, promote attitudes, and transfer skills among themselves more effectively than outside trainers, i.e., CHW to CHW learning.

CARE/India FY 2002–FY 2006 found that monthly sector meetings between supervisors and village workers provided a great opportunity for in-service training to improve their home visit and behavior change skills. They developed a *Tool for Conducting Sector Meetings* and a *Guide for Facilitating Sector Meetings* (Bongiovanni et al., 2007).

Sustainability of CHWs. How to ensure that CHWs continue to do their job after the Title II program ends is one of the biggest sustainability issues Awardees face. Most of these workers do not continue to perform their duties after the program ends unless the Awardee has identified another source of payment or substitute incentives as part of an exit strategy. Here are some examples of Awardees' attempts to do that. One strategy was to form CHWs into associations to professionalize them. In Bolivia, the Awardees (ADRA, CARE, FH, and SC) formed associations of CHWs, modeled after Peru, which provided: (1) a forum for sharing and learning from each other, (2) a system for providing training and support to each other and new volunteers, and (3) a single voice in representing the volunteers before the MOH and municipal governments. SC worked with a local university to accredit the CHWs to increase their prospects for obtaining work. CARE reported that a measure of the female empowerment achieved in its program was the increased self-confidence expressed by these women volunteers, a number of whom were successful in landing official positions in their communities and municipalities. CRS/Haiti gave small loans to volunteer CHWs for small businesses to support themselves. CARE/Honduras formed networks of CHWs, and gave them diplomas and identification cards to increase their status and prospect for continuing to work after the program ended. The Tufts Exit Strategies Study on what happens after Title II programs end will shed light on whether the CHWs have continued to work in the program communities in Honduras and Bolivia.²¹²

SC/Mozambique also organized CHWs into associations. Some Awardees planned to help CHWs start a fee-for-service business in their communities. In the Chad/Mali program, Africare planned to get CHWs legally recognized by the MOH so that they could earn a small income managing village-level revolving drug funds. Whether these plans materialized and were successful is unclear.

²¹² See a brief description of the Tufts University Exit Strategies Study in Section 3.6.1.4.

6.3.3.2 *Child Health Days*

The Child Health Day model goes by different names in different countries, e.g., outreach clinic (Malawi), satellite clinic (Bangladesh), rally post (Haiti), or nutrition and health days (India). The common concept is outreach by government health workers, usually monthly, at a fixed-day, fixed-site clinic that brings mobile preventive MCHN services closer to where people live and thereby increases coverage. In addition to being closer, these health outreach sessions are more convenient, as multiple services are offered at one time ("one-stop shopping"). The services most commonly provided are immunization, vitamin A supplementation, and child growth monitoring and promotion. Both the CARE/India FY 2002–FY 2006 and the SC/Bangladesh FY 2005–FY 2010 programs used Child Health Days to also reach pregnant women with prenatal checkups, weight gain monitoring, iron and folic acid supplements, safe birth kits, and tetanus toxoid immunization. In Bangladesh, family planning and IMCI services were also included.

While 38 percent of Title II programs used the Child Health Day strategy to increase coverage of health services, this tactic was used least in programs in Africa (26 percent), as opposed to programs in Asia (58 percent) and LAC (43 percent). Distributing preventive Title II food rations for pregnant and lactating women and young children at Child Health Days as an incentive to attendance made them even more effective.

Limitations of the Child Health Day approach are that attendance may drop off after children reach one year of age and are fully immunized. While conditional food rations that require attendance at these outreach clinics prevent this decline in attendance, once the food is withdrawn at the end of the program, there may be a significant decline in participation.

6.3.3.3 *Health Services Support*

Nearly one-fourth of Title II programs assisted with health services support. These programs often provided limited financial support for transportation

and per diem to local MOH service providers to ensure active participation in Child Health Days and outreach from health centers. Some programs constructed health facilities. Many programs trained government primary health care workers, especially in C-IMCI. Government health infrastructure is very weak in a number of Title II countries, particularly in the Sahel in Africa. The FAFSA-2 team was surprised in its field visits in rural Niger to find only health posts staffed by paramedical personnel at the level one would find a health center with a physician and nurse(s) in most other parts of the developing world. However, these relatively new health posts were a big improvement over the past situation, when there were no health services at this level. Lack of government health services hinders Title II programs from achieving their HN goals. Title II budgets are insufficient to compensate for any large gaps.

Following national MOH norms and coordinating closely with the MOH is a must for success and sustainability of MCHN components of Title II programs. Yet there are examples of some programs that are not doing a good job of this, either duplicating services or competing with the MOH. For example, the Guatemala joint final evaluation in 2006 states, “There is reason to be concerned about the lack of explicit intent by some of the cooperating sponsors to strengthen the [Ministry of Public Health and Social Assistance] service provision and outreach at community level” (Schnell et al., 2006). The FAFSA-2 team had this same concern during its field visits in Guatemala, where one program visited was not coordinating with the ministry and, as a result, was duplicating services.

Quality improvement. Another way Awardees strengthened health services was introducing quality improvement (QI) tools to increase the use and effectiveness of evidence-based interventions. SC/Bangladesh (FY 2005–FY 2010) and SC/Haiti developed a “Community-Defined Quality” tool that increased community involvement in defining, implementing, and monitoring the QI process in health services. This tool is now known as “Partnership-Defined Quality” and is available

from the CORE Group (SC, 2004). To improve supervision, some programs used the Community Development Worker Quality Improvement and Verification Checklist (FSN Network Social and Behavior Change [SBC] Task Force/TOPS, 2011). In July 2011, task forces of the FSN Network of the TOPS project defined core competencies for Awardee staff responsible for nutrition and food technology, SBC, gender integration, and M&E. More work is needed to measure the extent to which the performance standards (minimum criteria, essential elements, state of the art, etc.) for the essential nutrition interventions and approaches are being met.

6.3.3.4 *Social and Behavior Change Communication*

The term “behavior change communication” (BCC) has been widely used by Title II implementers to describe a key service that they offer in the MCHN package, although some may still describe this approach as “nutrition and health education” or “information, education, and communication” (IEC). More recently, the literature on health communication has stressed the need to understand human behavior, with a particular focus on *shifting social and cultural influences and norms* that are deleterious to health and nutrition. Therefore, the state-of-the-art approach now used is called “social and behavior change communication,” which refers to using communication resources to promote a shift in social norms *and* to change specific behaviors (CSHGP, 2010). These alternative terms have subtle differences in meaning but have the common objective to change knowledge, attitudes, behaviors, and norms. The behaviors that Title II programs need to change to achieve impact on health and nutritional status are: maternal diet and workload, IYCF and child care practices, hygiene, malaria prevention, appropriate health care-seeking, and HTSP. What worked and what did not work for some of the key elements of SBCC in Title II programs are discussed next.

Formative research. This type of research is an essential first step to plan or “form” a program.

Formative research uses various qualitative methods to collect data, for example, focus groups and in-depth key informant interviews, to inform the design of effective SBCC by answering key questions. (See Box 6.12 and the training module on conducting formative research about IYCF practices designed by the LINKAGES Project, 2004.) It would be difficult for a program to improve IYCF practices if implementers did not know: (1) what mothers in the target geographic area are feeding their young children, (2) which of the FADUA principles for complementary feeding are strong and which are weak, (3) why mothers do what they do, (4) what the barriers and facilitators are to improving these behaviors, (5) what fathers think, and (6) what grandmothers recommend. Without such formative research and the answers to these questions, programs would be flying blind and constrained to giving ineffective general lectures about optimal IYCF practices (Favin and Griffiths, 1999). Generic, cookie-cutter nutrition education materials are not effective. As Marcia Griffiths recommended in a recent presentation on formative research, “Don’t let global templates limit caregiver insights (from research) for program design.”²¹³ Yet very few Title II programs reported having done any formative research to shape their communication strategy, materials, and activities, or to make their SBCC client-centered. A number of Awardees had been working in the same geographic area for several rounds of Title II and still knew very little about their audience’s knowledge, attitudes, behaviors, and norms. Formative research is just as important during and at the end of a program, to evaluate if the communication strategy is working and to make necessary adjustments. The paucity of local-level information on behaviors was also noted as a gap in Title II programs in the first FAFSA (Bonnard et al., 2002).

The main type of formative research done in Title II was positive deviance inquiries in programs that did PD/H. These inquiries studied the IYCF and

²¹³ Griffiths, Marcia. July 19, 2011. “Remedial action needed: Our failure to use formative research effectively.” USAID’s IYCN Meeting on What Works for Community-based Nutrition Programming? Washington, DC. <http://iycn.wpengine.netdna-cdn.com/files/Remedial-action-needed-griffiths.pdf>.

Box 6.12. “Formative Research will Help Program Planners to:

- Understand the behaviors, benefits, barriers, and social context from the point of view of the target audience, rather than from that of program planners and implementers;
- Give a clear sense of priority audiences and meaningful audience segments;
- Clearly specify what factors influence those behaviors;
- Explore the issue of at what levels to focus program activities—individual, community, health system or other institution and/or policy;
- Identify preferred channels of communication.”

Source: CSHGP, 2010, p. 5.

care practices of positive deviant mothers whose children were thriving to use as real examples to teach other mothers with malnourished children to follow. This type of formative research is good, but one drawback of such studies that only examine the feeding practices of mothers and children that are doing well is that they miss a lot of other important information by not looking at all types of mothers and probing into the reasons for negative practices as well. It is especially important to learn what the barriers are from mothers with sub-optimal practices. An effective IYCF formative research tool is TIPs because it studies the barriers and resistance to new behaviors in addition to current behaviors (Manoff Group, n.d.). No examples of Title II programs doing TIPs were reported.

Apart from PD/H, programs that did formative research on IYCF practices to inform their behavior change strategies were in Honduras (ADRA, SC, and WV), Guatemala (SC, SHARE, and CRS), CRS/Madagascar, and FH/Bolivia. The Bolivia

research used the technique known as barrier analysis pioneered by FH and was supported by TA from headquarters (Davis Jr., 2010). The Honduras programs received TA from FANTA. To assist the MC/Uganda program, FANTA-2 did formative research on IYCF.

More technical guidance and training is needed for Awardees' staff on doing formative research, especially on IYCF practices, using TIPs, barrier analysis, and other qualitative methods. The CORE Group has a "Designing for Behavior Change Curriculum" that organizations could use for this capacity building (CORE Group SBC Working Group, 2008). It is good that one of the TOPS project FSN Network Task Forces is dedicated to SBC. There are useful tools available that Awardees could make better use of. An updated PM2A TRM (FANTA, 2010) could be a good place to emphasize the importance of doing formative research, list the principles to be followed, and describe the available tools.

Community mobilization, advocacy, and awareness-raising. For programs to succeed, community mobilization and participation must be incorporated from the beginning. Success and sustainability are enhanced by developing roles and responsibilities for beneficiaries in program implementation. These principles are some of the most common "lessons learned" or "promising practices" reported by Awardees. A common example of putting these ideals into practice was forming or strengthening village health committees. Some programs went a step further to help communities understand their HN problems, and to empower them to solve these problems. One example was the formation of Committees to Analyze Information, i.e., HN data at the community and sectoral levels, in the CARE/Bolivia program. These committees were a place for community leaders, CHWs, and local health personnel to take immediate actions to solve HN problems in the community. SC found in their programs in Bangladesh and Bolivia that making community leaders and parents aware of the link between stunting, mental development, and school performance was a more powerful motivator for

taking action than other HN arguments. A USAID/FFP CBO familiar with the Bolivia programs said they were excellent examples of nutrition advocacy and community management because local leaders could tell you every house where a malnourished child lived and what his/her community was doing about it.

Nevertheless, in meetings with village leaders and parents during field visits to ongoing program communities and communities that had graduated from Title II in five countries, the FAFSA-2 team did not encounter one site where the local people really understood how big an undernutrition problem their children had. Stunting in particular remained an invisible scourge. When asked about the nutrition situation in the community, residents gave answers like "the children are no longer dying" or "the children are playing" as indications that the community no longer had an undernutrition problem. Therefore, the FAFSA-2 concludes that much more nutrition advocacy needs to be done at the local level, stressing that undernutrition can and should be prevented. The "S" in SBCC was weak because Title II programs were not focusing enough on shifting social norms to prevent undernutrition. Data on children's growth and nutritional status collected by programs could be turned into easy-to-understand illustrations and charts that each village could publicly post and use to focus attention on improving the nutrition situation. Such results should be presented at the aggregate level for the community, so as not to stigmatize individual children or their families. Not using available data for advocacy is a huge missed opportunity to make undernutrition visible; help people understand the lifelong damage being done; and win their commitment to tackling undernutrition with feasible, sustainable solutions.

Counseling at key contacts. Counseling, if done well, is a very effective communication technique for changing behavior. In successful interpersonal counseling, CHWs or other workers usually: (1) congratulate the mother/caregiver on her infant or child; (2) ask the mother/caregiver exactly what the child is eating, if the child has been ill, and if there are problems, and listen to the

answers; (3) counsel the mother/caregiver and give recommendations on new practices or changes to try based on the age and specific situation of the child or mother/caregiver, showing counseling materials; (4) get the mother/caregiver to commit to try a new practice, discussing various options; and (5) leave reminder materials with the mother/caregiver. The counseling is often more effective if both the worker and the mother/caregiver know how well the child is growing through participation in growth monitoring and promotion with an up-to-date growth chart that the mother/caregiver is allowed to have at home. These five essential interactive counseling steps and the give-and-take allow the worker to provide mother-child specific messages—“right mother, right message, right time” versus general nutrition education talks or a theme of the month for teaching all mothers/caregivers. Excellent IYCF counseling materials were available in the Bangladesh, Bolivia, Ghana, Guatemala, Honduras, and Nicaragua programs. There was a lot of sharing and learning from each other in all of the Title II Latin America programs, with lessons learned used to shape the SC/Bangladesh FY 2005–FY 2010 program. The Title II programs in Bolivia and Ghana used USAID-funded IYCF counseling materials prepared by the LINKAGES Project. Materials in Guatemala and Honduras were developed by the USAID Missions’ bilaterally funded HN projects with the University Research Corporation and BASICS, respectively. Well-designed, pretested counseling materials based on formative research are essential. Several program evaluations reported that there were no educational materials due to budget constraints.²¹⁴

Improving IYCF counseling skills with tools, training, or other remedies could be a useful focus for the SBC Task Force in the FSN Network of the TOPS project. The FAFSA-2 team observed effective counseling in several programs during field visits, but noted the need for strengthening CHWs’ counseling skills in most programs. Indeed, around a third of the programs reviewed (30 percent) reported no counseling at all, and, in Africa, one-half of all programs did no counseling.

²¹⁴ CRS/Liberia, CPI/Mauritania, and SC/Uganda.

Home visits. Outreach to pregnant and lactating women and children under two through home visits is a critical component of MCHN programs. The main purpose of home visits are to: (1) enroll new pregnant women, newborns, and lactating mothers in the program; (2) find out why some mothers/caregivers and their children are not attending growth promotion, Child Health Days, and other activities, and motivate them to attend; (3) follow up on high-risk children that are not gaining weight, acutely malnourished, or ill; (4) refer to health services mothers/caregivers and children that need attention due to illness, danger signs, or acute malnutrition; and (5) provide counseling on optimal health, hygiene, maternal diet, and IYCF practices. The challenges are prioritizing which homes to visit and what to do during visits to make them effective, because CHWs can make only a few home visits. The majority of Title II programs (57 percent) provided home visits, but in Africa only 35 percent did. In programs with home visits, not much was reported on efforts to make this kind of outreach effective. However, the CARE/India FY 2002–FY 2006 and FY 2007–FY 2010 programs developed and tested a “Home Visit Diary” as a job aid for volunteer village nutrition promoters to plan and improve the productivity of their home visits to pregnant and lactating women and children under two years of age (Bongiovanni et al., 2007). The aid was most useful to the worker as a reference on critical time periods and expected behaviors during those periods to consult before embarking on home visits, and not as a register of home visits. The tool alone had no influence on whether beneficiaries received home visits. However, many supervisors took advantage of information contained within the diary to revisit homes to assess the quality of the workers’ home visits.

Cooking demonstrations. Getting program participants together to cook nutritious meals and to learn how to prepare Title II commodities was a popular activity in every region. A lot of good work was done by Title II programs developing local recipes for nutritious complementary feeding with or without Title II commodities. “Recipe and Cooking Competitions with Local Foods” was a fun way to

motivate and teach about more nutritious meals. Cookbooks with local recipes and photos were given to participants in the Bolivia programs (ADRA, CARE, FH, and SC). The joint final evaluation in 2008 found the CARE cookbook particularly useful because it had “recipes by age group moving from semi-solids and purees for children 6–7 months old to more substantive foods” and nutritious recipes for children over one year of age that could be enjoyed by the whole family, reinforcing the message that children “that age should be eating the same foods as the rest of the family.” However, the FAFSA-2 review did not find in this evaluation (or others) any information on how effective cooking demonstrations and development and dissemination of local recipes were and, most importantly, the extent to which mothers/caregivers actually prepared and served the recipes to the target group in their own homes.

An interesting knowledge management activity would be to make a country-by-country, regional, or worldwide recipe book series to pool the different recipes and avoid duplication or loss of all this effort in the future. It would be good to have this information somewhere online available to the entire world. As programs end, these recipes are important to leave behind as a legacy with the MOH or a private book publisher. It is important to make sure that the recipes are indeed nutritious and meet young children’s requirements. This takes nutrition expertise, which not all Awardees possessed. Some local recipes did not meet expected nutrient content, for example, in PD/H Indonesia programs, which led to slower recovery for malnourished children (McNulty and Pambudi, 2008). The FAFSA-2 team had some hygiene concerns at some of the cooking demonstrations it visited. Modeling good hygiene practices should be incorporated into these cooking demonstrations, especially handwashing with soap and not leaving cooked food standing in the heat too long before it is eaten.

Nutrition and health education via lectures, radio, and community education. One of the most common SBCC activities was nutrition and health education talks at monthly growth promotion,

food distribution, or Child Health Day activities. This technique is one of the easiest to implement, and can be used to provide information on topics of broad interest and to reinforce more specific messages. However, alone, it is not effective for changing IYCF behaviors, because the broad topics addressed each month are not relevant to the specific needs of many of the clients in the audience. The crowds are often large and it is hard to hear the talk or see any of the materials being used. A few programs (17 percent) used other innovative methods for nutrition and health education, such as local folk drama and radio talk shows or public service messages. The SC/Guatemala FY 2007–FY 2011 program had a popular local music group, the Internacionales Conejos, record a song to reinforce nutrition messages.

Support groups. Only 17 percent of programs used mother-to-mother support groups as a method to reinforce behavior change. The main theme was breastfeeding promotion. “Studies show that breastfeeding support groups are effective in improving the breastfeeding practices of their members,” according to a review of support groups (Green, 1998). That study found that support groups increase community participation and have the following advantages for their members: improved psychosocial well-being, greater message comprehension, and individual assistance. Given these positives, it was surprising that this approach was not more common in Title II MCHN programs.

All four Title II programs reviewed in Haiti used support groups as part of their behavior change approach. These groups were called Mothers’ Clubs. The use of Mothers’ Clubs was fine-tuned during the PM2A research in the WV/Haiti program to address the challenge of providing mothers with age-specific advice on IYCF practices. Groups were organized based on the age of the child, so that only mothers of children of the same age could meet and receive and share information specific to IYCF practices for that age group. This allowed messages to be more targeted, practical, and immediately applicable. Message retention rates increased dramatically, compared to recall of the general messages provided

at monthly growth monitoring and promotion sessions.²¹⁵

Two Title II programs organized groups—called *hearth* sessions—for pregnant women in the community that met regularly; the FAFSA-2 considered these sessions support groups. CARE/Indonesia set up sessions for pregnant women to learn the importance of immediate and exclusive breastfeeding and how to improve their diets through cooking, eating, and meeting with peers. Africare/Guinea experimented with monthly sessions for pregnant women to learn about good nutrition practices at which MOH staff delivered antenatal care, malaria prophylaxis, iron/folic acid tablets, and tetanus toxoid vaccinations. The 2006 final evaluation found, using focus group interviews, that the sessions created a bond among pregnant women, providing them with a forum to share their concerns, discomforts, and solutions. TBAs identified pregnant women early and encouraged them to attend. Community health assistants made home visits to encourage husbands to support buying meat, fish, and other nutritious foods, and to allow the pregnant mother to rest, thereby creating an enabling environment for behavior change. Project staff in Guinea noted that the success of the *hearth* sessions for pregnant women reduced the need for undernutrition recuperation sessions for children by reducing low birth weight and increasing exclusive breastfeeding (Box 6.13).

6.3.3.5 Community-Based Growth Promotion

CBGP is a preventive approach based on monthly contact by community workers with pregnant and lactating women and mothers and caregivers of young children. Activities include weighing children to catch inadequate weight gain and growth faltering early (monitoring) and, most importantly, nutrition counseling of mothers and caregivers to improve IYCF practices (promotion). This approach was used in more than three-quarters of all Title II programs (78 percent). Community mobilization and advocacy are additional objectives of CBGP.

²¹⁵ Bergeron, Gilles. Deputy Director for Country Programs, FANTA. November 30, 2011. Personal communication. Dr. Bergeron oversaw the PM2A research in Haiti.

Box 6.13. Pregnant Women's Support Group—Africare/Guinea Focus Group Evaluation Results

- Earlier disclosure of pregnancy and antenatal care attendance
- Increased consumption of green leafy vegetables
- Increased consumption of iron/folate tablets and malaria prophylaxis
- Increased consumption of postpartum vitamin A supplements

Source: Africare/Guinea FY 2001–FY 2008 Title II Program Final Evaluation, 2006.

Two potential strengths of CBGP are frequent contact between CHWs and caregivers, pregnant and lactating women, and young children, and providing an entry point to preventive and curative health services. The state of the art for doing CBGP effectively is described in the World Bank tool by Griffiths et al. (1996). The high percentage of Title II programs reporting doing CBGP may be an overestimate because some programs weighed children only to target recuperative supplementary feeding, but reported that as CBGP. Programs that only weigh children for *monitoring* purposes with no or weak nutrition counseling (*promotion*) have been widely criticized because they have little or no effect on nutritional status (Bhutta et al., 2008). In contrast, a meta-analysis of numerous programs found that children participating in CBGP that truly integrated growth *monitoring* with *promotion* and access to health services had better nutritional status or survival than children that did not (Ashworth et al., 2008). While advising that CBGP may not be the best use of scarce resources in countries where it does not exist or coverage is low with little potential for improvement, the authors recommend maximizing the potential of CBGP in other countries by targeting younger children, strengthening nutrition counseling, and integrating

it with basic health interventions. “Impact will be related to coverage, intensity of contact, health worker performance, adequacy of resources, and the ability and motivation of families to follow advice” (Ashworth et al., 2008). The recommendation to maximize the potential of CBGP is applicable to most Title II programs given the high percentage that did CBGP. It is better for Awardees to strengthen CBGP provided by the host government than to set up parallel services.

Evaluations of two non-food-assisted USAID-funded CBGP programs in Uganda and Honduras found that positive impact on nutritional status and IYCF practices was dependent on higher rates of participation and well-established, supportive supervision (Schaetzel et al., 2008; Stevens-Muyeti and Del Rosso, 2008). The benchmarks are 100 percent enrollment on a continuous basis of all eligible women and children, and *monthly* participation of at least 80 percent of enrolled children. A child should participate at least 80 percent of the time, i.e., have growth monitored at least 10 out of 12 months (Stevens-Muyeti and Del Rosso, 2008). Home visits are essential to encourage those absent to come, and to enroll newly eligible newborns and pregnant and lactating women.

Quality of implementation. In Section 6.3.3.4, the absence of or ineffective nutrition counseling was discussed as a weakness in Title II development programs. This limits achieving the full potential of CBGP. The FAFSA-2 review found other common problems with the quality of CBGP implementation as follows.

- **Wrong level**—facility-based or distant from the community
- **Wrong target group**—children under five years versus under two years of age
- **Frequency**—not done monthly, but rather every two to three months
- **Lack of equipment and materials**—no or not enough scales, growth charts, and counseling materials
- **Weighing and plotting errors**—or not filling in the growth chart at all

- **Not client-centered**—mothers and caregivers not given the growth charts to keep, and child’s growth not explained to mothers/caregivers or used to tailor counseling messages
- **Growth charts not well designed**—not user-friendly and hard for illiterates to understand; focus on nutritional status categories, e.g., mild, moderate, severe underweight for age, versus child’s weight gain every month on its own growth trajectory; implementing the new WHO growth standards that do not have accompanying recommended weight gain charts is a challenge
- **Purpose**—screening for undernutrition to enroll children in recuperative supplementary feeding versus focusing on weight gain and early growth faltering to prevent undernutrition (see Box 6.14).

The following are the promising practices of CBGP.

- **Community education.** A large, wall-sized growth chart used in several programs for

Box 6.14. Weighing Children to Target Recuperative Feeding is **NOT** Growth Promotion

“The criterion is usually a weight-for-age below one of the reference curves on the growth chart, equivalent to ‘moderate’ underweight. This invariably shifts the focus of growth monitoring towards identifying children who meet this criterion, rather than intervening at the first sign of growth faltering. Consequently no action is taken until the child is significantly underweight. As health workers choose who should receive assistance, the collaborative involvement of families in decision-making is lost, as well as any educational benefit of regular growth monitoring. Using weight charts in this way is contrary to the precept of growth monitoring.”

Source: Ashworth et al., 2008.

educational purposes and for plotting all the children’s weights in the community.

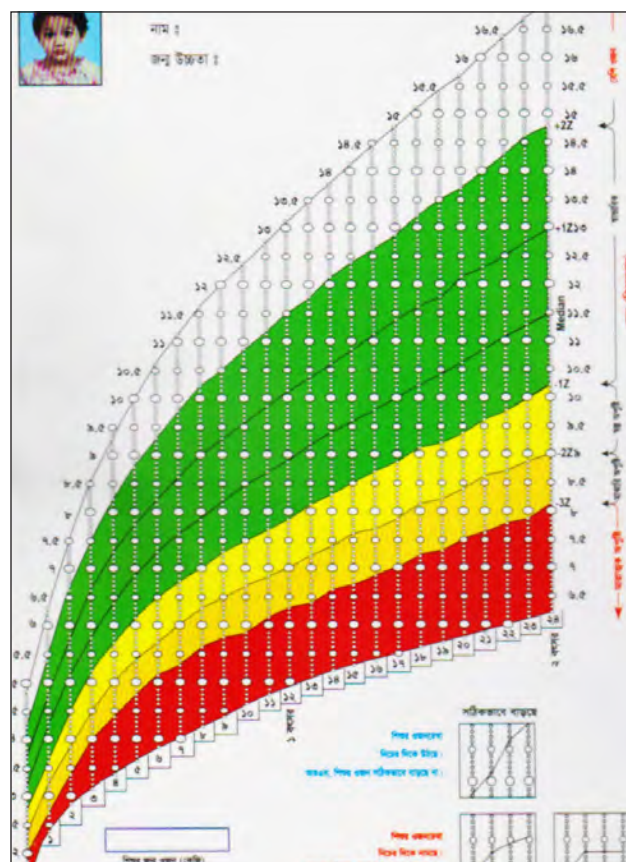
- **Scheduling appointments for mothers.** To avoid the chaos of a large crowd, which results in an all-mothers-and-children session, the SHARE and CRS Guatemala programs scheduled staggered visits with mothers and children at fixed times during which the worker could give them undivided attention and provide good quality nutrition counseling.
- **Cross-program learning.** Programs in Bolivia, Guatemala, and Nicaragua learned from the successful CBGP program in Honduras, Atención Integral a la Niñez en la Comunidad (AIN-C) (Honduras Community-Based Integrated Child Care Program), and from each other, with USAID Mission-funded TA from FANTA. SC used its experiences in Bolivia to shape its Bangladesh program.
- **Improved growth charts.** The bubble chart is an elongated, vertical individual growth chart; there is one for boys and one for girls. It is only for children under two years of age. The vertical layout accentuates small weight gain increments to make growth more visible. It is easy to accurately count the number of bubbles (circles), which represent 100 g weight increments, and then fill in the right one. These features make the bubble growth chart more user-friendly for workers and mothers/caregivers than traditional growth charts (see Figure 6.8).

6.3.3.6 Care Groups

“Care Groups” is a newer approach to organizing large numbers of village volunteers to do community mobilization, outreach, home visits, and behavior change. It was pioneered by World Relief in Mozambique in a primary health care project (Laughlin, 2004). Care Groups have expanded in other HN programs and minimum criteria for them have been defined.²¹⁶ The application of the Care

²¹⁶ The CORE Group has produced a manual and other resources on Care Groups that are available at <http://www.coregroup.org/our-technical-work/initiatives/diffusion-of-innovations/50>. Additional Care Group resources and curricula are also available at <http://www.caregroupinfo.org>.

Figure 6.8. Bubble-Type Growth Chart: CARE/ Bangladesh Program



Group model in programs with nutrition goals, such as Title II, remains experimental. The approach, with its numerous volunteers, is promising for achieving the outreach and frequent contact in the community with women and children in the first 1,000 days that are critical to successful SBCC, but its effectiveness depends on what the volunteers do and how well.

Seven Title II programs, all but one in Africa, mentioned Care Groups as part of their implementation strategies. FH used Care Groups in its Title II programs in Kenya and Mozambique. In Malawi, CRS and its I-LIFE consortium partners introduced Care Groups toward the end of the FY 2005–FY 2009 program after the PD/H approach failed, and they continue to use them in the ongoing Malawi program FY 2009–FY 2014. The approach does not usually include CBGP, but rather relies on the MOH to do CBGP at health facilities or at Child Health Days, and may not fully use available information on the individual child’s growth to

counsel the mother. During its field visit to the Malawi program, the FAFSA-2 team met many well-motivated Care Group volunteers. However, they were diluting their efforts by visiting all homes of children *under five years* close to their own home instead of making the larger outreach effort necessary to visit enough homes with children under two years of age, the target group of the program per the proposal. Most of the attention in the Malawi program up to June 2011 had been on the biweekly training meetings that the paid promoters hold with the Care Group volunteers that they supervise. Much greater attention is still needed to train the volunteers in good nutrition counseling skills and on how to make home visits effective, starting with visiting the homes of the right age group. Although most children had growth charts with recent weights plotted by the MOH at outreach clinics, these charts were not being used by the volunteers as a focus for individualized nutrition counseling—an unfortunate disconnect between this important MOH service and the Title II nutrition SBCC efforts. An additional concern was that the Malawi program was not monitoring or evaluating its coverage of children under two years with essential services, but rather under fives.

6.3.3.7 Positive Deviance/Hearth

Nearly half of all Title II programs (46 percent) reported PD/H as their main approach to reducing undernutrition. This figure rises to 59 percent in programs in Africa. The focus of PD/H is on treating moderately malnourished children in the community by teaching mothers/caregivers how to better use local foods, following the example of a “positive deviant” mother in the community who has a well-nourished child because of her good feeding and care practices. A positive deviance inquiry (formative research) is conducted in every community to identify the best practices to promote. The *hearth* is the daily communal session where mothers of malnourished children gather with their children to cook together and feed their children and help them recover, learning nutritious recipes and beneficial child care practices. The approach is referred to by some, e.g., Africare, as “Hearth,” not PD/H. The goals are to: (1) rehabilitate

malnourished children; (2) enable families to sustain the rehabilitation of these children at home on their own; and (3) prevent undernutrition among the community’s other children, current and future (Nutrition Working Group, 2003 and 2005).

Community nutrition rehabilitation centers using local foods have a long history going back to the 1960s in Haiti where they began. In 1997, Wollinka et al. reviewed the evolution of the approach, its pros and cons, and described successful experiences with introduction of the Hearth Nutrition Model into Asia in Bangladesh (World Relief) and Vietnam (SC). A period of rediscovery, spreading Hearth to new countries, e.g., Indonesia, and linking the *hearth* session to the concept of positive deviance in child nutrition ensued (Zeitlin et al., 1990). Thus, PD/H was born. This “new” old approach caught the imagination of Title II implementers in Africa, some of whom were implementing Title II nutrition programs there for the first time. It had additional appeal because of its low cost and because no direct food aid needed to be distributed. It was also expected to be more sustainable.

Most programs doing PD/H (56 percent) in the FAFSA-2 review did no direct MCHN Title II food distribution. Several evaluators of Title II programs implementing PD/H criticized the small HN budgets. In addition to small budgets, the FAFSA-2 review found that PD/H experienced a number of design and implementation problems in many places, leading to disappointing performance. These are discussed here to aid learning from the experience and to avoid making the same mistakes. One of the main limitations is that the PD/H focus on recuperation led to the neglect of or failure to engage in population-based activities to prevent undernutrition in under twos and to improve maternal nutrition during pregnancy and lactation. Without prevention, new cases of undernutrition keep appearing. To identify malnourished children, PD/H programs did population-based weighing and screening. This screening for nutritional status is distinct from monthly CBGP, which focuses on weight gain and growth with prevention in mind. Some PD/H programs did legitimate growth monitoring and promotion, but many did only screening, and this

screening was the only program contact with the whole population. Once malnourished children and their mothers or caregivers were detected by screening, they were usually the only ones eligible to benefit from the PD/H nutrition education component.

Special studies have been done on PD/H Title II programs—five in Indonesia and eight in Africa—which enabled the FAFSA-2 to assess in a standard way the number of children reached and the undernutrition recovery rate (Maslowsky et al., 2008; McNulty and Pambudi, 2009). These PD/H programs were very small scale and reached few children—an average of only 367 children enrolled per year per program (see Table 6.14). Fewer than 5,000 children participated per year across all 13 programs. Compare this to several typical Title II programs with direct food distribution to pregnant and lactating women and young children for preventing undernutrition, which annually reached 50 times the number of beneficiaries as PD/H.²¹⁷ One reason for low enrollment is the most

often used eligibility criterion of low weight-for-age. The prevalence of underweight is lower than the prevalence of stunting, often by a large amount, e.g., the regional prevalence of low weight-for-age in children under five in Africa in 2007 was 19.6 percent compared to the prevalence of low height-for-age of 38.5 percent (UNSCN, 2010). Therefore, many stunted children are never selected for the program. Furthermore, PD/H programs may only do one *hearth* session in a village per year or once during the life of the project, which also explains the small number of children that benefited.

The problems experienced with PD/H will be discussed under three broad categories: (1) design issues and assumptions, (2) feasibility of the approach, and (3) coverage and participation. Design modifications made by the Awardees to the PD/H model to address some of these challenges are described below. The results, as measured by undernutrition recuperation rates, are reviewed in Section 6.4.7 on the nutritional impact of Title II programs.

Design issues. One design flaw was selecting communities for PD/H that had a prevalence of low weight-for-age of less than 30 percent, the recommended minimum (Nutrition Working

²¹⁷ The CPI/Senegal program had 20,910 beneficiaries according to its FY 2009 ARR, for example, and there was an average of 18,150 beneficiaries each across four Guatemala programs per the 2006 joint evaluation.

Table 6.14. Enrollment and Undernutrition Recuperation Rates of Children under Five Years in 13 PD/H Programs in the FAFSA-2 Universe*

Country	Awardee (Years)	Mean Number of Children Enrolled/Year	Percent Recuperated
Burkina Faso	Africare (FY04–FY10)	182	55
Chad	Africare (FY03–FY08)	544	No Data
Indonesia	5 PVO Programs (FY04–FY08)	500	45
Malawi	CRS (FY05–FY09)	853	83
Mali	Africare (FY03–FY08)	208	25
Mozambique	Africare (FY02–FY08)	859	45
Niger	Africare (FY07–FY11)	1,012	No Data
Rwanda	ACDI/VOCA (FY05–FY10)	510	74
Sierra Leone	CARE (FY07–FY10)	103	66
TOTAL		4,771	
AVERAGE		367	48

Sources: McNulty and Pambudi, 2009; Maslowsky et al., 2008.

* Age groups varied. Programs in Burkina Faso, Chad, Mali, and Niger enrolled children 6–35 months, and programs in Indonesia, Malawi, Mozambique, Rwanda, and Sierra Leone enrolled children 6–59 months.

Group, 2005). Focusing on older children—over two years—was also a limitation, because, as explained earlier concerning recuperative feeding, most stunting occurs before two years of age, and therefore, low weight-for-age in children over two years is often due to their weight being proportional to their retarded height. In those cases where older children's weight-for-height is normal, they would not recover from low weight-for-age. Current thinking is that PD/H may be more effective in addressing low weight-for-height (acute malnutrition) than low weight-for-age, and should target younger children 6–23 months (McNulty and Pambudi, 2009). The contradiction, however, is that communities with high wasting are the least likely to have sufficient local foods available to help their children recuperate at a *hearth*, a real constraint experienced in PD/H programs in several Sahel countries in Africa.

Feasibility of the approach and quality of implementation. In some food insecure communities, it was hard to find any positive deviant mothers with well-nourished children. The program just promoted nutritious recipes, not derived from a positive deviance inquiry. In some cases, the *hearths* became on-site feeding centers where parents brought their children for free local meals versus learning for themselves how to prepare nutritious meals.

Hearth sessions were rarely offered year-round in the community due to lack of local foods, time constraints by the Awardee and by participating households, and pressure to go to new villages. Instead, sessions were held once or twice a year or maybe only once in a village during the project. Yet undernutrition is a year-round problem and cannot be resolved with one or two 12-day sessions. There are new mothers and children to teach all the time, so it is an ongoing need not solved by the occasional *hearth*. However, programs that did sessions more often found that families got bored with them and stopped participating. It was hard to hold their interest.

Foods for the local *hearth* sessions are supposed to be donated by the families of the malnourished

children that are being rehabilitated. This was difficult to achieve in a number of settings. In Chad, Mali, and Niger, Awardees found they could only do the *hearth* in a narrow window of time between May and July, when food was plentiful and mothers had the time. The other seven months of the year nothing was done. There is something wrong with the concept when the *hearth* can only be done at the time of the year when it is least needed, and not in the lean season when undernutrition peaks. In very food insecure settings, like rural areas of countries in the Sahel, the program design decision to do PD/H with no Title II food rations was inappropriate, given that households have enough food for only about half the year from their own production in a normal season. In fact, Africare/Niger had tried PD/H with no food rations in its prior program and, learning from that failure, decided in its FY 2007–FY 2011 Niger program to give food rations to pregnant women that attend prenatal care and to children 6–36 months during the lean season, conditioned on their mother's attendance at CBGP. Africare had a similar experience in its prior Chad/Mali program, but continues to not provide MCHN food rations in its ongoing follow-on programs in both countries. Africare tried PD/H in various countries, but seemed to have the most success with it in Guinea and southwest Uganda, where more households were food secure and local foods were plentiful, but IYCF practices needed to improve.

Doing PD/H is very labor intensive and can be done only on a small scale. Some Awardees selected this approach thinking it would be easy, but to do it right took more technical staff time than any of the other sectors. In one program, they had only completed positive deviant inquiries for 19 of their 240 communities in four-and-a-half years and they were running out of time with the program ending. The work involved to do PD/H right makes it less suitable for Title II programs that need to achieve scale and population-level impact on undernutrition in five years, balancing staff time across a number of sectors.

Implementation of PD/H is also complicated, and program staff and volunteers did not have the nutritional expertise required. Getting local

workers/volunteers trained and able to do the positive deviance inquiry in every community is a big challenge. In Indonesia, the positive deviance inquiry process identified many irrelevant behaviors (e.g., tooth brushing, shampooing hair daily), but seldom identified IYCF strategies used by or that could be used by families to overcome obstacles (McNulty and Pambudi, 2009). It is therefore not surprising that doing these positive deviance inquiries had no relation with better rates of recuperating underweight children. Messages in *hearth* sessions were too numerous and rarely related to the positive deviance inquiry findings. The local workers or volunteers were, but should not have been, expected to translate the positive deviance inquiry findings into nutritionally adequate local recipes, because this requires knowledge of nutrition science. Local recipes need to be developed by a nutritionist or dietitian; otherwise, the nutrient content is dubious. The menus for meals and snacks at the *hearth* for two weeks (1) need to be nutrient dense and diverse with the recommended amount of energy, protein, and micronutrients based on the child's age and (2) meet all of the FADUA principles, as seen in Table 6.5.

Coverage and participation. A finding of the mid-term evaluation of the CRS/Liberia program was that at least three sequential *hearth* cycles are required in a village before graduating the village to ensure the transfer of knowledge from the participating mothers to others. Because of pressure to meet targets for covering more villages, they withdrew from villages prematurely. While reaching more villages looks good on paper, when they did not implement PD/H at the adequate intensity for long enough in each village, not much was accomplished.

Women's work, particularly in agriculture, made it difficult for them to attend a *hearth* daily for two weeks. In Chad, Mali, and Niger, Awardees found they could not do the *hearth* in harvest season, because women were busy with harvesting, or in the planting season. Furthermore, the implementers observed that women's work outside the home contributed to their children's undernutrition because it constrained them from being able to feed children frequently enough.

Judging from the percent of PD/H programs doing home visits, which are critical to follow up on recovering malnourished children and which are a good measure of a continuing community support system, this approach was more fully implemented in Asia and LAC, where 67 percent of programs included home visits, than in Africa, where only 20 percent did. The Africa PD/H often had no CHWs on a continuing basis. PD/H is intended to be part of a comprehensive program that focuses on preventing undernutrition for all mothers and young children in the community, reaching families with malnourished children with extra support. In Africa, however, it was usually a stand-alone program focused only on nutrition rehabilitation.

Common modifications. Experts have defined appropriate settings for and essential elements of PD/H to maximize its impact (Nutrition Working Group, 2005). "Experience repeatedly shows these elements cannot be adapted, modified, or skipped altogether without seriously diminishing the effectiveness of the program" (Nutrition Working Group, p. 1). Nevertheless, most Title II Awardees strayed into uncharted territory, by modifying or jettisoning essential elements to test solutions to the challenges they were facing with PD/H. Several programs mentioned abandoning PD/H because it did not work, e.g., SC/Bolivia, Africare/Niger FY 2007–FY 2011, and CRS/Malawi FY 2005–FY 2009.

One common modification was shortening the duration of the *hearth* session to fewer days or as little as a one- to two-hour cooking demonstration once a month in conjunction with other monthly services. The aims were to increase participation by making this more convenient and feasible for busy mothers/caregivers to attend, reduce the amount of foods needed for the sessions, and reduce workload for program staff and volunteers. This revised approach fits better under "cooking demonstrations"

discussed earlier. One move in the right direction was to open participation to all mothers with young children in the community to give everyone the benefit of the new knowledge, make the educational session preventive, and lessen stigma on the families with malnourished children. In an effort to save time and money, some Awardees opted to not do a positive deviance inquiry in every village. Instead, standard recipes and materials were developed after doing research in a few villages. To solve the lack of local foods donated by the families, some Awardees supplied some or all of the ingredients. A number of programs linked PD/H to promoting vegetable gardens to produce food for the sessions and to increase food access at home. Little is known about how effective these modifications were, many of which were introduced late in the programs.

6.3.3.8 *Homestead Food Production and Home Economics*

The FAFSA-2 team determined that homestead food production should be classified under the HN sector because, although this may generate income, the main purpose appeared to be nutritional. This was a popular approach implemented in nearly half of the Title II MCHN programs reviewed (46 percent). Vegetable gardens were the most common activity and mainly done to improve household dietary diversity and micronutrient intake. Home gardens may provide the family's only source of fruits and vegetables rich in provitamin A and iron. Included here are various food-based approaches to achieve dietary diversification, e.g., biofortification via the OSP, vegetable gardens, fruit cultivation, small animal production, and home economics. These interventions are not in the package of essential nutrition interventions and the SUN Framework discussed earlier because they have not been proven to affect nutritional or micronutrient status indicators on a large scale (Bhutta et al., 2008; Klemm et al., 2009; Masset et al., 2011). Before including homestead food production, Title II programs should carefully analyze whether this activity will increase women's workload to the degree that it negatively affects child care and feeding, whether there are sufficient project resources to do it without cutting

back on MCHN, and how to make these activities sustainable.²¹⁹

Africare/Uganda promoted production in home and communal gardens and consumption of orange and yellow sweet potato varieties and indigenous, culturally acceptable, disease/pest/drought-resistant, nutrient-rich vegetables that have longer harvesting periods. The program also promoted fruit tree cultivation (apple, orange, mango, and avocado). Africare worked in collaboration with the USAID-funded Gender Informed Nutrition Agriculture Project (GINA). From these gardens, an estimated 153,140 kg of vegetables were harvested and consumed primarily by the beneficiary households, according to the final survey and evaluation report in 2006, which also states that the final survey results "showed that 78 percent of households surveyed consumed vegetables from their own production" (Anderson et al., 2006, p. 93). Cultivation of the nutrient-rich Moringa plant was featured in several programs, e.g., Africare/Guinea.

The OSP was promoted in a number of programs in other countries because it provides calories and provitamin A beta-carotene and some iron in the leaves. Increases in children's vitamin A intake and serum retinol (vitamin A) have been found with increased consumption of OSP in rural Mozambique (Low et al., 2007; Hotz et al., 2011).

Constraints. SC/Mozambique found that vegetable gardens competed for women's time with other farming activities and domestic chores. There was not enough water to irrigate them. The variety of OSP used could not survive the dry season. Therefore, families needed to get new plants every year. A number of other programs reported the same limitations, namely, that gardens added to women's workload, reducing time for child care, participation at CBGP, and good IYCF practices. Furthermore, gardens were not feasible in the dry season in communities not near a water source and dependent on rain-fed cultivation. According to

²¹⁹ Since 2007, USAID/FFP has required an analysis of the impact of project activities on women's workloads in proposals for new Title II programs. See Section 3.8.1.

findings of the Tufts Exit Strategies Study, gardens were not sustained after programs ended unless the household was getting income from selling the produce. Resources are needed to buy the inputs that Title II programs subsidized or gave away during the program.

Some Awardees described vegetable gardening and fruit cultivation as the main long-term solution to undernutrition. They did not seem to understand that even if gardening is successful and children consume what is grown, this alone will not ensure improved growth. Consuming more fruits and vegetables may increase intake of provitamin A beta-carotene, iron, and other vitamins and minerals, but will not address major deficiencies in macronutrients in children's diets—energy (OSP is an exception), protein, and fat that are critical to normal growth. For this same reason, vitamin A supplements alone have no effect on children's weight and height (Bhutta et al., 2008).

Another common misunderstanding is that even for addressing vitamin A deficiency in young children, increased consumption of plant source vitamin A precursors (beta-carotene) has much less effect on increasing children's serum vitamin A levels than preformed vitamin A (retinol) from animal foods or vitamin A supplements, due to the low bioavailability of vitamin A precursors. Research has shown that the conversion ratio to retinol (the animal source of vitamin A that the body uses) from beta-carotene (provitamin A) in plant foods is 14 units to make 1 unit. Experts used to think that the conversion was much more efficient at 6:1. For other carotenoids, the conversion factor may be as low as 28:1 (WHO/FAO, 2004). Absorption is influenced by adequate fat intake and the absence of intestinal helminths, neither of which can be taken for granted in the rural food insecure communities where Title II works. This further reinforces the importance of adequate vegetable oil in the rations. The bioavailability and absorption of iron from plant foods is also low. It can be improved somewhat by reducing the consumption of foods and beverages with inhibitors, such as tannins (e.g., tea), at the same meal or by increasing absorption by eating foods rich in vitamin C at the same meal. The bottom line is that children cannot eat enough

beta-carotene from plant foods to meet their vitamin A requirements. Nor can they meet their iron requirements solely from fruits and vegetables. They need to eat animal foods. That is why they are given vitamin A (retinol) and iron supplements in national health programs. The lowest bioavailability of vitamin A precursors is reported for leafy green vegetables and raw carrots and the highest for roots and tubers.

Small animal production. Giving chickens and goats to Title II clients to increase the family food supply and consumption of animal protein was popular in the three programs visited in Guatemala. SC/Guatemala promoted mothers feeding goat's milk to young children daily, though this is not traditional in the diet. A constraint was that the breed of goats distributed produced very little milk, less than one cup (250 ml) per day. Goats given in other projects in other countries, e.g., in Bangladesh, were for fattening and selling for income generation, not to be consumed by the family for meat or milk. Rabbits and pig-rearing were successful in the Africare/Uganda program. Rabbits multiplied rapidly and did not require special feeding, making them a cheap source of protein and other nutrients for families. According to the 2006 final evaluation report, more children in the project households consumed meat than in the comparison group (7.4 percent versus 3.7 percent). Although low, this is a great start toward improving the protein-poor diet. Animal source foods are also critical for iron; zinc; and vitamins A, B6, and B12. The program noted that men did not raise small ruminants traditionally, so women controlled their production and their inclusion in the family diet. However, the gender roles would need to be analyzed in each program setting based on the following lessons learned from the FANTA-2 project's work on gender integration.²²⁰ In Ghana, women that had poultry in their name were forbidden from using it as food or selling it. Poultry was considered part of the family's assets that could be consumed only when they had guests. Elsewhere, when women were perceived as

²²⁰ Sethuraman, Kavita. FANTA. November 29, 2011. Personal communication.

successful with small business activities, men often took control of the business, leaving women with no more resources than they had at the start.

Broad home economics and nutrition education.

In the CRS/Malawi FY 2005–FY 2009 and FY 2009–FY 2014 programs, women learned how to save fuel and time with the fireless cooker, dry and preserve fruits and vegetables, and make juice and soy milk. Better grain storage through construction of a new style of bins or adding of chemicals and use of hermetically sealed plastic bags was also a focus. Several programs also helped families construct and use dish drying racks, mainly as a hygiene intervention. In Bolivia, the ADRA and FH programs taught family economics and how to overcome cost constraints to eating a healthy diet with fruits and vegetables. These are examples of useful additions in programs that were also doing a good job of delivering the essential MCHN interventions. However, several other Title II programs in Africa focused mainly on agriculture, e.g., in Kenya and Uganda, and had nutrition components that consisted of only broad nutrition education to change household diets, e.g., “eat more green leafy vegetables,” “eat more protein,” and “make and drink soy milk.” These latter programs had specific indicators and targets for reducing undernutrition in children under five years, even though it is well known that a broad nutrition education approach alone is ineffective for improving specific IYCF and maternal dietary practices. Disease as a cause of undernutrition also needs to be addressed. Thus, the lack of nutritional impact of such programs is no surprise. In the current attempts to link nutrition and agriculture in FTF, USAID and partners should learn from and avoid simplistic approaches like those of grafting broad nutrition/home economics education onto agricultural programs and thinking that these alone will have the intended impact on reducing maternal undernutrition and chronic undernutrition in children, especially in the 1,000-day window.

6.3.3.9 Cross-Cutting Male Involvement

One lesson learned by a number of programs across all three regions was how important it was to involve men in MCHN. One of UNICEF’s 16 key family

practices is to “ensure that men actively participate in providing childcare, and that they are involved in reproductive health initiatives.”²²¹ The FAFSA-2 found some excellent examples of male involvement reported by Title II programs. In Uganda and Bangladesh, SC learned that men needed to be convinced of the merits of family planning or they would block it. Men also needed to understand that women’s heavy workloads affect pregnancy outcomes, women’s ability to breastfeed optimally, complementary feeding and child care, and, therefore, the health not only of their wives but of their children. Once persuaded, men would relieve women of some of the work during pregnancy and lactation. The ongoing SC/Bangladesh FY 2010–FY 2015 program includes the following indicators: “% of beneficiary women whose husband attended prenatal/postnatal care with them” and “% of men that score $\geq 80\%$ on a knowledge test of correct care practices for pregnant/lactating women and children under five.”

In Liberia, some men attended *hearth* sessions for recuperating malnourished children in place of women that were busy in agriculture (CRS). One innovative approach to improve a couple’s communication and increase male involvement in MCHN was holding a couples conference (CRS/Malawi) to discuss the issues. Africare/Mozambique previously worked through model mothers, but realized the need to involve men. Because of men’s inclusion, Africare changed the program designation from “model mothers” to “model families.” The number of fathers participating in the program increased over the years. Men took the lead in hygiene, sanitation, and latrine construction. However, they also demonstrated awareness of the importance of adequate IYCF for a healthy child. SC/Mozambique involved at least one man as a member of the HN support group.

In Bolivia, several programs worked to increase male involvement. CARE convinced men to help their wives by herding the livestock on days women needed to take children to growth monitoring and

²²¹ See http://www.unicef.org/nutrition/23964_familypractices.html. Accessed October 15, 2011.

promotion. Men understood that women needed to reduce their workloads during pregnancy and eat a good variety of foods. FH formed men's groups. SC also encouraged male involvement and renamed "Women's Centers" to "Family Centers."

6.4 Program Impact on Nutritional Status of Children

Reducing stunting and underweight in children under five years of age are key measures of meeting the USAID/FFP Strategic Plan objective of reducing food insecurity in vulnerable populations. USAID/FFP is to be congratulated for requiring that quantitative impact evaluation survey data be collected with standard indicators in Title II development programs, as are Title II Awardees for gathering these data. Weight-for-age was an indicator in 97 percent of programs reviewed, height-for-age in 89 percent, and weight-for-height in 32 percent. Final evaluations had been completed for 54 programs.²²² Of those, 52 measured weight-for-age, 48 measured height-for-age, and 20 measured weight-for-height. The results presented here are based on data published by Awardees in their final evaluations. After eliminating problematic data and surveys from the analysis, children's weight- and height-for-age data were available from reliable, population-based, representative baseline and final evaluation surveys of 28 programs.²²³ Only 12 programs had reliable weight-for-height data; half of these reported reducing acute malnutrition. Given the small number of programs, impact on weight-for-height is not analyzed further.

6.4.1 Evaluation Survey Quality

Of the 69 programs reviewed for MCHN, 54 had been completed and had reported their final

²²² Two programs in the FAFSA-2 MCHN universe, namely, CRS and WV in Ethiopia (FY 2003–FY 2008), ended prematurely and did not do final evaluation surveys. The other programs in Ethiopia in the larger FAFSA-2 universe in Table 1.3 in Chapter 1 also ended early and therefore did no final evaluation surveys.

²²³ The 28 programs with height data in 13 countries do not completely coincide with the 28 programs that had weight data in 15 countries.

evaluation survey data. However, many of these evaluation surveys (46 percent) had limitations, so the data could not be used (see Table 6.15). The most common issues were poor-quality anthropometric data, sampling problems, and seasonality differences that made it invalid to compare the baseline and final survey data. Problematic surveys with questionable data represent a great deal of wasted effort and resources. Such surveys reduce the amount of reliable evidence about the impact of the programs involved. This argues strongly for USAID/FFP centralizing, professionalizing, standardizing, and making independent the conduct of future Title II program evaluation surveys.

Table 6.15. Limitations of the Evaluation Surveys of Title II Development MCHN Programs during the FAFSA-2 Time Period (FY 2003–FY 2009)

Limitations	Number of Programs	Percent of Programs (N = 54)
None	29	54
Surveys with limitations	25	46
Main limitations*		
Anthropometric data of poor quality	10	19
Sampling problems, no comparability—baseline versus final	7	13
Different seasons—baseline versus final	6	11
Not population-based, representative	2	4
Data collection poor quality	2	4
No question/indicator comparability—baseline versus final	1	2
Small sample	1	2
Other limitations	3	6

* Programs were counted more than once if there was more than one limitation.

6.4.2 Methods

The FAFSA-2 analysis followed similar methods to those used in 2004 to assess the impact of Title II MCHN programs on nutritional status (Swindale et al., 2004). Because the length of time between baseline and final evaluation measures varied, an annualized indicator was generated for each program, and averaged across programs: “percentage point change in prevalence per year.” The median length of time between baseline and final evaluation surveys was four years.

Title II programs reported their impact on various anthropometric indicators of nutritional status. The FAFSA-2 analysis focused on the USAID/FFP required indicators of the prevalence of stunting and underweight (“percent of children of a given age group with height-for-age z-scores < -2 ” and “percent of children of a given age group with weight-for-age z-scores < -2 ,” respectively). Stunting is an indicator of past growth failure (chronic undernutrition or being too short for one’s age and sex) and reflects a number of long-term determinants that may include insufficient energy and nutrient intake (macronutrients, micronutrients), toxic factors, frequent infection, maternal nutrition and nutrient stores at birth, less-than-optimal feeding practices/care, and poverty (Frongillo, 1999). Underweight reflects both chronic and acute undernutrition (being too short, too thin, or a combination of the two). Different programs measured different age groups for the weight-for-age and height-for-age indicators, because most of these data were collected before 2007 when USAID/FFP defined standard indicators and age groups. Table 6.16 shows the age groups measured for anthropometric indicators in the larger set of Title II MCHN programs reviewed. The age groups measured in the 28 programs used in the FAFSA-2 analysis of nutritional impact are in Table 6.17.

Awardees applied the National Center for Health Statistics (NCHS) reference standard to interpret anthropometric data because most surveys were conducted before the 2006 WHO growth standards came into widespread use. Z-scores are standard deviations below the reference median for age and sex. Data on the national prevalence of stunting

Table 6.16. Age Range of Stunting and Underweight Indicators Reported by Title II MCHN Programs during the FAFSA-2 Time Period

Age Range of Indicator	Percent of Stunting Indicators (59 Programs)	Percent of Underweight Indicators (61 Programs)
Up to five years		
0–59 months	11.9	32.8
37–59 months		1.6
6–59 months	45.8	19.7
24–59 months	20.3	3.3
Up to three years		
0–35 months	6.8	19.7
6–35 months	3.4	1.6
3–35 months	6.8	6.6
Up to two years		
6–23 months	3.4	4.9
12–23 months		4.9
0–23 months	1.7	4.9

Table 6.17. Age Range of Stunting and Underweight Indicators Reported by Title II MCHN Programs during the FAFSA-2 Time Period (with Reliable Survey Data)

Age Range of Indicator	Percent of Stunting Indicators (28 Programs)	Percent of Underweight Indicators (28 Programs)
Up to five years		
0–59 months	10.7	14.3
37–59 months		3.6
6–59 months	28.6	25.0
24–59 months	35.7	7.1
Up to three years		
0–35 months	7.1	21.4
6–35 months	3.6	3.6
3–35 months	10.7	10.7
Up to two years		
6–23 months	3.6	7.1
12–23 months		3.6
0–23 months		3.6

and underweight were available from the two most recent DHS in 15 countries with Title II programs and were used for comparison purposes.²²⁴ There was considerable overlap between the years when baseline and final evaluations of Title II programs were conducted and the years of the initial and subsequent DHS used for comparison; 83 percent of the Title II baseline and final evaluation surveys used in the FAFSA-2 analysis of nutritional impact were implemented within two years of the DHS to which they were compared.²²⁵

The results of this analysis would be more robust if it had been possible to re-analyze the anthropometry in the actual evaluation survey datasets. Attempts to do this as part of the FAFSA-2 failed due to the difficulties of obtaining enough of the baseline and final evaluation paired datasets from the Awardees. It is a positive step forward that, as a result of this experience, USAID/FFP now requires all Awardees to submit these evaluation datasets along with the survey reports to USAID/FFP and the USAID Development Experience Clearinghouse (DEC) (FFPIB 11-02, USAID/FFP, 2011a).

6.4.3 Nutritional Status Impact by Sex

Most Awardees did not disaggregate and report child anthropometric data by sex. Thus, the FAFSA-2

²²⁴ Prior and repeat DHS were conducted in the 15 countries between 1999 and 2010, with all but one of the prior surveys conducted in 2000 or later. The NCHS standard was used for interpreting DHS anthropometric data for children born in the five years preceding the survey. There were no DHS anthropometric trend data for Chad, India, Indonesia, Liberia, Mauritania, Mozambique, Niger, or Senegal. For Madagascar, no DHS weight-for-age trend data were available (see <http://www.statcompiler.com>). While analyzing secular changes between DHS to provide a counterfactual for the meta-analysis of nutritional impact of Title II programs, the FAFSA-2 did analyze the results using only rural versus national DHS data, given that most of the Title II programs included were in rural areas. However, since the DHS trends for rural areas varied little from the national trends, the FAFSA-2 decided to use only national DHS data. Using only rural DHS data for comparison does not change the FAFSA-2 results on nutritional status.

²²⁵ The mean interval between Title II surveys and the DHS to which they were compared was 1.7 years for baselines and 1.3 years for final evaluations. None of the DHS used for comparison were conducted more than four years before or after the Title II program evaluation survey.

was unable to assess nutritional status impact by sex for the overall program. Recent research has found that boys grow differently and faster than girls in the womb and are at greater risk of becoming undernourished when subjected to food shortages (Eriksson et al., 2010). Therefore, the major differences between undernutrition in boys and girls found in a number of Title II programs that did report sex-disaggregated data are not surprising. Examples of programs with evaluation survey findings of more undernutrition among boys are SC/Bangladesh and CARE/Bangladesh FY 2005–FY 2010; CARE/India FY 2002–FY 2006; CARE/Mozambique; SC/Uganda, WV/Uganda, and MC/Uganda; CARE/Sierra Leone FY 2007–FY 2010; CRS/Niger; SC/Bolivia; and the 2007 Haiti joint final evaluation survey of four programs. None of these programs had done qualitative research to probe further into what might be the causes of undernutrition, or reported on special approaches that they tried to eliminate the higher prevalence of undernutrition in boys. Such research is essential to inform SBCC for improving IYCF and child care practices, and without it one does not know if the differences in nutritional status are only due to boys' increased vulnerability to deficits in growth in food insecure environments or also exacerbated by gender inequality. Boys should weigh more and be taller than girls at any given age, according to WHO growth standards. The Title II programs are not alone in finding nutritional status differences between boys and girls. In 20 of 33 DHS from 2003 to 2009, the prevalence of stunting in boys was at least four percentage points worse than in girls (Kothari and Abderrahim, 2010).

Sex-disaggregated anthropometric data are now required in the USAID Evaluation Policy (2011) and in USAID/FFP's latest guidance on standard indicators and on gender integration (FFPIB 11-03, USAID/FFP, 2011b; McNairn and Sethuraman, 2011). The most important use of sex-disaggregated anthropometric data should be by the Awardees themselves. Large nutritional status differences between boys and girls should trigger formative research to understand if there are any behavioral determinants, followed by implementing specific approaches to reduce them.

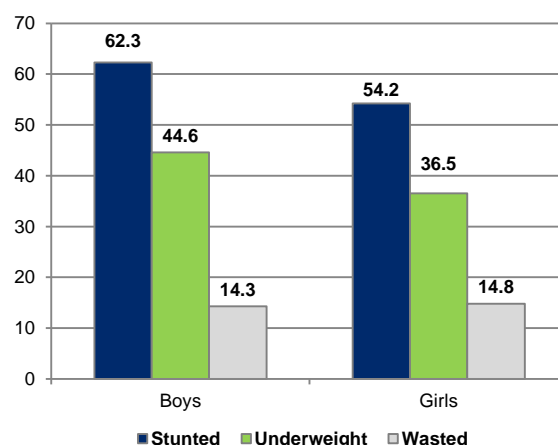
Figure 6.9 from the CARE/Bangladesh FY 2010–FY 2015 Strengthening Household Ability to Respond to Development Opportunities Project (SHOUHARDO II) Baseline Study Report illustrates the higher prevalence of stunting and underweight in boys (Caldwell et al., 2011).

6.4.4 Nutritional Status Impact Overall

“Child underweight and stunting prevalence[s] are falling significantly in most countries, except in Africa” (UNSCN, 2010, p. 98). This is the conclusion of the *6th Report on the World Nutrition Situation* based on trends from 1990 to 2007.²²⁶ What impact did the Title II programs have on reducing undernutrition in children under five years of age during the FAFSA-2 time period from FY 2003 to FY 2009? These programs had a bigger impact on stunting, reducing it by 1.32 percentage points per year, than on underweight, which declined by 0.63 percentage points per year (see Figure 6.10). These declines were greater than the average DHS secular trend changes in stunting and underweight across the 15 countries with DHS data (see Table 6.18). The averages mask considerable variability in the results given the wide SDs. The average annual percentage point reduction in stunting of 1.32 achieved in the 28 Title II programs in the FAFSA-2 universe is less than the average reduction in stunting of 2.4 percentage points per year reported by FANTA in 2004 for 18 Title II programs (Swindale et al., 2004). Possible explanations for the difference in impact are: (1) the larger number of programs analyzed in the FAFSA-2 (28 vs. 18); (2) the deliberate exclusion of poor-quality data and evaluation designs in the FAFSA-2 that were not excluded from the 2004 study; and (3) the much narrower SD of 1.31 (less variability) around the stunting reduction estimate found in the FAFSA-2, compared to the wide SD of 2.3 reported by FANTA in 2004, due to the larger number of programs analyzed and elimination of poor-quality data and evaluation designs in the FAFSA-2. The 2004 study also reported a smaller SD of 1.6 for the average annual

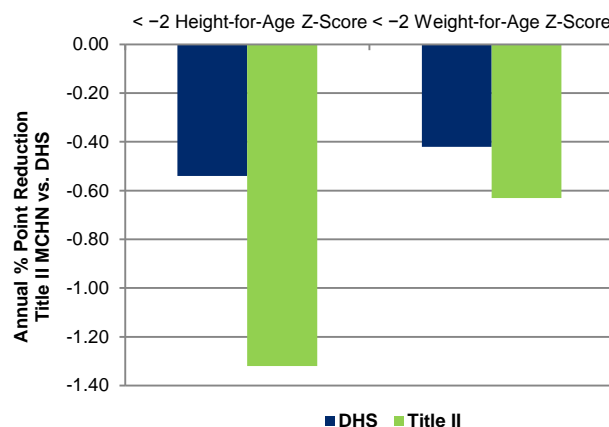
²²⁶ The annual percentage point reductions in underweight and stunting in developing countries from 1990 to 2007 were 0.55 and 0.78, respectively, whereas in Africa both went down only 0.11 percentage points per year.

Figure 6.9. Percent of Children under Five Stunted, Wasted, and Underweight, by Sex, in Baseline Survey for CARE/Bangladesh Title II Program, 2011



Note: The number of observations for the stunted and wasted estimates (for children 6–59 months) is 2,807. The number of observations for the underweight estimates (children 0–59 months) is 3,417. Source: Caldwell et al., 2011.

Figure 6.10. FAFSA-2 Nutritional Impact in Children under Five Years of 28 Title II MCHN Programs Compared to DHS Secular Trends—All Regions



reduction in stunting when they analyzed only data from nine programs with a quality rating of “average” or “good” (Swindale et al., 2004).

Given the above explanations, the average annual percentage point reduction in stunting of 1.32 found in the FAFSA-2 is a more reliable and realistic estimate of the average impact that a mixed group of Title II MCHN programs can have on improving height-for-age. However, the mixed group varied widely, from programs that

Table 6.18. Impact of Title II Programs in the FAFSA-2 Universe on Nutritional Status of Children 0–59 Months of Age* Compared to DHS Secular Trends

Nutritional Status Indicator < -2 Z-Scores	Percent of Programs with this Indicator (N = 63)**	RESULTS						Programs that Reported Improving Indicator % (N)***
		Annual Percentage Point Reduction in Prevalence of Undernutrition						
		Programs			DHS Secular Trends			
		N***	Mean \pm SD	95% CI	N***	Mean \pm SD	95% CI	
CHRONIC MALNUTRITION—STUNTING								
Low Height-for-Age	89	28	-1.32 \pm 1.31	-1.81 to -0.83	15	-0.58 \pm 0.94	-1.06 to -0.10	51 (53)
UNDERWEIGHT								
Low Weight-for-Age	97	28	-0.63 \pm 1.28	-1.10 to -0.16	14	-0.43 \pm 0.64	-0.77 to -0.09	45 (58)
ACUTE MALNUTRITION—WASTING								
Low Weight-for-Height	32	12	NA****	NA****	NA****	NA****	NA****	30 (20)

* This is a pooled analysis of program indicators that measured the following age groups of children in months: 0–59, 37–59, 6–59, 24–59, 0–35, 6–35, 3–35, 6–23, 12–23, 0–23. See Table 6.17.

** The denominator for “Percent of Programs with this Indicator” is 63 programs (of the 69 HN programs in the FAFSA-2) that had been under way long enough to have had at least a mid-term evaluation, if not a final evaluation.

*** The denominator for “Programs that Reported Improving Indicator” represents the number of programs (N) that had reached the stage in their implementation when they had collected and reported evaluation data for that anthropometric indicator. SD = Standard Deviation. CI = Confidence Interval.

**** The annual change could not be calculated because of the small number of programs with reliable weight-for-height data.

provided supplementary feeding with distinct recuperative or preventive targeting strategies to programs that did not distribute food rations. The effectiveness or nutritional status impact associated with these distinct strategies varied greatly, as discussed in the next section. The FAFSA-2 found that preventive supplementary feeding is the most effective approach. Therefore, going forward, one would expect fewer Title II programs to do the less effective approaches, and the overall average impact of Title II programs on nutritional status to increase, as more or all programs focus on prevention, including supplementary feeding. The expected reduction in stunting in these more effective prevention programs should be at least the average found in the FAFSA-2 for preventive supplementary feeding programs, and not the lower reduction cited for the mixed group.

There were marked differences in reducing chronic undernutrition between regions, with programs in the combined Asia and LAC regions achieving a bigger average annual decrease of 1.53 percentage

points, compared to programs in Africa, where stunting fell only 0.98 percentage points per year (see Figure 6.11). No regional differences were seen in reducing low weight-for-age. These contrasts in impact track with the differences in Title II program interventions, approaches, and budgets for HN between the regions, as already described, as well as with the regional secular trends.

Turning to the nutritional impact of individual programs, the FAFSA-2 found that 71 percent of the programs reduced stunting more than the annual percentage point decline seen in DHS in the same country, and 64 percent reduced underweight more than the annual percentage point decline in DHS in the same country.²²⁷ Fourteen programs in eight countries reduced the prevalence of stunting at an annual rate greater than both the changes in stunting as measured by DHS in the same country and the

²²⁷ In countries without DHS data, the nutritional status impact data for Title II programs were compared to the average secular changes in DHS data at the regional level.

average annual reduction in stunting achieved across the 28 Title II programs. Furthermore, 8 of these 14 programs in six countries were also able to reduce the prevalence of underweight at an annual rate greater than both the DHS national secular changes and the average annual reduction in low weight-for-age across the 28 Title II programs. The eight programs with major reductions in underweight and stunting were: OICI/Ghana, Africare/Uganda, CARE/Mozambique, SC/Bolivia, SC/Honduras, CARE/Honduras, SC/Nicaragua, and PCI/Nicaragua.

An additional six programs that achieved major reductions in stunting, without major declines in underweight were: WV/Mozambique (no weight data collected), CRS/Indonesia, ADRA/Bolivia, CARE/Bolivia, CRS/Haiti, and ADRA/Honduras (no weight data available). Most of the programs with greater nutritional impact were in the Asia or LAC regions. Major differences in approaches used by these successful programs are contrasted to approaches used in eight programs that achieved little or no improvement in children's height-for-age compared to the annual percentage point decline in DHS in the same country (see Figure 6.12).²²⁸ Approaches more common in unsuccessful

programs were supplementary feeding only for recuperation (13 percent vs. 7 percent) and PD/H (63 percent vs. 36 percent). Distinguishing features of programs that were more successful than most at improving height-for-age were: (1) nutrition counseling on IYCF (86 percent vs. 50 percent); (2) targeting children under two or three years of age (71 percent vs. 50 percent); and (3) home visits (64 percent vs. 38 percent), which were less frequent in unsuccessful programs. Furthermore, the star performers in Bolivia, Honduras, and Nicaragua learned much from each other and benefited from technical exchanges and cross-program learning that shaped the design and implementation of their community-based approaches. More programs than these 14 may have had a major positive impact on nutritional status, but due to the large number with no reliable data, it is impossible to know.

Ten of the 14 programs with large declines in stunting were in five more developed countries that have since graduated from Title II. It is sobering to realize that achieving this same impact on stunting in ongoing and future programs in the least developed USAID/FFP focus countries, with their greater food insecurity and undernutrition, will likely be harder.²²⁹ Fortunately, the Tufts Exit Strategies Study for USAID/FFP includes Bolivia and Honduras, where six of the more effective, but graduated, programs

²²⁸ The eight programs with low or no impact on stunting were: Africare/Chad; WV/Kenya; SC/Guatemala FY 2000–FY 2007; SC/Bangladesh FY 2005–FY 2010; CARE/Haiti; SC/Haiti; WV/Haiti; and WV/Honduras.

²²⁹ All of the USAID/FFP focus countries except Guatemala are on the United Nations Least Developed Country list.

Figure 6.11. FAFSA-2 Nutritional Impact in Children under Five Years of Title II MCHN Programs, by Region

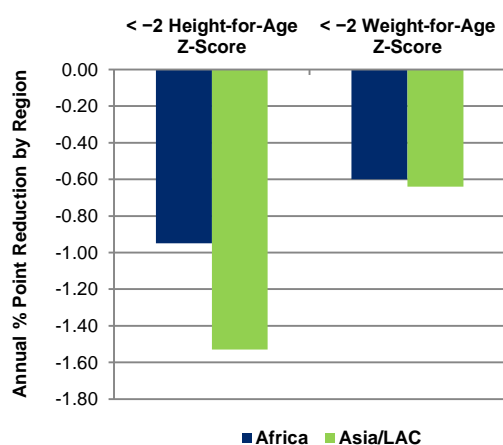
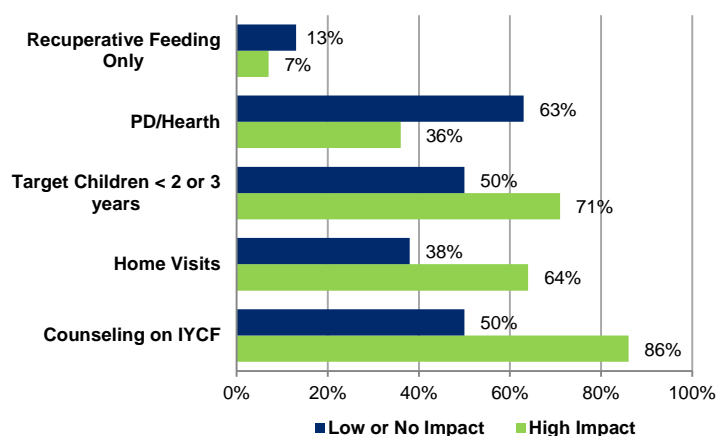


Figure 6.12. FAFSA-2 Comparison of Approaches in Title II Programs with High and Low or No Impact on Reducing Stunting in Children under Five Years



are located. They will further analyze nutritional status impact, collect follow-up data, determine if the positive changes were sustained two years after project close-out, and identify associated factors. The remaining four high-performance programs were in three countries that continue to be a focus for USAID/FFP: Mozambique CARE and WV, Africare/Uganda, and CRS/Haiti. Current Title II programs face major challenges to achieving as much or more nutritional status impact as that documented in the FAFSA-2, because, within countries, they have been relocated to the most food insecure, underdeveloped regions. Uganda is a good example. The current geographic priority area for Title II is the previously war-torn northeast, specifically the Karamoja region, where it is more difficult to work due to insecurity, violence, drought, and underdevelopment, than the prosperous southwest, where the Africare program was able to improve nutritional status.

6.4.5 Nutritional Status Impact by Type of Supplementary Feeding

There were considerable differences in the nutritional impact of Title II programs depending on the type of MCHN supplementary feeding they did, that is, (1) no food rations, (2) recuperative feeding only, and (3) preventive feeding (see Figure 6.13). Prevention programs achieved a three times greater average annual reduction in stunting of 1.69 percentage points, compared to the DHS

secular trend reduction of 0.58.²³⁰ The reduction in stunting achieved in prevention programs was twice that of the 0.75 achieved in recuperative feeding only programs, or 0.85 in no-food-ration programs. However, in evaluating this comparison, it is important to note that recuperative feeding and preventive feeding do not typically target the same age range. The superior performance of prevention programs was also seen in greater annual reductions in low weight-for-age of 0.95 percentage points, although the impact was much smaller than on stunting.

However, the preventive feeding programs in LAC did achieve annual decreases in underweight of 0.92, nearly three times the regional average annual decline in LAC DHS of 0.33, while also reducing stunting by 1.65 percentage points per year (see Figure 6.14). Clearly, preventive supplementary feeding for pregnant and lactating women and young children, delivered along with an integrated package of community and population-based SBCC and

²³⁰ For programs with preventive supplementary feeding, the 95 percent confidence interval (CI) for the mean annual percentage point reduction in stunting was -2.22 to -1.16. This did not overlap with the 95 percent CI of -1.06 to -0.10 for the mean annual percentage point reduction in stunting measured by DHS across 15 countries (see Table 6.18), indicating that the changes in height-for-age of the children in these two groups were significantly different. However, without further statistical tests, it cannot be determined whether there were significant differences between the groups with overlapping CIs.

Figure 6.13. FAFSA-2 Nutritional Impact in Children under Five Years by Type of Title II Supplementary Feeding Compared to DHS Data

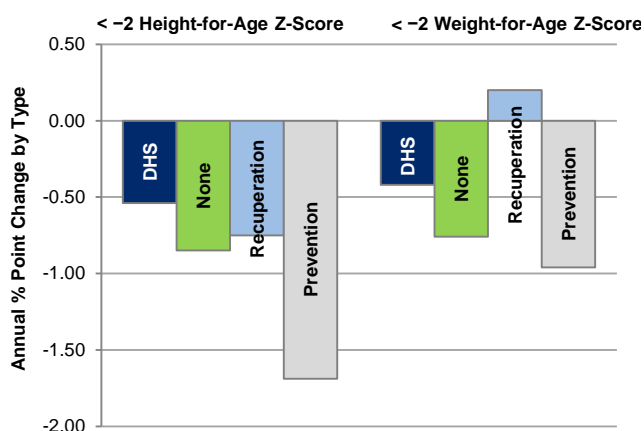
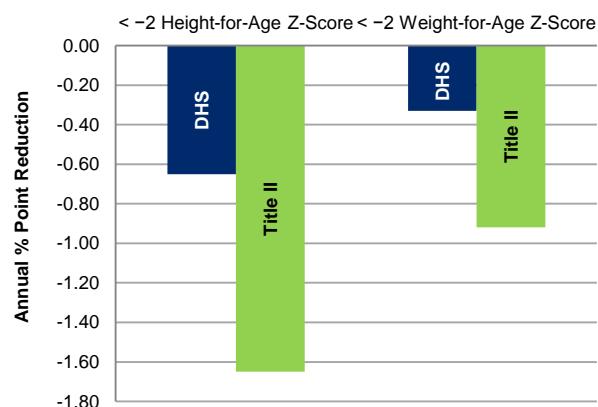


Figure 6.14. FAFSA-2 Nutritional Impact in LAC in Children under Five Years of 13 Title II Programs with Preventive Supplementary Feeding Compared to DHS Data



essential HN interventions, has the biggest positive impact on nutritional status. This package should be the norm in Title II programs.

Recuperative feeding only programs were the poorest performers. Both the no-food model and recuperative feeding only had limited impact on stunting, compared to preventive supplementary feeding, and the declines were not much better than in the DHS, i.e., the status quo without Title II. And the prevalence of underweight in children *increased* in communities with recuperative feeding only programs, in contrast to reductions in underweight seen in the DHS, the no-food-ration programs, and preventive supplementary feeding programs (see Figure 6.13).²³¹ It has been argued that restricting eligibility for food assistance to the malnourished rewards bad behavior and may provide a perverse incentive for families to have a malnourished child in order to benefit (Ashworth et al., 2008). The findings of the FAFSA-2 and of the FANTA-2 formative research in northern Uganda suggest that this is a valid concern about recuperative feeding (Mwadime et al., 2012). The PM2A research in Haiti found that not only did underweight increase by 1.0 percentage point per year in the group that received recuperative feeding only, but stunting and wasting also increased by 0.5 and 1.23, respectively (Menon et al., 2007; Ruel et al., 2008). In contrast, in the group receiving preventive feeding, stunting was reduced by 1.23 percentage points per year and underweight by 1.00 percentage point per year.

The FAFSA-2 findings on nutritional impact are consistent with the 2008 *Lancet* review of nutrition interventions that found a significant positive impact of supplementary feeding on young children's height-for-age in populations with insufficient food (Bhutta et al., 2008). The reduction in stunting in the Title II group receiving the integrated package of preventive supplementary feeding and SBCC to improve IYCF practices is of the same magnitude as the 1.67 percentage point per year reduction

achieved in a similar conditional cash transfer program in Nicaragua, which contributed to increased food expenditures, more varied household diet, and increased use of preventive health care (Maluccio and Flores, 2004).

6.4.6 Nutritional Status Impact of Preventive Supplementary Feeding by Ration Size

Individual and household rations. Within programs doing supplementary feeding for prevention, the range in rations was huge—from 4.0 kg to 36.4 kg per month. The FAFSA-2 decided to delve deeper into the quantity and composition of the food rations for 16 prevention programs in eight countries that had reliable nutritional status impact data. Two significantly different groups emerged with no overlap in the 95 percent confidence intervals (CIs). *Group 1* had five programs that distributed on average less than 15 kg of food a month to their beneficiaries, defined by the FAFSA-2 as a level consistent with *individual* rations for pregnant and lactating women and young children. The average amount of food provided to participants monthly was 8.41 kg \pm 4.88 SD, and the range across the five programs was 4.0–14.35 kg. *Group 2* had 11 programs that distributed more than 16 kg of food a month to beneficiaries, defined by the FAFSA-2 as a level consistent with *individual* rations for pregnant and lactating women and young children plus *household* rations. The average amount of food provided to participants monthly was 23.85 kg \pm 6.87 SD, and the range across the 11 programs was 16.2–36.4 kg, often exceeding the current illustrative PM2A TRM rations (FANTA, 2010). Dividing the prevention programs into these two groups, one with smaller rations and one with much larger rations of nearly triple the size, was a more objective way to analyze the differences, since Awardees did not use standard definitions when they described their supplementary feeding programs as giving incentive rations, individual rations, or individual plus household rations.²³² See Table 6.19 and Table 6.20 and Figure 6.15 and Figure 6.16 for the ration size and commodity mix of the 16 programs.

²³¹ The CIs in Table 6.21 for the mean annual percentage point changes in stunting and underweight for the groups “no food” and “recuperation” range from a decrease to an increase in these conditions, illustrating that some programs actually had a negative impact on nutritional status.

²³² None of the programs reviewed had ration sizes of 15 kg to 16 kg.

Table 6.19. Individual Prevention Ratios (< 15 kg)

Country	Awardee (Years)	MCHN Ration (kg/person/month)				
		Cereal	Pulse	CSB/SFB	Oil	Total
Bangladesh	SC (FY05–FY10)	3.00	0.50		0.50	4.00
Indonesia	CRS (FY05–FY08)			3.99	0.80	4.79
Guatemala	SHARE (FY03–FY08)	1.40	0.9	2.70	0.92	5.92
Honduras	SC (FY05–FY09)	7.00		5.00	1.00	13.00
Nicaragua	PCI (FY02–FY09)			12.50	1.85	14.35
Average		3.79	0.71	6.06	1.01	8.41
SD		2.90	0.29	4.40	0.50	4.88
95% CI		0.51 to 7.07	–0.27 to 1.69	1.69 to 10.37	0.57 to 1.45	4.13 to 12.69
Median		3.00	0.71	4.50	0.92	5.92

Table 6.20. Individual Plus Household Prevention Ratios (> 16 kg)

Country	Awardee (Years)	MCHN Ration (kg/person/month)				
		Cereal	Pulse	CSB/SFB	Oil	Total
Haiti	SC (FY02–FY08)		4.50	9.97	2.20	16.67
	WV (FY02–FY08)		3.10	14.60	2.40	20.10
Bolivia	ADRA (FY02–FY09)	10.00	9.00	10.00	0.92	29.92
	CARE (FY02–FY09)	10.00	9.00	10.00	0.92	29.92
	SC (FY02–FY09)	10.00	9.00	10.00	0.92	29.92
Guatemala	SC (FY00–FY07)	8.16	4.54	9.07	2.31	24.08
Honduras	ADRA (FY05–FY09)			12.50	3.70	16.20
	CARE (FY01–FY08)	17.30	9.10	9.10	0.90	36.40
	WV (FY05–FY09)	7.00	5.00	10.00	2.00	24.00
Nicaragua	SC (FY02–FY09)		2.34	13.33	2.52	18.19
Ghana	OICI (FY04–FY09)	15.00			1.92	16.92
Average		11.07	6.18	10.86	1.88	23.85
SD		3.71	2.82	1.91	0.90	6.87
95% CI		8.32 to 13.82	4.34 to 8.02	9.68 to 12.04	1.35 to 2.41	19.79 to 27.91
Median		10.00	5.00	10.00	2.00	24.00

Figure 6.15. FAFSA-2 Monthly Prevention Ratios for Pregnant and Lactating Women and Preschool Children with or without Household (HH) Ratios

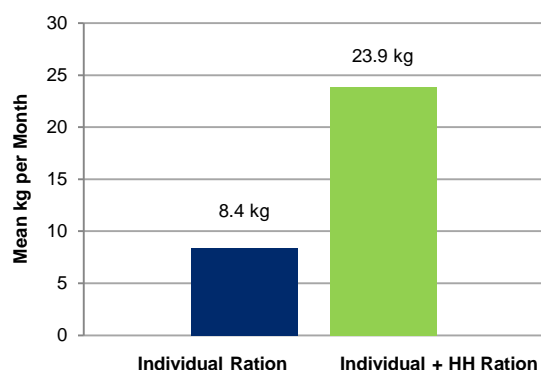
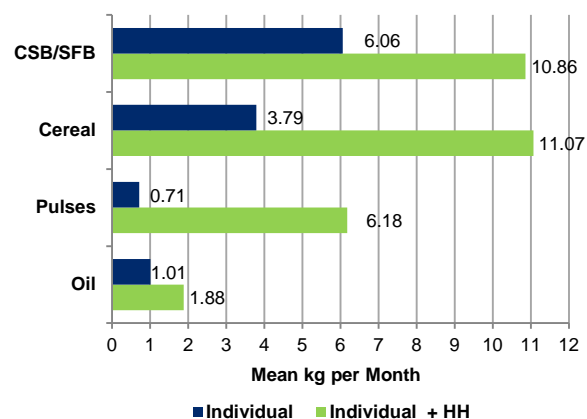


Figure 6.16. FAFSA-2 Monthly Prevention Ratios for Pregnant and Lactating Women and Preschool Children with or without Household (HH) Ratios



A tremendous variation in MCHN rations was also found in the FAQR (Webb et al., 2011). Furthermore, the FAQR recommended that individual daily MCHN rations should contain both 30 g of fortified vegetable oil and 100 g of an improved formulation of CSB to be eaten together to achieve the required energy density. Only four of the prevention programs in the FAFSA-2 analysis were giving enough oil in proportion to the cereal-based part of the ration to meet that new recommendation. The second illustrative ration in the PM2A TRM also has only one-third of the FAQR recommended fat (oil) content (FANTA, 2010). Furthermore, the monthly ration for the study group receiving only individual rations in the ongoing PM2A research in the Mercy Corps/Guatemala Title II program contains only 4 kg of CSB and no oil according to the Mercy Corps FY 2012 ARR.

No better impact with household rations. Program impact on stunting and underweight in the two ration groups is shown in Table 6.21 and Figure 6.17. *Group 1* programs with only *individual* rations had greater impact on reducing stunting (1.91 average annual percentage point reduction) and

double the decrease in underweight (1.37), with the latter particularly striking. The *Group 2* results for programs with *individual plus household* rations can be compared to the three-year Haiti PM2A research in which the prevention group that received individual plus household rations achieved an annual percentage point reduction in low height-for-age of 1.23 and of 1.0 in low weight-for-age (Menon et al., 2007; Ruel et al., 2008).

Figure 6.17. FAFSA-2 Nutritional Impact in Children under Five Years of Title II Individual Prevention Rations with or without Household Rations, All Regions

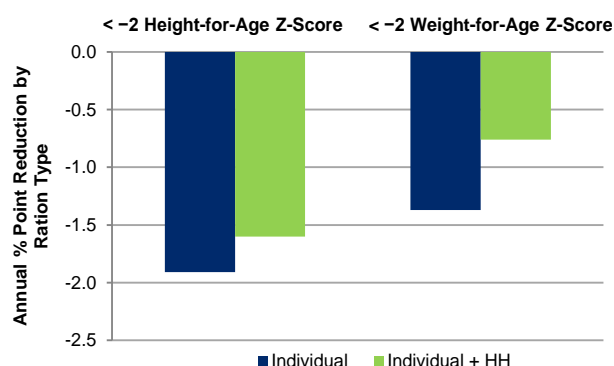


Table 6.21. Impact of Title II Programs in the FAFSA-2 Universe on Nutritional Status of Children 0–59 Months of Age* by Type of Supplementary Feeding Eligibility Criteria and Rations

Nutritional Status Impact	NO FOOD	RECUPERATION Food Targeted Only to Malnourished Children	PREVENTION Individual Rations for All P/L** Women, Children in Age Group	PREVENTION Individual Rations for All P/L Women, Children in Age Group, Plus Household Rations
PREVALENCE of LOW HEIGHT-FOR-AGE < -2 Z-Scores				
Number of Programs	8	4	5	11
Mean Annual Percentage Point Change in Prevalence	-0.85	-0.75	-1.91	-1.60
SD	1.67	1.07	0.87	1.20
95% CI	-2.01 to 0.31	-1.80 to 0.30	-2.67 to -1.15	-2.31 to -0.89
PREVALENCE of LOW WEIGHT-FOR-AGE < -2 Z-Scores				
Number of Programs	6	7	5	10
Mean Annual Percentage Point Change in Prevalence	-0.76	0.20	-1.37	-0.76
SD	1.57	1.71	0.90	0.65
95% CI	-2.02 to 0.50	-1.07 to 1.47	-2.16 to -0.58	-1.16 to -0.36

* A pooled analysis of program indicators measured in children in the following age groups in months: 0–59, 37–59, 6–59, 24–59, 0–35, 6–35, 3–35, 6–23, 12–23, and 0–23. See Table 6.17.

** P/L = Pregnant/Lactating.

To compare the impact of the two types of rations in programs in similar settings, the FAFSA-2 analyzed a subset of 8 of the 16 programs in three of the eight countries, where both models were used in the same country, namely, in Guatemala, Honduras, and Nicaragua. In two of the three countries, programs giving only smaller individual rations achieved greater reductions in stunting and underweight than programs in the same countries that gave larger individual plus household rations. The only exception was in Nicaragua, where one program with a household ration reduced stunting more. The 2006 joint evaluation of the four Title II programs in Guatemala with varying ration sizes found no correlation between ration size and nutritional impact, i.e., bigger rations did not translate into greater impact. These findings comparing both models in the same countries lend further weight to doubts about whether household rations contribute to greater nutritional impact.

Household rations questioned. The FAFSA-2 could find no dietary intake data from the PM2A research in Haiti or any other Title II program reviewed to substantiate the hypothesis that giving household rations protects the individual mother-child rations from being shared by other family members or substituted for household foods that the beneficiaries would have eaten anyway. “Sharing” and “substitution” of rations have been documented as problems in supplementary feeding programs (Anderson et al., 1981), although there has been no recent research. Nor was there evidence from Title II programs to support the assertion that additional household rations are necessary as incentives to achieve adequate participation.

Household rations are an income transfer intended to improve food security. The theory is that by giving household rations there is less sharing of the food assistance beyond the target group, therefore better maternal and young child dietary intake, and in turn bigger nutritional status impacts. The Haiti PM2A study documented that, while household food insecurity was the same across study groups at baseline, it was significantly less pronounced in households enrolled in the prevention arm than those in the recuperation arm at the end of

the intervention. The reasons for this are that the prevention model included individual plus household rations and reached more households (73 percent of all households in the population were in the prevention arm versus 28 percent of all households in the recuperation arm), and for twice the duration of the recuperation model.²³³ Unfortunately, the study did not measure whether improved household food security due to large food rations in the prevention arm translated into increased nutrient intakes by pregnant and lactating women and young children, and, therefore, better nutritional status—the hypothesized causal pathway.

Household rations greatly limit the scale of Title II programs by increasing their cost per person. Household rations are by far the most important cost in programs doing PM2A; the quantities given as part of the household ration are much greater than the individual ration given for the mother or child.²³⁴ It should be noted that the World Bank’s cost projections of US\$40–US\$80/year/child 6–23 months of age for the complementary (supplementary) and therapeutic feeding interventions in SUN, the most expensive interventions in the package, are based on individual rations and do not include household rations (Horton et al., 2010).²³⁵

There remains an urgent need to conduct cost-effectiveness research on rations in Title II MCHN programs that would include collecting dietary intake data from pregnant and lactating women and young children to compare to HN outcomes, impact, and program cost in groups that receive: (1) individual plus household rations, (2) only individual rations, and (3) no food rations. Having such data on the impact of different ration sizes on the dietary intake of the target group is critical to elucidate the causal pathway by which rations affect nutrition status, and how large food rations need to

²³³ Bergeron, Gilles. Deputy Director for Country Programs, FANTA. November 30, 2011. Personal communication. Dr. Bergeron oversaw the PM2A research in Haiti.

²³⁴ Ibid.

²³⁵ Does not include CMAM, which World Bank estimated would cost US\$200/episode/child 6–59 months of age (Horton et al., 2010).

be. It would have been helpful to shed light on these important questions if the outgoing PM2A research in Guatemala and Burundi had been designed to collect such dietary intake data for groups receiving different ration sizes.

In summary, some have hypothesized that individual rations alone are insufficient, and that complementing them with large household rations is cost-effective and necessary to achieve greater program participation, less intra-household sharing of mother-child rations, and improved dietary intake and nutrition status of beneficiary mothers and children. However, there is an absence of evidence to support these hypotheses, and research is needed on these questions. Meanwhile, many more people would benefit if programs, while following the prevention model, provided individual rations only, and not such large individual plus household rations to so few families.

6.4.7 Nutritional Status Impact of Positive Deviance/Hearth

The age of children enrolled was 6–35 months in four PD/H programs and 6–59 months in nine PD/H programs. Recuperation was most often defined as gaining at least 400 g in one month, irrespective of age. On average, the success rate with recuperating malnourished children was 48 percent in the 13 Title II PD/H programs reviewed in special studies (see Table 6.14) (McNulty and Pambudi, 2009; Maslowsky et al., 2008). This is a disappointing recovery rate, especially since it is based on the less stringent criterion of weight gain. Furthermore, it is common for a number of recovered children to relapse into undernutrition in the months following graduation, because constraints to adopting new feeding and care behaviors have not been removed.

6.4.8 Programs with Unintended Negative Impact on Nutritional Status

Three Title II programs had a large, unexpected negative impact on nutritional status associated with irrigation activities, namely Africare in Chad and Mali and WV/Kenya. In Mali, the overall program achieved reductions in stunting and underweight, especially for children under three years of age,

despite drought and locusts. The final evaluation attributed some of this impact to blanket feeding of children under five years by WFP during the crisis in the program villages. The Africare program did no direct MCHN food distribution. The final evaluation team hypothesized that the greatest impact on children's nutritional status would be found in villages that had received Title II support to introduce irrigation systems, because the greatest increases in food production were observed in these villages. To test this theory the evaluators analyzed the anthropometric data for the irrigation villages alone, disaggregated by children's age. They found that the nutritional status of children in the irrigation villages actually deteriorated over the three-year project period. In children 25–59 months of age, underweight more than doubled, from 28 percent to 61 percent (statistically significant at $p < 0.003$), and acute malnutrition rose from 0 percent at baseline to 23 percent at the end of the project (statistically significant at $p < 0.009$), a level that indicates a critical emergency situation according to WHO. These negative impacts were attributed to the introduction of irrigation, which added a second agricultural cycle in the year. Women did most of the agricultural work, so the additional agricultural cycle doubled their workloads in the fields, preventing them from adequately caring for and feeding their children. Children under two years of age were less affected because they were taken to the fields with their mothers and breastfed. In contrast, older preschoolers were left at home with inadequate substitute caregivers.

The Africare/Chad program also introduced irrigation in some villages that made possible a second harvest. This program had a negative impact on height-for-age at the overall project level, which is hypothesized to be due in part to increasing women's work in the fields and reducing their time spent on child care and feeding. The program did no supplementary feeding, which might have mitigated the negative effects in the short term. A special study of the Africare/Chad program was done to determine the impact of women's gardening activities on children's school attendance (West Africa Regional Food for Peace Office, USAID/Senegal, 2005). The findings suggested that women's gardening had a

negative impact on children's school attendance as garden size, labor demands, and household income increased. The gardening program appeared to discourage women from sending their children to school because their assistance was needed in the fields.

It would have been useful if the evaluators had done further analysis of the Africare/Chad program to separately determine the nutritional status impact in irrigation villages, especially given the negative findings in Mali. The Mali program evaluators are to be congratulated for having done this in-depth analysis of the survey data; otherwise, these adverse impacts would have remained hidden in the overall results. However, these lessons learned were not fully incorporated into Africare's proposals for its Chad FY 2008–FY 2012 and Mali FY 2008–FY 2013 Title II programs, which also include irrigation and no MCHN supplementary feeding. While the Mali proposal mentioned lessons learned on the negative impact of irrigation increasing women's workloads outside the home and increasing undernutrition, more tangible measures were needed to prevent these negative impacts. The two programs provide an excellent example of why gender analysis is so critical during project design and implementation and why it is required by USAID/FFP (McNairn and Sethuraman, 2011). They also illustrate why the effect of project activities on increasing women's workload and mitigation measures should be taken very seriously, because a mother's heavy workload may negatively affect her own nutritional status, pregnancy outcome, and child care and feeding practices, and cause child undernutrition. The emphasis that FTF and USAID/FFP are placing on gender and on better understanding women's roles in agriculture is good.

Irrigation activities in the third program of WV/Kenya were associated with significant increases in stunting and underweight in children. Farm land was taken out of production during construction of irrigation systems, reducing household food availability and access by reducing food production. The negative impact was supposed to be mitigated by FFW, but the commodities arrived too late. This program did no direct MCHN food distribution that might also have mitigated the negative effects.

6.5 Cross-Cutting Issues and Opportunities

Resolving the following issues common to a number of programs would present an opportunity to improve performance.

6.5.1 Essential Interventions Delivered at Scale

Program managers need to be able to answer whether the essential intervention package was actually delivered and to how many people in the 1,000-day window. Ultimately, population-level outcomes and impact will be determined by coverage/scale, whether the program is truly community-based, the client-worker ratio, the intensity of contact with women and children in the 1,000 days, CHW performance, effective SBCC, adequacy of resources, and participation and motivation of families (and communities) to follow advice (Ashworth et al., 2008; Marini et al., 2009; Mason et al., 2006; Independent Evaluation Group, 2010). Program context is also important. The issue is how do program managers plan for and ensure that the critical results listed are happening and report on them to USAID/FFP. Most of the performance data that Awardees report are at the outcome and impact levels. However, these higher-level indicators shed no light on whether the intervention package was actually delivered, how many people received it, and what percent of the expected population the beneficiaries actually represent (coverage). Measuring higher-level results is questionable if one is not certain that the intervention package was actually delivered. It may be that Awardees have their own indicators for monitoring this, which are not reported to USAID. However, since the FAFSA-2 revealed gaps in intervention delivery and low beneficiary numbers, it would be valuable if detailed implementation plans and annual reports that USAID/FFP receives from Awardees included this kind of information. Some problems observed were programs that called themselves community-based when they were really facility-based; working out of one distant community and requiring participants to come there, versus reaching down into every community where people live; low

MCHN budgets; high client-worker ratios; and no CHWs in some programs. Low enrollments or low coverage, for example, in stand-alone PD/H or due to giving a lot of inputs to a few families, is another constraint impeding preventing undernutrition at scale. The performance of CHWs is a very important QI factor that Awardees need to work on more.

How many people actually received the intervention package and what percent do they represent of all persons in the target area that should be covered? Coverage is also critical to population-level impact. Part of the explanation for less impact is that the intervention may not have been delivered to an adequate number of people. The reporting on beneficiaries reviewed in the FAFSA-2 was often confusing. For example, it appears that there are many MCHN beneficiaries in programs with household rations because every family member is counted as a beneficiary. It is erroneous to code these family members (not in the first 1,000 days) as receiving MCHN interventions when all they got was food, their consumption of which does not contribute directly to MCHN outcomes and impact. If household rations continue, it would be useful to tighten the definition of a direct MCHN beneficiary and to add a separate recipient reporting category for “household rations.” Some Awardees count all people that attended a nutritional status screening session for targeting recuperative feeding as beneficiaries, when they actually received no services. What Awardees and USAID/FFP really need to know is the number and percent of all women and children in the first 1,000 days that are direct beneficiaries of which interventions.

Numbers game. Some programs “save” money by covering broader age groups with children up to five years of age, because they can locate more children in a smaller geographic radius and get to higher beneficiary numbers easily. This is misleading, because older children will benefit much less and contribute little to population-level impact on undernutrition. Older children are taking the place of children under two years of age that would benefit much more. Furthermore, not all beneficiaries are served equally. Some do not receive all the core services, so they should not be counted toward expected project impact. Other

programs eliminate community-based services, and require participants to travel to central locations outside the village to receive services, using food distribution as the incentive. While this cuts costs and increases beneficiary numbers, it may negatively affect program impact and results achievement because contact with beneficiaries is less frequent and many in the target group may not be reached because they cannot travel the distance or afford the opportunity cost of the time to go to the central distribution point. A great deal can be gained by clear reporting and close tracking by USAID/FFP, program managers, and evaluators of how many direct MCHN beneficiaries are reached in the 1,000-day window.

6.5.2 Nutrition 101

The FAFSA-2 encountered a number of instances in which USAID and Awardee staff had a limited understanding of basic nutrition, which some acknowledged was a handicap to their ability to more effectively manage Title II programs with nutrition goals. At USAID’s request, FANTA-2 developed an e-learning course on “Introduction to Nutrition” for USAID staff, which could help USAID/FFP and Awardee staff increase their knowledge and skills. FANTA hopes to develop a second course that explains the program design process and approaches to delivering nutrition interventions.

Insufficient understanding of basic nutritional concepts has contributed to programs that focused on the wrong age groups (see Section 6.3.1.1) or overestimated the nutritional benefits of vegetable gardens (see Section 6.3.3.8). Additional examples of nutrition concepts that the FAFSA-2 found not well understood are discussed next.

The difference between chronic and acute malnutrition. In two countries where the emphasis was on treatment of acute malnutrition in CMAM, and where there was very little preventive focus, the FAFSA-2 team found implementers talking only about “moderate” and “severe” malnutrition and leaving out the word “acute,” although they were referring to children suffering from low weight-for-height or acute malnutrition. This gave the

impression that acute malnutrition was the only problem faced in their countries. More precise terminology would be “moderate acute malnutrition” or “severe acute malnutrition.” Acute malnutrition, that is low weight-for-height, is much rarer than stunting and underweight and just the tip of the iceberg (of undernutrition). Implementers should have used the broader term “moderate malnutrition” correctly and comprehensively to include moderate stunting and moderate underweight—problems that are up to tenfold more common in the same countries than acute malnutrition.

Consuming complete protein with all the essential amino acids is required to meet the body’s needs for growth, maintenance, and repair. Most animal foods contain complete protein. The protein in most plant foods is incomplete. If eating a diet of predominantly plant foods, one needs to complement cereals with pulses, nuts, or milk, over the course of the same day, if not eating meat, fish, or eggs, to get the essential amino acids that are missing. That is why corn and soybean are combined to make CSB, a source of complete protein once these two foods are blended, because each supplies essential amino acids missing in the other. One Awardee designed a ration for children under two years that was just whole wheat kernels, referring to the protein content of the wheat as sufficient to meet children’s needs, and USAID/FFP approved the ration. Wheat protein is incomplete and alone will not support human growth. Another food that supplies the essential amino acids missing in wheat is needed to complement it. In addition to the protein limitations of the ration, it was nutritionally inadequate because fortification with micronutrients was lacking in the wheat kernels and there was no oil in the ration. Harmonizing with or copying the well-balanced rations of other Awardees in the same country would have been a better bet. USAID/FFP, which has the bigger picture, is in the best position to facilitate sharing across programs and Awardees and to promote harmonization of more nutritious rations.

Accurate age estimation and anthropometric measurements are essential to correctly measure child nutritional status. The FAFSA-2 team observed poor-quality age determination and anthropometry in

some field visits and evaluation surveys. Weight and height need to be compared to sex- and age-specific WHO standards to determine how many z-scores they are above or below the median (nutritional status). The other extreme is the final evaluation of one program in Kenya in which mothers were asked to recall the weights of their children. The average of all the recalled weights was calculated and reported as the measure of nutritional impact.

6.5.3 Evaluating Applications

Technical evaluation panels need members that are experienced in food aid programming and the state of the art in MCHN interventions to avoid giving favorable ratings to applications that are not well designed or vice versa (not scoring excellent applications high). Several persons familiar with the review process that were interviewed in the FAFSA-2 gave this as one of the main reasons why certain programs that were not state of the art had gotten approved, e.g., recuperative feeding. Technical reviewers should be selected carefully, with an emphasis on their qualifications and relevant experience. Additionally, USAID/FFP should include in its RFAs a list of interventions and approaches that it is not interested in funding, because they are ineffective, and a list of promising approaches to consider. Reviewers should be oriented by USAID/FFP not to give high scores to applications with approaches that do not work, referring to the guidelines in the RFA. Programs that are poorly designed, once approved, are difficult to redesign and get on track.

6.5.4 Learning from Failure

The increase in child undernutrition that apparently resulted from increasing mothers’ agricultural workloads after the introduction of irrigation in programs in Chad and Mali raises questions of how USAID/FFP ensures that mistakes are not repeated and that the broader Title II community of practice learns from the experience of specific programs. Both Awardee and USAID/FFP staff in-country and in the regional and headquarters’ offices have a role to play in ensuring that lessons are learned from failures as well as successes. But the challenge

is how to do this in a constructive way without backlash or retribution.²³⁶

6.5.5 Local Fortified Complementary Foods as a Long-Term Solution

There is a need for affordable, nutritious, convenient, fortified complementary foods (FCF) as part of a *long-term* solution to undernutrition in the USAID/FFP focus countries. The WFP has been assisting production of locally processed, affordable, convenient FCF made from corn and soybeans, and fortified with micronutrients, like *Vitacereal* in Guatemala and *Likuni Phala* in Malawi, under its Purchase for Progress (P4P) program in collaboration with UNICEF. *Incaparina*, an older FCF in Guatemala, is widely available commercially. Under the Bolivia national nutrition policy, an FCF, *Nutribebe*, is produced locally from rice flour, dried milk, sugar, vegetable oil, and micronutrients, and distributed free through health services. There are many challenges to producing FCF for children 6–23 months that have the optimal nutrient/energy density and long shelf life. Many available FCFs, including CSB, remain sub-optimal. However, well-formulated, local FCFs could be important to ensuring sustainability and long-term availability for young children to replace Title II fortified-blended foods (FBF). More emphasis also needs to be put on preparing healthy ready-to-eat foods that young children can snack on, given mothers'/caregivers' time constraints. Convenience is part of the success of Plumpy'Nut®. How can Title II contribute to these efforts toward long-term, sustainable access to FCF? Assisting local production of FCF through the P4P program is an advantage WFP has over Title II, which has only been doing local and regional procurement in emergency programs. What role, if any, should Title II MCHN direct food distribution play in countries that are working to subsidize and make local FCF available to lower-income groups as a policy? Avoiding duplication can be a challenge. Experimenting with local and regional procurement of foods for MCHN activities in Title II development programs could be an interesting option, including

giving families cash vouchers for local foods, as has been done in emergency programs.

6.6 Conclusions and Recommendations

6.6.1 Conclusions

Impressive results overall. Title II development food aid supported more than 15 proven, high-impact HN interventions in the 69 programs reviewed in 23 countries. Impressive HN outcomes and improvements in child nutritional status were achieved by applying a number of effective approaches and integrating services in nutrition, MCH, family planning, WASH, and malaria. Most importantly, many children are alive and have been spared ill health and life-long disabilities thanks to Title II programs. The program experiences and results data of Awardees contributed a wealth of evidence on what works in Title II MCHN programming, and what does not, consistent with published evidence.

- **Title II resources dedicated to the HN technical sector remained unchanged.** While most Title II programs included HN activities, the decline in Title II resources dedicated to the HN technical sector found in the earlier FAFSA was not reversed during the FAFSA-2 time period. In FY 2009, 29 percent of the total cost of Title II was spent on HN (excluding HIV and WASH).
- **Africa lagged behind.** The problem of underinvesting specifically in HN (excluding HIV and WASH) was limited to Africa, where only 17 percent of Title II development resources were spent on HN in FY 2009. Title II programs in Africa contrast sharply to programs in Asia, which spent four times more on HN (70 percent), and LAC programs, which spent three times more (53 percent). These same discrepancies between programs in Africa and those in other regions were present in FY 2003 at the start of the FAFSA-2 time period and did not improve after the USAID/FFP Strategic Plan went into effect.

²³⁶ See <http://www.admittingfailure.com>.

- **Essential Nutrition Actions.** An impressive 70 percent of programs worked on four or more of the ENA. The most common interventions were community-based behavior change to improve IYCF practices (breastfeeding, complementary feeding, and feeding sick or severely malnourished children). Less attention was paid to women’s nutrition interventions, which was also a finding of the 2002 FAFSA. Few programs included improving intake of iron and folic acid supplements to reduce anemia in women or children (17 percent). More programs (62 percent) worked to improve coverage of vitamin A supplementation for women and children.
- **Nutrition outcomes.** The most widely implemented intervention—by 93 percent of programs—was breastfeeding promotion, with 81 percent measuring changes in early initiation of or exclusive breastfeeding and 71 percent achieving improvements. Major increases in exclusive breastfeeding rates for infants 0–6 months were reported by several programs. It is of concern that, although 90 percent of programs worked on complementary feeding, only half of the programs measured their results; 70 percent of those with indicators reported improving practices. Similarly, half of programs measured feeding practices for sick and severely malnourished children and 71 percent achieved improvements. The USAID/FFP standard indicator for complementary feeding—“minimum acceptable diet”—is a must to measure. Baseline levels on this indicator in breastfed children 6–23 months of age are abysmal and need much more focus. One-third of programs measured receipt of vitamin A supplements by children and 68 percent improved coverage. Least measured were women’s nutrition results, reported in only 11 percent of programs, but with improvements achieved in 86 percent of those. Having BMI in the 2011 revised USAID/FFP standard indicators should help programs emphasize women’s nutrition more.
- **Complementary feeding** interventions could have been stronger and are critical to achieving greater nutritional impact. The FAFSA-2 found

Box 6.15. MCHN Policy Implications

To maximize the nutritional impact of Title II development food aid, more attention must be paid to:

- Targeting women and children in the first 1,000 days
- Making prevention the goal
- Improving complementary feeding practices
- Including *preventive*, conditional supplementary feeding as an essential intervention
- Developing an Africa Initiative to close the MCHN intervention gaps that the FAFSA-2 identified there

that complementary feeding was like a “black box” in the programs reviewed because so little was known about it, but prefers to use the analogy of an “empty bowl.” A child’s bowl (if the child has one) is “empty” due to a number of weaknesses. One gap is that few Awardees conducted formative research on IYCF practices to strategically design and implement nutrition counseling. Performance data were rarely collected to measure if messages were adopted or to determine how empty or full the child’s bowl was. Knowing little about the actual complementary feeding practices is analogous to flying blind. The quality of the diet is a big problem that a number of programs worked to improve, but often without due recognition that the inadequate quantity of food eaten is also a problem. Old-fashioned nutrition education lectures on the day of food distribution were too often the main approach, versus child-specific, effective interpersonal counseling to the “right mother with the right message at the right time.” Community workers had weak interpersonal counseling skills and often lacked educational materials. Indeed, only about half of the programs

reviewed reported providing any counseling at all. In some cases, the ratio of workers to families to be covered was too small, leading to infrequent contact and distant or facility-based, rather than community-based, programs.

- **Supplementary feeding.** A major finding is that one-third of the 69 MCHN programs reviewed did *no* direct food distribution to women or children; 19 of the 22 programs without supplementary feeding were in Africa. Most of the no-food-assistance programs used a PD/H approach (81 percent). Not providing food supplements to very vulnerable mothers and young children in Title II programs that could have was a mistake given the high rates of undernutrition where these programs worked and the missed opportunity to have a positive nutritional impact.
- **Supplementary feeding for prevention and recuperation.** Of the 47 MCHN programs that did provide supplementary feeding, 33 (70 percent) used food aid for preventing undernutrition, distributing rations to all pregnant and lactating women and children in a selected age group in the target area. In the remaining 14 programs (30 percent), eligibility for food rations was restricted to malnourished children for a limited period of time, for the purpose of their recuperation. Among programs reviewed in Africa, only 12 percent did preventive supplementary feeding, versus 75 percent of programs in Asia and 87 percent of programs in LAC, where prevention was the norm.
- **Little rationale for the ration design.** There was tremendous variation in rations within countries and across countries, from programs that gave none to a recuperation program that gave 38 kg per month to a pregnant or lactating mother and her malnourished child. Within programs doing supplementary feeding for prevention, the range was from 4.0 kg to 14.3 kg per month for individual mother-child rations. In prevention programs with both individual and household rations, the range was from 16.2 kg to 36.4 kg, often exceeding the current illustrative PM2A rations (FANTA, 2010). Most of the imprecision in rations is due to a lack of data on actual dietary intakes of mothers and children, intra-household distribution, and deficits compared to recommended nutrient intakes in the populations served. Inadequate dietary intake is the immediate cause of undernutrition, apart from disease. Not knowing about dietary intake impairs the cost-effective use of supplementary feeding and SBCC to improve food consumption and thereby reduce undernutrition.
- **Did programs target women and children in the first 1,000 days?** Most did not. In 33 programs that provided food rations for prevention, nearly all served children under three years, but only 39 percent were targeted appropriately to children 6–23 months of age. In 14 programs that distributed food rations only for recuperation of undernutrition (usually not wasting), only 7 percent of the recuperative feeding was targeted to children 6–23 months. More than half of the programs distributed food rations to children over three years, despite the evidence that stunting in older children is mostly permanent and prospects for recuperation are slim. Since stunting occurs before two years of age, low weight-for-age detected in children above that age is often due to their weight being proportional to their retarded height. Stunted older children with low weight-for-age, but normal weight-for-height, would not usually recover from low weight-for-age, and, if they did, it would indicate that they had become overweight for their height.
- **Health interventions.** Many Title II programs supported health interventions critical to maternal and child survival and prevention of undernutrition caused by infections. The most common were: (1) hygiene improvement (78 percent), (2) immunization (72 percent), (3) treatment of child illness (64 percent), and (4) birth preparedness and maternity services (58 percent). Less common were: (1) deworming (33 percent), (2) family planning (35 percent), (3) malaria prevention (23 percent), and (4) newborn care and treatment (9 percent). Title II programs supported and strengthened existing health services and followed national norms. One very effective approach to achieving

high coverage was outreach from health centers at Child Health Days where immunization, vitamin A, growth monitoring and promotion, food supplements, and other services were delivered. Community case management of child illness was also successful. Greater impact on child nutrition and survival could be achieved if more programs integrated community-based, voluntary family planning services and information into the basic package. The recent efforts of USAID/FFP and GH/PRH to encourage integration of family planning in Title II programs are a positive step.

- **Health outcomes.** The most common indicators—measured by 59 percent of programs—were hygiene practices; 74 percent of these programs achieved improvements. More significant is the success in preventing diarrhea in young children. Forty percent of Title II programs measured changes in diarrhea prevalence and half of these programs documented reductions. Seven programs achieved an impressive average annual reduction in diarrhea of four percentage points. Around half of the programs had indicators for the following interventions, with the percentage of programs that improved these outcomes shown in parentheses: immunization (82 percent), treatment of child illness (71 percent), and prenatal care (85 percent). Of the 11 percent of programs that measured malaria prevention with ITN or IPT, 67 percent showed increased use. The few programs that measured family planning indicators (10 percent) had impressive results. The average increase in contraceptive use in five programs was two percentage points per year. Across four programs in Haiti, the mean birth interval increased from 31.9 months to 42.4 months.
- **Approaches that work.** Targeting pregnant and lactating women and children under two years, Child Health Days, FADUA principles of complementary feeding, SBCC with the right message to the right person at the right time based on formative research on maternal dietary and IYCF practices, counseling following the five steps, home visits, community mobilization,

client-centered CBGP, at least monthly contact between workers and clients in the community, and cross-program learning are all examples of approaches that work according to the results of this review. A much lower percentage of Africa Title II development programs did some of the more effective approaches, i.e., Child Health Days (26 percent), nutrition counseling (50 percent), and home visits (35 percent), compared to programs in the Asia and LAC regions.

- **Approaches that do not work.** No CHW or a high client-worker ratio, facility-based or distant delivery of services, multipurpose agricultural extension/nutrition workers, infrequent contact between workers and clients, increasing mothers'/caregivers' workloads to the detriment of child care and nutrition, stand-alone PD/H without community- and population-based prevention, general nutrition and health education talks as the main SBCC approach, and stand-alone home economics are examples of approaches that did not contribute to reaching MCHN targets.
- **Promising Practices.** Integrating information and services for family planning and healthy timing and spacing of pregnancies, QI, male involvement, local nutrition advocacy, and Care Groups are promising practices identified by Awardees.
- **PD/H was not successful** in most places where it was tried for numerous reasons. Nearly half of all Title II programs reported PD/H as a principal nutrition approach, 59 percent in Africa. A major weakness is that the PD/H focus on treatment led to the neglect of or no efforts to *prevent* stunting and underweight in under twos (key measures of Title II program impact) or to improve maternal nutrition during pregnancy and lactation. The PD/H programs were very small scale—average enrollment was only 367 malnourished children per year *per program*. The success rate with recuperating malnourished children was disappointing: only 48 percent on average gained adequate weight. The approach was often misapplied, i.e., the essential elements or delivery of the intervention in appropriate settings were not effectively implemented.

- **Limitations of impact evaluation surveys.** Final evaluation surveys were completed and reported for 54 programs. However, a high percentage of these evaluation surveys (46 percent) had limitations, so the data could not be used. Problematic surveys with data that cannot be used waste effort and resources and do not contribute reliable information on the impact of the programs involved.
- **Nutritional status impact.** The FAFSA-2 analyzed the impact on child nutritional status of Title II MCHN programs using data reported from impact evaluation surveys with no known limitations—28 programs with weight-for-age data and 28 with height-for-age data, not necessarily the same 28 programs for both measures. The median length of time between baseline and final evaluations was four years. These programs had a bigger impact on stunting, reducing it by 1.32 percentage points per year, than on underweight, which declined by 0.63 percentage points per year. These declines were greater than the DHS secular trend changes in stunting and underweight for a number of the same countries. There were marked differences in reducing chronic undernutrition between regions, with 17 programs in the combined Asia and LAC regions achieving a bigger average annual reduction of 1.53 percentage points, compared to 11 programs in Africa, where stunting fell only 0.98 percentage points per year. No regional differences were seen in reducing low weight-for-age. These differences in impact track with the differences in Title II program interventions, approaches, and budgets for MCHN across the regions.
- **More successful programs.** Fourteen programs in eight countries were able to reduce the prevalence of stunting at an annual rate greater than both the changes in stunting as measured by DHS in the same country and the average annual reduction in stunting achieved across 28 Title II programs. Furthermore, 8 of these 14 programs in six countries were also more successful at reducing underweight in children compared to DHS in the same country and to the average

annual reduction in underweight achieved across 28 Title II programs. Most programs with greater nutritional impact were in Asia or LAC. Common features of more successful programs were nutrition counseling to improve IYCF practices, targeting children under two or three years of age, and home visits. Most of the programs with little or no impact on stunting did not do these approaches, and a high percentage of them did PD/H.

- **Nutritional status impact by type of supplementary feeding.** Programs that provided MCHN preventive supplementary feeding achieved an average annual reduction in stunting of 1.69 percentage points, a decline three times greater than the DHS secular changes, and double that achieved in recuperative feeding only or no-food-ration programs (consistent with the PM2A research results in Haiti). Preventive supplementary feeding was also superior at reducing underweight. Clearly, a preventive approach to supplementary feeding, along with the integrated package of community and population-based SBCC and essential MCHN interventions delivered in these programs, has the biggest positive impact on nutritional status. This should be the norm in Title II programs going forward. Recuperative feeding only programs had the worst performance.
- **Are household rations necessary?** The FAFSA-2 analysis found that preventive MCHN programs with only individual rations had greater impact on reducing stunting (1.91 average annual percentage point reduction), and double the reduction in underweight (1.37), compared to programs with individual plus household rations. The FAFSA-2 found no evidence that large household rations are necessary as incentives for greater program participation, less intra-household sharing of the mother-child rations, or improved dietary intake and nutritional status of beneficiary mothers and children, compared to individual rations. Research is needed on these questions. Meanwhile, many more people could be reached by not providing such large rations to so few families, which may create issues with the Bellmon Amendment,

dependency, and sustainability concerns. Large food transfers may convey the message to families that every member of the household is a priority in the program, taking the spotlight off the mother and child in the 1,000-day window of opportunity and off the urgency of improving their diets and care.

- **Reducing undernutrition.** No direct MCHN food distribution, no preventive supplementary feeding, no focus on MCHN in Ethiopia, and not focusing on children under two years of age together equal a large amount of development food aid that was not used to reduce undernutrition during the FAFSA-2 time period. Turning “not doing” into “doing” in the future could have a big impact on preventing undernutrition in the first 1,000 days in USAID’s focus countries for Title II development food aid, especially in Africa, where the program gaps were the greatest throughout the FAFSA-2 time period.

6.6.2 Recommendations

Implementers of Title II development food aid programs have made great strides in using this invaluable resource to improve the health and nutritional status and survival of millions of women and children. Insights gained through firsthand experience and results data should be used to maximize the impact and efficiency of Title II MCHN activities. That is the intent of the following recommendations.

Policy and Priorities

- USAID/FFP should engage in policy dialogue with host government leaders in focus countries that do not currently allow MCHN preventive, conditional supplementary feeding, with the FAFSA-2 evidence and the SUN Framework as talking points. USAID Missions and U.S. embassies should lead these efforts. If unsuccessful in changing unsound policies, it would be better not to do Title II MCHN interventions in such countries. In several Title II focus countries, FANTA is assisting national nutrition advocacy efforts with Mission funding, and USAID/FFP could leverage these activities.

- USAID/FFP should make sound host government nutrition policies a criterion for selecting USAID/FFP focus countries.
- USAID/FFP should give top priority to an Africa Initiative to make existing and future Title II MCHN programs there more effective by closing the intervention gaps identified in the FAFSA-2, namely, underinvestment in MCHN (only 17 percent of total Title II resources in FY 2009), less impact on stunting than programs in other regions, high percentage of MCHN programs with no supplementary feeding (56 percent) and 73 percent of those with supplementary feeding doing the less effective recuperative feeding only model and only 12 percent doing the more effective preventive supplementary feeding model, no interpersonal counseling to improve feeding practices (50 percent), no Child Health Days (74 percent), no home visits (65 percent), no MCHN in Ethiopia, and doing PD/H as a stand-alone approach (59 percent). (**Recommendation 32**)²³⁷
- USAID/FFP should disapprove programs with no MCHN preventive, conditional supplementary feeding in countries with a prevalence of acute malnutrition of 5 percent or more or a prevalence of stunting equal to or greater than 30 percent.

Qualified Staff

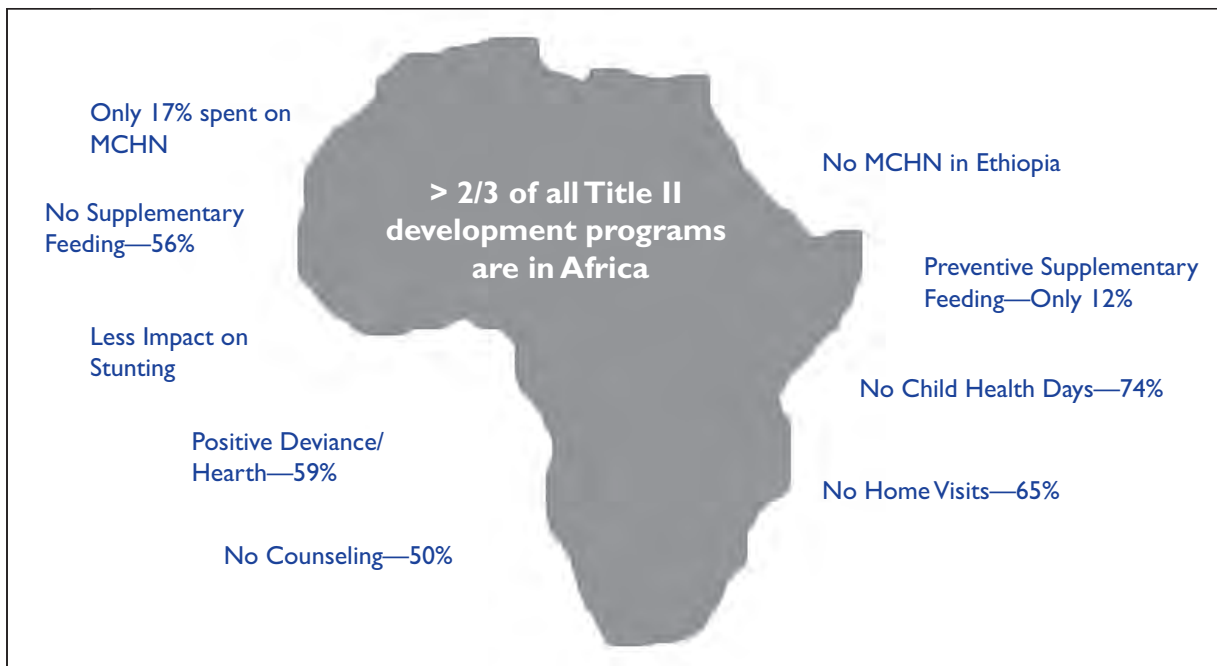
- USAID/FFP should require basic nutrition training and certification of USAID/FFP staff. (**Recommendation 38**)
- USAID/FFP should require nutrition credentials and experience in Awardees’ key personnel. (**Recommendation 38**)

Program Strategy and Design

To maximize the HN impact, effectiveness, and efficiency of Title II MCHN activities the following principles should be respected by USAID/FFP and Title II Awardees.

²³⁷ The numbers after certain recommendations are the same as those assigned to the major recommendations in the FAFSA-2 summary report.

Figure 6.18. An *Africa Initiative* is Needed to Fill MCHN Program Gaps in Title II



- **Where to work.** Within focus countries, target geographic areas with a prevalence of stunting equal to or greater than 30 percent and underweight equal to or greater than 20 percent.²³⁸ Make programs community-based.
- **Target group.** All women and children in the 1,000 days from pregnancy through two years. (**Recommendation 33**)
- **Intervention package.** The description of interventions in the USAID/FFP FY 2013 RFA is good. Implementers need to ensure delivery of all six of the ENA interventions (except iodine), plus conditional, preventive supplementary feeding, and preventive and curative health services by

directly providing each of these or linking with complementary programs and partners that are currently working on these interventions with the same target population. (**Recommendation 33**)

- **Keep doing approaches that work.** Child Health Days; FADUA principles of complementary feeding; formative research on IYCF practices; community- and population-based SBCC to the right persons with the right messages at the right time; counseling following the five steps; home visits; client-centered CBGP; frequent, community-based contact of workers with clients (at least monthly); community mobilization; and cross-program learning. (**Recommendation 36**)

Do more of these interventions:

- **Complementary feeding behavior change.** Make improving complementary feeding practices and counseling skills of CHWs a top priority. Programs must measure the indicator “minimum acceptable diet.” MCHN programs should do formative research on IYCF practices, if this has not been done for their target area, with findings disaggregated by sex. USAID/FFP should require this and have Awardees submit reports on their research findings with their annual reports. Use

²³⁸ These nutritional geographic targeting criteria are already recommended in the Title II TRM for PM2A. The FAFSA-2 recommendation is that both be required. Given the tendency to continued high stunting rates, but declining prevalence of underweight and increasing prevalence of overweight in some countries, e.g., Guatemala, it is important to focus Title II supplementary feeding in communities that suffer from both high stunting and underweight. See also Question #19 concerning overweight women and children in the FY 2013 RFA for Title II development programs in Zimbabwe—Annex II—and “Questions and Answers on Health and Nutrition Programming.” http://transition.usaid.gov/our_work/humanitarian_assistance/ffp/fy13.finalrfa.pdf.

the TOPS project to fund some formative research small grants and hands-on training in qualitative research methods and improved interpersonal counseling skills. (**Recommendation 35**)

- **Deworming** of children and pregnant women.
- **Family planning and healthy timing and spacing of pregnancy.** Partner with stakeholders and other organizations to make information and services readily accessible to Title II MCHN beneficiaries, preferably at the community level. Get GH/PRH and USAID Missions to complement Title II resources with health funds.
- **Maternal nutrition.** Address diet, anemia and iron/folic acid supplementation, workload, and male involvement with a focus on pregnant and lactating women, as well as adolescent girls. Measure BMI.
- **Local nutrition advocacy.** Make stunting and its consequences visible to local leaders so that they recognize the problem and own the solution. Share community nutritional status data, and win commitment to tackling the problem. Start a Social Movement—the “S” in SBCC.

Do not do approaches that do not work:

- **The following are ineffective:** no CHW or a high client-worker ratio (> 100 clients/CHW), facility-based or distant delivery of services, multipurpose agricultural extension/nutrition workers instead of dedicated CHWs, infrequent (less than once per month) contact, recuperative feeding only (without prevention), no MCHN direct food distribution, increasing women’s workloads to the detriment of maternal and child nutrition and care, stand-alone PD/H without community- and population-based prevention, general nutrition and health education talks as the main SBCC method, and stand-alone home economics.
- USAID/FFP should not approve new programs with any of the ineffective approaches mentioned previously.
- **Do no harm.** USAID/FFP should review ongoing Title II MCHN programs that have several years of implementation remaining that are doing

recuperative feeding only, including CMAM only (e.g., CRS/Malawi, MC/Uganda, CPI/Niger) or providing no direct food assistance to women and children (Mozambique and Ethiopia programs, Africare/Chad, Africare/Mali and CRS/Mali), or doing stand-alone PD/H, in light of the FAFSA-2 findings. These programs should be redesigned and formally amended to increase their prospects for improving nutritional status during the remainder of the agreements by adding preventive supplementary feeding. Reviews of the Chad and Mali programs should verify that measures are in place to address increasing women’s workloads, e.g., in irrigation activities, and to prevent any negative consequences on children’s nutritional status. (**Recommendation 37**)

Supplementary Feeding

- USAID/FFP should fund collection of quantitative dietary intake data from pregnant and lactating women and children 6–23 months in geographic target areas in several focus countries (e.g., representative of subregions of Africa, plus Haiti, Guatemala, and Bangladesh) to scientifically inform decisions on the minimum nutrient content and size of standard rations. The goal is to maximize the efficiency of food aid to prevent undernutrition in more women and children through least-cost, most-nutritious, effective supplementary feeding. Data should be collected in Title II programs at baseline prior to starting supplementary feeding and during supplementary feeding. This might be done with TA by MEASURE DHS, USDA, the United States Centers for Disease Control and Prevention (CDC), other research institutions including local ones, or the Awardees.
- USAID/FFP should discourage Awardees from doing new programs with preventive individual plus household rations with greater than 16 kg of food per month until there are data from PM2A or operations research that show that this approach is more cost-effective for increasing dietary intake, nutritional status, and program participation than individual rations. The FAFSA-2 analysis did not find any evidence that these large

plus-ups with household rations are necessary.
(**Recommendation 34**)

- USAID/FFP should harmonize MCHN rations for all programs in the same country. Include guidance on harmonized rations in the country-specific information with the RFA for new applications.
- USAID/FFP should consider centrally planned, standardized, nutrient content for MCHN rations worldwide, in the absence of target-area-specific dietary intake data. Commodities would vary based on local preferences, but the mix would meet standard nutrient content specifications. This could be a more cost-effective use of scarce food resources to benefit more people. This idea tracks with the set serving size and nutrient content of improved CSB and oil rations for children 12–36 months of age recommended in the FAQR (Webb et al., 2011).
- USAID/FFP should conduct operations research on MCHN preventive, conditional supplementary feeding and share results to shape USAID/FFP guidance. Some research topics would be: (1) a comparison in ongoing programs of communities and households with individual plus household rations and others with just individual rations in terms of effect on cost, nutrient intake, participation, and nutritional status to complement ongoing PM2A research; and (2) feasibility and effectiveness of a one pregnancy cycle targeting approach.

Applications for New Title II Programs

- Applicants should describe what type of community worker, how many, and what the client-CHW ratio will be. The application should state how many beneficiaries in the 1,000-day window will get each of the main interventions and what percent of the total population in the target geographic area they represent (scale and coverage).
- USAID/FFP should make successful past performance in reducing undernutrition in Title II programs an important evaluation criterion and

include evaluation results and lessons learned from Awardees' prior programs as part of the review for new programs. Both Awardee and USAID/FFP staff in-country and in the regional and headquarters offices have a role to play in ensuring learning from past programs to shape future programs in the same country.

Implementation

- **Do better.** Provide Awardees with more direction, standardization, and TA from USAID/FFP/ Washington, regional and Mission-based FFP officers, FANTA, and the TOPS project to put the evidence of what works and what does not into practice.
- Awardees should monitor their implementation compared to standards for the interventions and approaches used (essential elements, minimum criteria, state of the art) and work to improve quality. Many organizations have already developed their own performance standards, but the TOPS project could compile and develop harmonized MCHN checklists and tools for measuring performance, counseling, home visits, monitoring, and supervision. Awardees should use these to measure compliance with performance standards and progress in QI.

Monitoring and Evaluation

- The client-CHW ratio should be monitored for compliance by USAID/FFP during implementation. It would be good to have programs report on this indicator.
- Service delivery indicators should be for children under two, e.g., percent participation of under twos in CBGP, home visits to under twos, not under threes or under fives, to be consistent with the focus on children under two years of age in the first 1,000 days.
- All programs should measure and report on the standard USAID/FFP indicators. "Minimum acceptable diet" should not be missing in IPTTs for programs working in MCHN. USAID/FFP should get ongoing programs to start collecting

data on these indicators, even if it means doing another survey.

- Awardees should count and report the number of beneficiaries in the first 1,000 days that received key interventions and what percent of the total population in the target geographic area they represent (scale and coverage). USAID/FFP and Awardees should work together to design a standard template and indicators for reporting on coverage and scale. All IPTTs should show the sample size for all indicators.
- USAID/FFP field monitors need to verify/audit Awardee reporting on direct beneficiaries.
- USAID/FFP should design a different place for Awardees to separately report family members that received MCHN household rations, if these rations are continued, and not report them as beneficiaries under HN Program Elements in tracking tables and AERs.

Gender Integration

- Take women's workloads and male involvement seriously through gender integration as required by USAID/FFP. Encourage programs to study,

monitor, and mitigate: (1) women's workloads as a potential determinant of poor pregnancy outcomes, maternal undernutrition, poor IYCF and care practices, and child undernutrition; (2) changes in women's workloads due to Title II program activities, such as irrigation, agriculture, microenterprise, income generation, homestead food production, MCHN, and WASH; and (3) ways to involve men to reduce women's workloads and improve IYCF and care practices. USAID/FFP called for describing the impact of project activities on women's workloads in its FY 2012 and FY 2013 RFAs for development programs, providing a basis for follow-up on this recommendation. USAID/FFP should use the real experiences from Chad and Mali to caution all Awardees to monitor and mitigate any negative MCHN consequences of Title II activities that increase women's workloads.

Innovation to Shape the Future

- USAID/FFP and Awardees should explore partnering with stakeholders and other organizations to develop and promote locally produced, nutritious, convenient, affordable FCF to replace Title II FBF in the long term.

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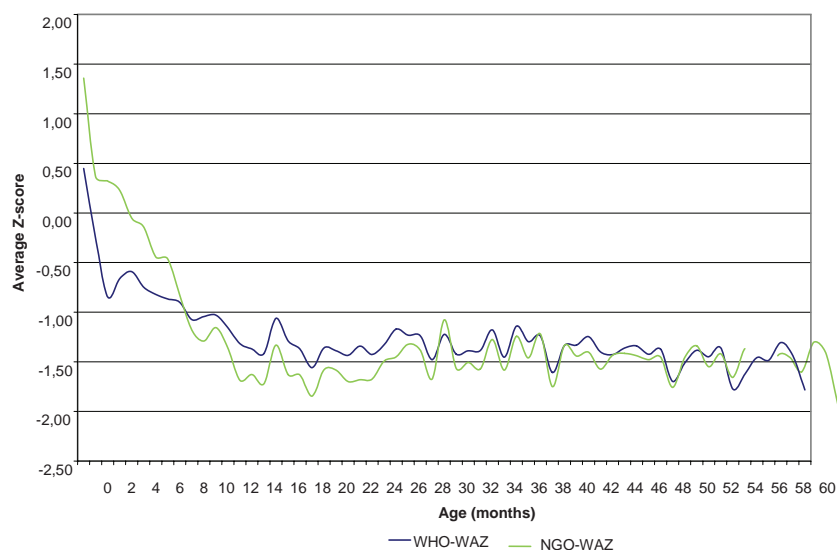
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Annex 6.1. FAFSA-2 Examples of the Early Onset of Undernutrition in Children in the First Two Years of Life from Title II Programs, Measured as Mean Z-Scores

Weight-for-Age Z-Scores (WAZ)

Indonesia (Pooled baseline data from CARE, CRS, MC, SC, and WV FY 2005–FY 2008 Programs—WHO vs. National Center for Health Statistics [NCHS] standards)

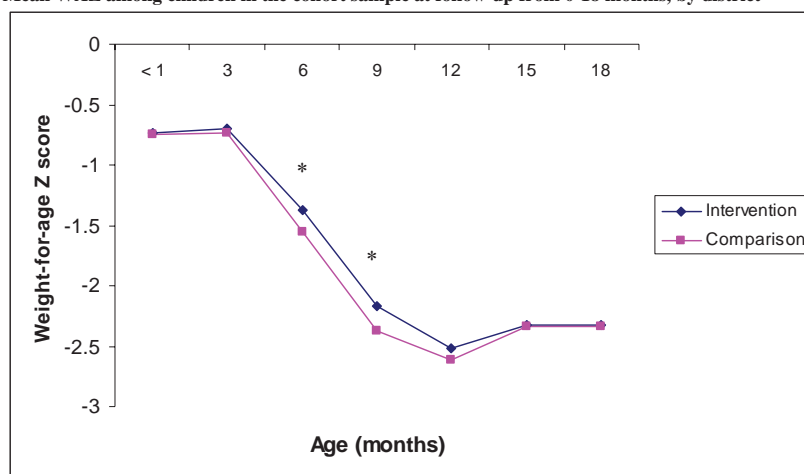
Source: McNulty and Pambudi, 2008, p. 40.



India (Endline intervention vs. comparison cohort, CARE FY 2002–FY 2006, NCHS standards)

Source: Dreyfuss et al., 2008, p. 142.

Mean WAZ among children in the cohort sample at follow-up from 0-18 months, by district

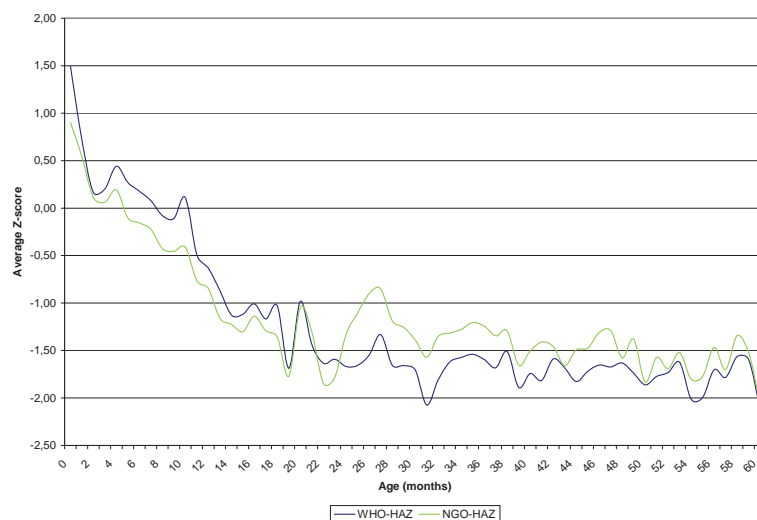


* Student t test comparing means by district, significant at $p < 0.05$.

Height-for-Age Z-Scores (HAZ)

Indonesia (Pooled baseline data from CARE, CRS, MC, SC, and WV FY 2005–FY 2008 Programs—WHO vs. NCHS standards)

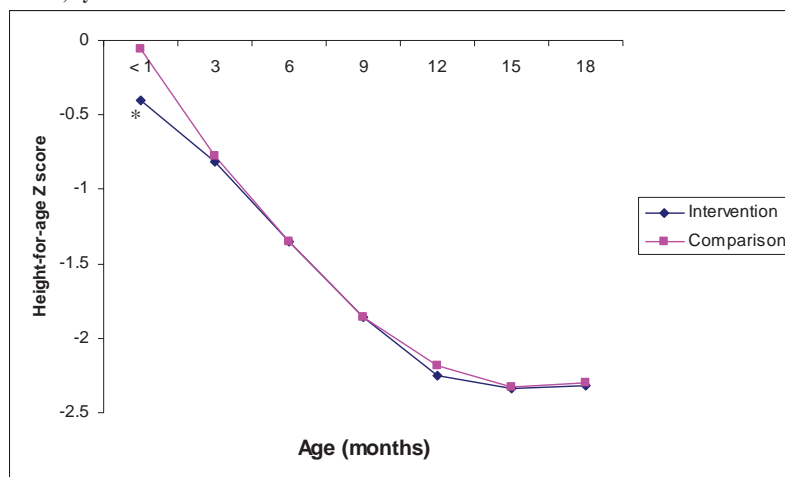
Source: McNulty and Pambudi, 2008, p. 41.



India (Endline intervention vs. comparison cohort, CARE FY 2002–FY 2006, NCHS standards)

Source: Dreyfuss et al., 2008, p. 144.

Mean height-for-age Z score (HAZ) among children in the cohort sample at follow-up from 0-18 months, by district



* Student t test comparing means by district, significant at $p < 0.05$.

Ghana (Endline CRS FY 2003–FY 2008, NCHS standards)

Source: Galaa and Saaka, 2008, p. 25.

