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TITLE II TECHNICAL REFERENCE MATERIALS

TRM-01: PREVENTING MALNUTRITION IN CHILDREN
UNDER 2 APPROACH (PM2A): A FOOD-ASSISTED
APPROACH

VERSION I: OCTOBER 2009



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TABLE OF CONTENTS

FOREWORD	I
ACKNOWLEDGMENTS	II
ACRONYMS AND ABBREVIATIONS	III
I. PREVENTING MALNUTRITION IN CHILDREN UNDER 2: A TECHNICAL OVERVIEW	I
1.1 BRIEF DESCRIPTION OF PM2A	1
1.1.1 What is PM2A?	1
1.1.2 Core Services	1
1.1.3 Program Beneficiaries	2
1.1.4 Eligibility Criteria	2
1.2 EVIDENCE-BASE	3
1.2.1 Why Target Children from Conception to 24 Months?	3
1.2.2 Why Focus on Prevention?	3
1.3 WHERE IS PM2A APPROPRIATE?	4
2. CORE PM2A SERVICES	6
2.1 RATIONS	6
2.1.1 Objective of Rations	6
2.1.2 Ration Recipients	6
2.1.3 Conditions for Receiving Preventive Rations	7
2.1.4 Ration Design	7
2.1.5 Ration Composition	8
2.1.6 Ration Size	9
2.1.7 Individualized Versus One-Size-Fits-All Rations	12
2.1.8 Illustrative PM2A Rations	13
2.2 COMMUNITY AND HOUSEHOLD BEHAVIOR CHANGE PROGRAMMING	16
2.2.1 Why to Focus on Behavior Change	16
2.2.2 Key Behaviors	16
2.2.3 Key Behavior Change Programming Principles	17
2.2.4 Examples of Common Behavior Change Activities	18
2.3 PREVENTIVE AND CURATIVE HEALTH AND NUTRITION SERVICES	21
2.3.1 Reasons to Include Preventive and Curative Health and Nutrition Services	21
2.3.2 Description of Preventive and Curative Health and Nutrition Services in PM2A	22
3. PROGRAM DESIGN	25
3.1 LINKING WITH OTHER MYAP FOOD SECURITY ACTIVITIES	25
3.2 COVERAGE	25
3.3 COMMUNITY OUTREACH	26
3.4 FORMATIVE RESEARCH	26
3.5 ADDRESSING ACUTE MALNUTRITION	27
3.5.1 SAM in Children Under 5	27
3.5.2 MAM in Children 24-59 Months	27
3.6 SUSTAINABILITY	28
3.7 COST CONSIDERATIONS	28
3.7.1 Program Inputs	29
3.7.2 Staffing	29
3.7.3 Direct Program Implementation	29
3.7.4 Technical Assistance Needs	30
4. PROGRAM IMPLEMENTATION	31
4.1 PROGRAM START-UP	31
4.2 SERVICE DELIVERY POINTS	31

4.2.1 Key Principles.....	31
4.2.2 Food Distribution	31
4.2.3 Behavior Change Contact Points.....	31
4.2.4 General Health Services	33
4.3 QUALITY ASSURANCE (QA)	33
4.3.1 Operations Research (OR).....	34
4.3.2 Quality Improvement and Verification Checklists (QIVC)	34
4.3.3 Client-Oriented, Provider-Efficient Services (COPE)	34
4.3.4 Partnership Defined Quality (PDQ)	36
4.3.5 Quick Investigation of Quality (QIQ).....	36
4.4 STAFFING NEEDS	37
5. MONITORING AND EVALUATION.....	38
5.1 TITLE II M&E GUIDELINES.....	38
5.1.1 Monitoring.....	38
5.1.2 Evaluation.....	38
REFERENCES.....	41

BOXES

BOX 1. WHERE IS PM2A APPROPRIATE?	5
BOX 2. PROGRAM EXAMPLE OF HOUSEHOLD RATION USED AS AN INCENTIVE.....	10
BOX 3. KEY BEHAVIORS TO PROMOTE	17
BOX 4. KEY QUESTIONS FOR DEVELOPING A BEHAVIOR CHANGE STRATEGY	18
BOX 5. REFERENCES FOR DESIGNING BEHAVIOR CHANGE INTERVENTIONS.....	21
BOX 6. REFERENCES FOR PREVENTIVE AND CURATIVE HEALTH SERVICES AND HEALTH SYSTEMS STRENGTHENING.....	24
BOX 7. RESOURCES FOR CONDUCTING FORMATIVE RESEARCH.....	27
BOX 8. REFERENCES FOR QUALITY ASSURANCE METHODOLOGIES.....	37
BOX 9. FFP REQUIRED MYAP M&E INDICATORS.....	39
BOX 10. REFERENCES FOR M&E OF TITLE II MYAPS	40

FOREWORD

The Title II Technical Reference Materials (TRMs) are a new series of documents that provide programming guidance to help improve the design and/or implementation of Title II Multi-Year Assistance Programs (MYAPs). Each TRM will be developed in consultation with Title II Awardees, private voluntary organization (PVO) partners, United States Agency for International Development (USAID) Office of Food for Peace (FFP) staff and subject-matter experts.

The TRMs provide concise, general technical guidance for program design and are not meant to provide a recipe for programming. They are not exhaustive, and guidance should be adapted to a country's context and to individual MYAP circumstances. Where possible, references and supplementary materials that provide more in-depth information have been provided. All TRMs in the series may be refined over time to incorporate new evidence or additional details about successful field practices.

The primary audience of the TRMs is the staff and consultants of organizations that are designing new or implementing existing MYAPs. Other food-assisted programs engaged in international development or developmental relief activities may also find the TRMs useful. Some TRMs will offer non-food-related programming guidance that will be useful to non-food-assisted international development interventions.

Note on the PM2A TRM: This version of the Preventing Malnutrition in Children Under 2 Approach (PM2A) TRM (version 1) provides guidance for potential Awardees developing MYAPs for fiscal year (FY) 2010 and is based on current program knowledge and experience. This body of knowledge is continually growing. At this time, two effectiveness trials are underway and additional lessons will be learned through individual Awardee experiences implementing PM2A in their FY 2010 MYAPs. The PM2A TRM will be reposted as version 1.1 in the coming months with the same content and an improved layout. Version 2, with content updated in collaboration with Title II Awardees, will be posted in time for potential Awardees to develop FY 2011 MYAPs.

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ACRONYMS AND ABBREVIATIONS

ACDI/VOCA	Agricultural Cooperative Development International/Volunteers in Overseas Cooperative Assistance
ADRA	Adventist Development and Relief Agency
AED	Academy for Educational Development
BEST	Bellmon Estimation Studies for Title II
BCC	Behavior change communication
BCG	Bacille Calmette Guerin (tuberculosis vaccine)
BMI	Body mass index
CBGP	Community-based growth promotion
CHW	Community health worker
C-IMCI	Community-Based Integrated Management of Childhood Illness
CMAM	Community-based management of acute malnutrition
COPE	Client Oriented Provider Efficient services
CRG	USAID's <i>Commodity Reference Guide</i>
CSB	Corn-soy blend
CSHGP	Child Survival and Health Grants Program
DTP	Diphtheria-tetanus-pertussis vaccine
ENA	Essential Nutrition Actions
FACG	Food Aid Consultative Group
FANTA	Food and Nutrition Technical Assistance Project
FANTA-2	Food and Nutrition Technical Assistance II Project
FAO	Food and Agriculture Organization of the United Nations
FBF	Fortified-blended food
FFP	USAID Office of Food for Peace
FFPIB	Food for Peace Information Bulletin
FY	Fiscal year
g	Gram(s)
GM	Growth monitoring
GMP	Growth monitoring and promotion
HFA	Height-for-age
Hib	Haemophilus influenza b vaccine
HIV	Human immunodeficiency virus
IEC	Information, education and communication
IFPRI	International Food Policy Research Institute
IMC	International Medical Corps
IMCI	Integrated Management of Childhood Illness
INCAP	Instituto de Nutrición de Centro América y Panamá
IOM	Institute of Medicine at the United States National Academy of Sciences
IQ	Intelligence quotient
IR	Intermediate result
IRD	International Relief and Development

IU	International unit(s)
kcal	Kilocalorie(s)
kg	Kilogram(s)
M&E	Monitoring and evaluation
MAM	Moderate acute malnutrition
MCHN	Maternal and child health and nutrition
MEASURE	Monitoring and Evaluation to Assess and Use Results
MJ	Megajoule(s)
MUAC	Mid-upper arm circumference
MYAP	Multi-Year Assistance Program
MOH	Ministry of Health
NCHS	National Center for Health Statistics
NGO	Nongovernmental organization
OR	Operations research
PAHO	Pan American Health Organization
PDI	Positive deviance inquiry
PDQ	Partnership Defined Quality
PLW	Pregnant and lactating women
PM2A	Preventing Malnutrition in Children Under 2 Approach
PMTCT	Prevention of mother-to-child transmission of HIV
PVO	Private voluntary organization
QA	Quality assurance
QAP	Quality Assurance Project
QC	Quality of care
QI	Quality improvement
QIQ	Quick Investigation of Quality
QIVC	Quality Improvement Verification Checklist
SAM	Severe acute malnutrition
SAPQ	Standardized Annual Performance Questionnaire
SARA Project	Support for Analysis and Research in Africa Project
TIPS	Trials of improved practices
TRM	Technical Reference Materials
UNICEF	United Nations Children's Fund
UNU	United Nations University
USAID	United States Agency for International Development
WFA	Weight-for-age
WFH	Weight-for-height
WHO	World Health Organization
WSB	Wheat-soy blend

I. PREVENTING MALNUTRITION IN CHILDREN UNDER 2: A TECHNICAL OVERVIEW

I.1 BRIEF DESCRIPTION OF PM2A

I.1.1 What is PM2A?

The Preventing Malnutrition in Children Under 2 Approach (PM2A) is a food-assisted approach to reducing the prevalence of child malnutrition by targeting a package of health and nutrition interventions to all pregnant women, mothers of children 0-23 months and children under 2 in food-insecure program areas, regardless of nutritional status. Because they are the most nutritionally-vulnerable members of the population, the program targets everyone in these groups to protect children from malnutrition and its long-term consequences, including diminished psycho-motor skills, work capacity, intelligence quotient (IQ) and income.

PM2A integrates best practices in maternal and child health and nutrition (MCHN) programming and combines them with food assistance. It is an essential part of a multi-year assistance program's (MYAP's) MCHN component, which may also include activities such as recuperative interventions or water and sanitation activities. PM2A, along with the rest of a MYAP's MCHN component, should be consistently linked with the MYAP's agriculture and livelihoods components as well as with complementary services provided by the government or other organizations operating in the program area.

I.1.2 Core Services

Child malnutrition results from a set of underlying causes, including food insecurity; sub-optimal care and feeding of women and children; and poor health, hygiene and environmental behaviors and conditions. A MYAP must address as many of the underlying causes as possible to effect the greatest reduction in malnutrition. The provision of rations temporarily helps address food access issues, while efforts to increase incomes and agricultural production have longer-term effects; behavior change programming improves care and feeding practices; and the provision and strengthening of preventive and curative health and nutrition services helps ensure that children are sick less often and for a shorter duration, preventing malnutrition and death.

The following are the three core PM2A services provided to participants:

1. Conditional¹ food ration
 - a. Individual woman or child
 - b. Household
2. Preventive and curative health and nutrition services for children and women, according to national protocol
3. Behavior change communication (BCC)

¹ "Conditional" ration indicates that beneficiaries must participate in behavior change interventions and attend and receive a minimum package of preventive health services in order to receive the ration. Each MYAP will define the specific behavior change and health service requirements for participation based on program context.

1.1.3 Program Beneficiaries

In the program area, the following direct program beneficiaries are targeted:

All pregnant women, to help protect nutritional status during gestation, promote the optimal growth of the child in the womb and ensure adequate birth weight receive the following:

- An individual ration until the birth of the child
- Antenatal care and other preventive and curative health and nutrition services, according to national protocol
- Behavior change services

All mothers of children 0-23 months², to prevent nutritional depletion and ensure adequate quality of breast milk, receive the following:

- An individual ration until the child reaches 6 months of age
- Post-natal care and other general health and nutrition services, according to national protocol
- Behavior change services

All children under 2, to prevent growth retardation during a critical period of growth and development, when they are also at high risk of infection and death, receive the following:

- An individual ration from 6 through 23 months of age
- General health and nutrition services including immunization, according to national protocol
- Behavior change services targeted at mothers/caregivers/families

All households of beneficiary women and children receive a household ration to supplement family food supply and discourage redistribution of the individual ration.

1.1.4 Eligibility Criteria

PM2A has simple and transparent entry and exit criteria for people living in the program area: A child must be 0-23 months³ and a woman must be pregnant or the mother of a child 0-23 months, regardless of nutritional status.

To maintain their eligibility to participate in the program and receive individual and household rations, these women must attend and participate in a minimum package of regular preventive health services according to Ministry of Health (MOH) protocol and behavior change activities delivered by the PM2A program. Based on MOH protocol and local context, each MYAP will establish the minimum requirement a mother/caregiver must achieve in order to receive the PM2A ration. However, the program should be reasonable in establishing and enforcing the conditions, considering the constraints mothers/caregivers face and the availability of services. The overarching goal is to ensure that as many

² The program design, including the ration calculation, is based on the needs of lactating women. However, all mothers of children 0-23 months are eligible to participate regardless of breastfeeding status. This is to ensure that PM2A does not interfere with an HIV-positive mother's feeding decisions based on prevention of mother-to-child transmission of HIV (PMTCT) counseling and does not introduce stigma based on HIV status.

³ Children begin receiving preventive health services and benefiting from BCC at birth. They begin receiving the ration at 6 months.

mothers, children and households as possible receive health and nutrition interventions, BCC and rations; conditions for program participation should be consistent with that goal.

I.2 EVIDENCE-BASE

I.2.1 Why Target Children from Conception to 24 Months?

Conception through 2 years of age is the period of most-rapid physical growth and a critical time in cognitive development. A mother's nutritional status before and during pregnancy affects her child's health and development. Low maternal body mass index (BMI) is associated with intrauterine growth restriction and low birth weight, which in-turn put the infant at risk for neonatal complications.⁴

The period from birth to 2 years is critical because children in this age range have relatively-high nutritional needs to support growth and development. Sub-optimal feeding practices and high risk of illness and infection make children more vulnerable to growth faltering and malnutrition in the first two years of life than at any other time in the life cycle.⁵ Children in this age range are also most responsive to nutrition interventions.⁶ Research findings from several program sites have shown 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.⁷ Additionally, food supplementation and nutrition education interventions targeted to children 6-23 months and their caregivers have been shown to improve nutritional status in children as individual and combined interventions.⁸ Targeting this vulnerable age range maximizes benefits in terms of promoting linear growth and preventing the long-term physical and cognitive consequences of malnutrition.

I.2.2 Why Focus on Prevention?

In communities with a high prevalence of malnutrition, all children are vulnerable to growth faltering. Even children who are not classified as malnourished may not be growing optimally. In these vulnerable communities, preventing malnutrition and its long-term consequences by promoting and protecting growth for all children makes more sense than intervening after a child is malnourished.

The importance of prevention has been an accepted principle for years among public health and nutrition practitioners, and many food-assisted nutrition programs have focused their behavior change interventions on prevention, with a strong focus on women of reproductive age and children under 2.

⁴ Black et al. 2008. "Maternal and child undernutrition: global and regional exposures and health consequences." *The Lancet Series on Maternal and Child Undernutrition. The Lancet* 371: 243-60.

⁵ Shrimpton et al. 2001. "Worldwide Timing of Growth Faltering: Implications for Nutritional Interventions." *Pediatrics* 107 (5): E75.

⁶ Ibid.

⁷ Schroeder, D.G., et al. 1995. "Age Differences in the Impact of Nutritional Supplementation on Growth." *Journal of Nutrition Supplement: The INCAP Follow-Up Study. Journal of Nutrition* 125 (April) (4Suppl): 1051S-1059S; Lutter et al. 1990. "Age-specific responsiveness of weight and length to nutritional supplementation." *American Journal of Clinical Nutrition* 51: 359-64.

⁸ Roy, S.K., et al. December 2005. "Intensive Nutrition Education with or without Supplementary Feeding Improves the Nutritional Status of Moderately-malnourished Children in Bangladesh." *Journal of Health, Population and Nutrition* 23(4): 320-330 (January 1); Dewey, Kathryn G., and Seth Adu-Afarwuah. 2008. "Systematic review of the efficacy and effectiveness of complementary feeding interventions in developing countries." *Maternal and Child Nutrition* 4: 24-85; Bhandari, N, et al. 2004. "An educational intervention to promote appropriate complementary feeding practices and physical growth in infants and youth in rural Haryana, India." *Journal of Nutrition* 134: 2342-2348.

However, rations in these programs were often targeted to malnourished individuals only, provided in small amounts as an incentive for program attendance or not provided as part of the MCHN component. A 2002-2006 study of a Title II MYAP in Haiti⁹ compared a preventive approach targeting all program services (BCC, health services, ration) provided to pregnant and lactating women (PLW) and children under 2 with a recuperative approach providing similar services but targeting underweight (weight-for-age [WFA] < -2 Z-score) children under 5 and all PLW. The prevalence of stunting, underweight and wasting was lower in communities where the preventive approach was implemented than in the communities that only received recuperative services. By reaching all children with health and nutrition interventions at the age of highest risk and rate of growth, the preventive approach was more effective at reducing overall malnutrition.

The preventive approach does not ignore the need for recuperation of children with severe acute malnutrition (SAM). Even in programs with a preventive focus that have successfully reduced malnutrition prevalence, some children become severely acutely malnourished and require special treatment. Children who become severely acutely malnourished must still be identified and referred for appropriate treatment. Depending on the prevalence of SAM, services available in the community and the scope of the MYAP, the MYAP could contain an additional intermediate result (IR) that deals specifically with SAM or a strong referral mechanism for children with SAM to receive treatment available through the MOH or another nongovernmental organization (NGO).

1.3 WHERE IS PM2A APPROPRIATE?

PM2A is appropriate in food-insecure locations with a high and widespread prevalence of stunting or underweight¹⁰ among children under 5.¹¹ To be successful, MYAPs should implement PM2A in communities where a minimum package of essential health services is available or can be strengthened. In addition, the country-specific Bellmon Estimation Studies for Title II (BEST) should have determined that the geographic area can absorb the quantity of food needed for PM2A and considered the logistical aspects of transporting and storing the food commodity. PM2A should be implemented in areas of relative political and social stability with limited in- and out-migration. Finally, the host country government must agree with the program principles, including distribution of preventive individual and household rations.

The package of health services required to implement PM2A includes antenatal care, post-partum care, micronutrient supplementation, immunization and treatment of childhood illness, as described in the host country MOH's policies and protocols. **Section 2.3** describes the typical components of each of these services, which will vary somewhat at the country level. In program areas with limited, inconsistent or no access to these services, MYAPs should describe the weaknesses in their program

⁹ Ruel et al. 2008. "Age-based preventive targeting of food assistance and behavior change and communication for reduction of undernutrition in Haiti: a cluster randomised trial." *The Lancet* 371 (9612): 588-595.

¹⁰ High prevalence refers to stunting (height-for-age [HFA] < -2 Z-score) of 30 percent or more and underweight (WFA < -2 Z-score) of 20 percent or more, using World Health Organization (WHO) standards or National Center for Health Statistics (NCHS) growth references.

¹¹ In "What Works? Interventions for Maternal and Child Undernutrition and Survival," Bhutta et al. indicated that complementary feeding support with food support or conditional cash transfers was more successful in food-insecure areas than complementary feeding support alone. Complementary feeding support without food support or conditional cash transfers was most effective in areas that had sufficient food.

areas and work to make essential health and nutrition services available and accessible in order to protect the health and well-being of mothers and children.

BOX I. WHERE IS PM2A APPROPRIATE?

PM2A is appropriate in food-insecure communities with:

- High levels of stunting or underweight
- An accessible minimum package of maternal and child health services
- Relative political and social stability
- Limited in- and out-migration
- Capacity to absorb the food without distortions to markets (BEST analysis)
- Government support for PM2A

2. CORE PM2A SERVICES

2.1 RATIONS

One of three core services of the PM2A program is the provision of rations to pregnant women, mothers of children 0-5 months, children 6-23 months and their households.

2.1.1 Objective of Rations

The rations provided to pregnant women, mothers of children 0-5 months, and children 6-23 months are intended to help prevent malnutrition and promote linear growth by supplementing and improving the quality of their diets. The household ration supplements the family's food supply, prevents sharing of the individual rations and provides an incentive for program participation.

2.1.2 Ration Recipients

The following groups receive a ration:

- **Pregnant women** receive an individual preventive ration from the time that pregnancy is detected until they deliver.
- **Mothers with children 0-5 months** receive an individual preventive ration from the child's birth until the child reaches 6 months.
- **Children 6-23 months** receive an individual preventive ration from 6 months through 23 months.
- **Families (households)** of participating women and children under 2 receive a household ration for the entire time that the woman or child is receiving an individual ration.

Based on the evidence to-date, the household ration is considered an integral part of the PM2A model. However, it is true that the household rations can represent a relatively large amount of food commodities, which may lead to Bellmon and sustainability concerns or limit the portion of resources that can be used to support other activities. Modification of the size or coverage of the household ration may be possible without compromising the expected nutritional outcomes, although these modifications may increase sharing within the household or reduce participation, which could then have measurable effects on the overall performance of PM2A in reducing child malnutrition. Programs that choose to modify how household rations are calculated or distributed (e.g., by distributing the household ration only during the lean season or by working with communities to target only to the most vulnerable PM2A-eligible households rather than all PM2A-eligible households) should carefully document, monitor and evaluate the program to ensure the modifications are not affecting critical outcomes, such as program participation, and to contribute to the body of experience and evidence on PM2A.

If more than one person living in a household qualifies for an individual ration, each eligible household member receives a full individual ration and the household receives one household ration, regardless of the number of individual rations received. Programs may choose to modify this recommendation in societies where polygamous households are common; each participating mother could be considered as representing a household within an extended household and provided with an individual ration and a household ration.

2.1.3 Conditions for Receiving Preventive Rations

In order to receive the individual and household rations, mothers/caregivers must fulfill certain conditions. Programs should develop appropriate mechanisms, such as a special card, to record beneficiary participation in the required activities and track whether they are eligible to receive the monthly ration.

Decisions about how strictly conditionality is enforced should be based on contextual assessment, community consultation, and recognition of the trade-off between rigorous enforcement – which helps ensure beneficiaries receive maximum exposure to PM2A services, leading to maximum impacts – and the realities and constraints faced by households, women and children in program areas. To make it as practical as possible for mothers/caregivers to meet the required conditions, programs should conduct community outreach and follow-up and hold discussions with communities, households and individuals to understand reasons for non-attendance and identify ways to address participants’ constraints.

Conditions for ration receipt include the following, which should be adjusted to country context as appropriate:

- **Ration for Children 6-23 Months:** Mothers/caregivers should participate in the nutrition and health BCC services provided by the PM2A program. Additionally, the child must receive all available MOH-recommended preventive health and nutrition interventions.
- **Ration for Pregnant Women:** Pregnant women should participate in BCC services for pregnant women that are provided by the PM2A program and receive antenatal examinations and services, following MOH-prescribed protocol.
- **Ration for Mothers of Children 0-5 Months:** Mothers should attend postnatal services with trained health staff, following MOH protocol. They should also attend BCC sessions and post-natal consultations.

2.1.4 Ration Design¹²

Ration design is a combination of science and art: the science of nutritional requirements and nutrient composition, among other areas, and the art of program delivery, including logistic and cost considerations. Rations should be reasonable, justifiable and, given cost and Bellmon considerations, conservative in size. Initial individual and household ration design should be based on science: what ration size and composition is most appropriate given nutritional and other household needs. Potential awardees may then choose to modify the initial ration design to reflect logistic and cost considerations. Potential Awardees should also be aware of local government or MOH guidelines, if any, and harmonize with their own program design.

Potential Awardees should describe and justify the assumptions used to determine both the initial ration (based on “science”) and any modifications made to arrive at the final proposed ration, if applicable. If

¹² More detailed guidance on designing rations for PLW and children 6-23 months can be found in the United States Agency for International Development (USAID) *Commodities Reference Guide* (CRG), available at: http://www.usaid.gov/our_work/humanitarian_assistance/ffp/crg/intro.htm. However, the PM2A Technical Reference Materials (TRMs) is more up-to-date and should be the reference used when the two documents (PM2A TRM and CRG) contain contradictory information.

logistic, cost or other program considerations result in substantial differences between the initial and final ration, potential Awardees should monitor the potential effects of the change on the ability of the ration to achieve its objective (i.e., to supplement the diet for individual rations, to prevent sharing, to augment household food supply, to incentivize participation for household rations).

Ration designers should keep in mind the services and other nutrition inputs that the target groups should obtain as part of basic preventive health services (e.g., vitamin A, iron/folate supplementation, zinc supplementation), and any fortified foods available and commonly used in local diets. Pregnant women should not consume more than 10,000 international units (IU) per day or 25,000 IU per week of vitamin A at any period during gestation.¹³ Even if consumed in combination with other potential sources of vitamin A, such as supplementation or locally available fortified foods, it is highly unlikely that the PM2A ration(s) would put the target groups at risk of ingesting too much vitamin A (which is toxic in very high doses, although it is important to validate this in individual contexts).

Finally, it is critically important that appropriate BCC components be developed to support the optimal use of the rations packages provided to each target group.

2.1.5 Ration Composition

When determining initial ration composition, programs should consider the cultural suitability, nutrition content and physiological appropriateness (e.g., whether babies can eat it) of the given commodity choices and how these fit the needs of the target group. Depending on the commodity, the availability of complementary local foods will also play a role. Programs should select commodities based on local dietary preferences and choose options that are appropriate for the target group. Commodities should also be selected taking into consideration ease and speed of cooking and availability of milling facilities and cooking fuel, especially in areas at risk of environmental degradation. Key factors to consider in determining ration composition for specific target groups are listed below.

Pregnant Women and Mothers of Children 0-5 Months

Pregnant women and mothers of children 0-5 months have higher calorie and nutrient needs than non-pregnant, non-lactating women. In addition, pregnant women are more likely to suffer nausea, heartburn and other challenges to eating. They also tend to face time constraints. Therefore, rations for PLW should be nutrient- and energy-dense foods that can be easily prepared. Examples include fortified products such as oil or blended cereals.

Children 6-23 Months

Because they are growing rapidly, children 6-23 months have high caloric and micronutrient requirements relative to their size yet small stomach capacity. Nutrient- and energy-dense foods are necessary to meet their requirements. Younger children 6-11 months are just learning to eat and require foods that are easily chewed and swallowed. Moreover, because mothers/caregivers tend to have many responsibilities and time constraints, foods that require minimal preparation are preferable. If

¹³ WHO. 1998. *Safe vitamin A dosage during pregnancy and lactation*. WHO Micronutrient Series WHO/NUT/98.4. Geneva: WHO. http://whqlibdoc.who.int/hq/1998/WHO_NUT_98.4.pdf (Accessed October 12, 2009).

a food is easy to prepare in small quantities, this also contributes to improved food hygiene and safety by reducing the likelihood of cooking larger quantities and storing the leftovers, often in less-than-ideal conditions. Therefore, for children 6-23 months old, blended cereal products (e.g., corn-soy blend [CSB], wheat-soy blend [WSB]) which are fortified with multiple vitamins and minerals, quickly prepared, and easy for a child to eat and digest are often an appropriate choice. Additionally, it may be useful for a program to select products considered to be “children’s foods” to minimize sharing of a targeted individual’s ration, if possible.

Households

The household ration is meant to supplement the household’s regular diet, prevent sharing of the individual ration and provide incentives for program participation. It should meet local dietary preferences as much as possible and be of a reasonable cost. Availability and cost of cooking fuel and milling facilities should be considered when selecting appropriate commodities for the household ration. In situations where micronutrient deficiencies are likely to be prevalent and traditional diets are not very diverse, the inclusion of fortified products in the household ration should be considered.

2.1.6 Ration Size

The preventive ration is meant to supplement and improve the diet of the target group. The ration is not meant to provide all of the calories needed. Because average calorie requirements from complementary foods are quite low for young breastfed children, especially those 6-11 months, and the types of foods commonly available in food-insecure households are usually not of good quality, programs should aim to provide sufficient fortified-blended foods (FBF) and other fortified commodities to cover 100 percent of calories required from complementary foods in this age group.¹⁴ However, a complete, quality diet does not consist solely of Title II ration commodities plus breast milk. Even FBF and fortified oil combined will not allow women or infants and young children to meet all their micronutrient requirements. While fortified commodities help to fill the energy gap and provide some micronutrient content, BCC messages need to encourage inclusion of micronutrient-rich foods in the diet. Mothers/caregivers should also be exposing the young child to a range of different foods and testing different combinations of locally-available foods and ration commodities for complementary feeding. BCC materials should counsel on the phased introduction into the child’s diet of a variety of locally-available nutrient-rich foods, such as vegetables, fruits, pulses and animal source products, mixed into the FBF and provided as snacks. The program can also work with mothers/caregivers to try out different combinations.

The amount of food to include in the household ration should be based on the size of the average energy gap (the difference between the amount of calories required by the household and the amount of calories household members typically consume) in that population. This recommendation is based on the assumption that the primary purpose of the household ration is to supplement the household food supply and prevent sharing of the individual ration.

¹⁴ This does not mean that the ration provides 100 percent of the children’s requirements because they are also consuming breast milk.

If the primary purpose of the household ration is to provide an incentive for program participation, decisions on the size and composition of the ration may be driven by formative research to determine the minimum amount and kind of product that is sufficient to serve the incentive purpose.

BOX 2. PROGRAM EXAMPLE OF HOUSEHOLD RATION USED AS AN INCENTIVE

A program in Haiti uses the household ration as an incentive and to compensate for the opportunity costs of PM2A program participation. When faced with a decrease in resources, the Awardee decided that reducing the size of the household ration would be the least harmful way of absorbing the decrease in funds. However, program managers soon noticed a decrease in participation after the size of the household ration was cut. When asked why they were not going to the program activities, mothers – especially those living further away from the health posts – responded, “Do you expect me to walk [two or three] hours for that small amount of food?” The Awardee conducted interviews to determine barriers and constraints to participation, including discussions on what size ration would be sufficient to motivate and compensate for the opportunity costs involved. The Awardee then adjusted the household ration accordingly and looked elsewhere in the program for elements that could be cut back to accommodate the remaining decrease in resources.

Pregnant Women and Mothers of Children 0-5 Months

Rations for pregnant women and mothers of children 0-5 months will vary based on the average energy gap for PLW in a program area. At a minimum, the rations should cover the increased daily energy and protein requirements of pregnancy (360 kilocalories [kcal] and 9 grams [g] of protein in the second trimester; 475 kcal and 31 g protein after the third trimester)^{15,16} and lactation (500-675 kcal and 19 g of protein).^{17,18,19}

¹⁵ “...the extra energy cost of pregnancy is 321 [megajoules (MJ)] (77,000 kcal) divided into approximately 0.35 MJ/day, 1.2 MJ/day and 2.0 MJ/day (85 kcal/day, 285 kcal/day and 475 kcal/day) during the first, second and third trimesters, respectively. There are many societies with a high proportion of non-obese women who do not seek antenatal advice before the second or third month of pregnancy. Under these circumstances a practical option to achieve the total additional intake of 321 MJ (77,000 kcal) during pregnancy is to add the extra 0.35 MJ/day required in the first trimester to the 1.2 MJ/day required in the second trimester. Rounding numbers for ease of calculation, this consultation recommends that in such societies pregnant women increase their food intake by 1.5 MJ/day (360 kcal/day) in the second trimester, and by 2.0 MJ/day (475 kcal/day) in the third...Based on an efficiency of protein utilization of 42 [percent], an additional 1, 9 and 31 g/day protein in the first, second and third trimesters, respectively, are required to support 13.8 kilogram [kg] gestational weight gain.” Source: UNU/WHO/FAO. 2004. *Human energy requirements: Report of a Joint FAO/WHO/UNU Expert Consultation, 17-24 October 2001*. Rome: FAO. p 59.

¹⁶ WHO/FAO/UNU. 2007. *Protein and amino acid requirements in human nutrition: Report of a joint FAO/WHO/UNU Expert Consultation*. WHO Technical Report Series no. 935. Geneva: WHO. p 120.

¹⁷ “...well-nourished women with adequate gestational weight gain should increase their food intake by 2.1 MJ/day (505 kcal/day) for the first six months of lactation, while undernourished women and those with insufficient gestational weight gain should add to their personal energy demands 2.8 MJ/day (675 kcal/day) during the first semester of lactation. Energy

Children 6-23 Months

The children's ration size should take into account that the product(s) are to be used as a complementary food that should not displace breastfeeding and should be an amount appropriate for children, who can only eat a certain amount per feed and per day. In addition to calories from breast milk, children 6-8 months require about 200 kcal per day, children 9-11 months require 300 kcal per day, and children 12-24 months require 550 kcal per day in complementary food.²⁰ Children 6-11 months require 11 grams (g) of protein per day and children 12-23 months require 13 g of protein per day.²¹ Fat should constitute 30-45 percent of total energy in the diet (including energy from breast milk, which usually has higher fat content than complementary foods). Assuming average breast milk intake, rations should provide 0-34 percent of energy from fats for children 6-8 months, 5-38 percent for children 9-11 months and 17-42 percent for children 12-23 months.²²

BCC and nutrition education components of the program should help mothers learn the correct amount and preparation of food to feed their children and themselves both in general and related specifically to the ration commodities.

Household Ration

The household ration should be based on the household's average per capita energy gap and the number of household members. The energy gap can be determined by the potential Awardee's own data collection²³ or estimated using available secondary data for the country.²⁴

The Food and Agricultural Organization of the United Nations (FAO) publishes a country-specific measure of the intensity of food deprivation that can be used to calculate the household ration size.²⁵ The measure is derived from FAO's calculation of the proportion of the country's population that is undernourished, i.e., not able to meet minimum dietary energy requirements.²⁶ The intensity of food

requirements for milk production in the second six months are dependent on rates of milk production, which are highly variable among women and populations." Source: UNU/WHO/FAO. 2004. *Human energy requirements: Report of a Joint FAO/WHO/UNU Expert Consultation, 17-24 October 2001*. Rome: FAO. pp 65-66.

¹⁸ WHO/FAO/UNU. 2007. *Protein and amino acid requirements in human nutrition: Report of a joint FAO/WHO/UNU Expert Consultation*. WHO Technical Report Series no. 935. Geneva: WHO. p 126.

¹⁹ All mothers of children 0-5 months are targeted under PM2A rather than only breastfeeding mothers to avoid stigma for women who have chosen not to breastfeed, e.g., based on PMTCT counseling. However, the majority of mothers of children 0-5 months will be breastfeeding and ration size calculations for this target group can be based on the additional requirements for lactation.

²⁰ PAHO. 2004. *Guiding Principles for Complementary Feeding of the Breastfed Child*. Geneva: WHO. p 18.

²¹ IOM. 2005. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids*. Washington, DC: The National Academies Press. Information on micronutrient requirements can be found in an appendix at http://books.nap.edu/openbook.php?record_id=10490&page=1319 (Accessed 10/15/09).

²² Ibid. p 23-24.

²³ Collecting and analyzing dietary intake data is complex, costly and not recommended if it is only to calculate the ration.

²⁴ If an organization has done a household food consumption/dietary intake survey in the area, the energy deficit would likely be available.

²⁵ FAO, nd. "Intensity of food deprivation."

http://www.fao.org/fileadmin/templates/ess/documents/food_security_statistics/Depth_Hunger_en.xls.

²⁶ FAO, nd. "Prevalence of undernourishment in total population."

http://www.fao.org/fileadmin/templates/ess/documents/food_security_statistics/PrevalenceUndernourishment_en.xls; FAO. nd. "Minimum dietary energy requirements."
http://www.fao.org/fileadmin/templates/ess/documents/food_security_statistics/MinimumDietaryEnergyRequirement_en.xls.

deprivation measure is an estimate of the average amount of calories required by undernourished (food-deprived) individuals to reach the minimum dietary energy requirement cutoff, i.e., the gap between estimated consumption and requirements. In developing countries, this gap ranges from 200 to 440 calories per person per day. These estimates are based on the number of calories needed to reach minimum energy requirements, which are based on an assumption of light activity level. However, households in rural areas, which are the primary focus of Title II multi-year activities, are more likely have moderate activity levels on average. Energy requirements for moderate activity are approximately 10 percent higher than for light activity.

Rations for Households with HIV-Positive Members

In area of high HIV prevalence, where infected individuals have increased energy requirements, individual and/or household rations may need to be adjusted. Energy requirements in adolescents and adults living with HIV, including PLW, increase by 10 percent in the asymptomatic stage and by 20-30 percent in the symptomatic stage. For children living with HIV, energy requirements increase by 10 percent during both the asymptomatic and the symptomatic stages if no weight loss is occurring. Energy requirements increase by 50-100 percent if weight loss is occurring.²⁷

2.1.7 Individualized Versus One-Size-Fits-All Rations

Programs may decide that providing different-sized individual rations for different beneficiary groups (i.e., pregnant woman, lactating woman, children 6-23 months) or customizing individual rations for different age groups within the 6-23 month range (e.g., one ration for children 6-8 months, one ration for children 9-11 months, a third ration for children 12-23 months) is not logistically feasible or is undesirable. They may therefore decide to provide the same individual ration to all children (**one-size-fits-all child ration**), the same individual ration to all individual beneficiaries (**one-size-fits-all individual ration** for mothers and children 6-23 months old) or a single ration that combines the individual and household ration to all beneficiaries, regardless of the number of PM2A-eligible individuals living in the household (**one-size-fits-all individual+household ration**).

Programs have legitimate reasons for deciding that a one-size-fits-all ration makes sense. While understandable from a programmatic perspective, these decisions may impact the ability of the program to achieve results. As mentioned in **Section 2.1.4**, modifications to the basic PM2A design should be clearly documented, monitored and evaluated to ensure objectives are achieved and to contribute to the continuing evolution and refinement of PM2A.

One-Size-Fits-All Child Ration

Many past and current Title II food-assisted MCHN programs have opted for a one-size-fits-all individual child ration based on the average requirements of children 6-23 months (approximately 416 calories per day).²⁸ A one-size-fits-all child ration will provide more calories than an infant needs and fewer than an older child needs. Extra care must be exercised in these cases to prevent excess consumption leading to

²⁷ FANTA. 2007. *Recommendation for the Nutrient Requirements for People Living with HIV/AIDS*. Washington, DC: FANTA at AED.

²⁸ 416 calories is a weighted average requirement for children 6-23 months. Average requirements in each age range (6-8 months [200 kcals/day], 9-11 months [300 kcals/day], and 12-23 months [550 kcals/day]) were weighted by the average proportion of children in each age range in USAID Office of Food for Peace (FFP) priority countries.

displacement of breastfeeding among younger children for whom a one-size-fits-all ration may provide too many calories. While the additional calories required by a mother breastfeeding a child over 6 months varies widely, programs may choose to present the individual child ration as a joint, shared ration for both the lactating mother and the breastfeeding child through 12 months of age, when the ration becomes exclusively for the child.

One-Size-Fits-All Individual Ration

A one-size-fits-all individual ration may provide too many calories for some groups and not enough for others. As with the one-size-fits-all child ration, the greatest concern is to avoid providing too many calories for children 6-11 months old and risking displacement of breastfeeding. Encouraging the breastfeeding mother to share the ration with her 6-11 month-old child may help mitigate this risk.

One-Size-Fits-All Individual+Household Ration

A one-size-fits-all individual+household ration may provide too many calories for some beneficiaries and not enough for households with more than one PM2A-eligible beneficiary. Mitigating the risk of over-consumption among younger children is discussed above. Before choosing a one-size-fits-all individual+household ration, programs should determine what proportion of households contain more than one PM2A-eligible beneficiary (e.g., a pregnant woman and a child 6-23 months, a pregnant woman and a breastfeeding woman with a child 5 months and a child 6-23 months) to make sure they do not represent a significant proportion of households.²⁹ If households with more than one PM2A-eligible beneficiary do make up a significant proportion of households, programs may wish to reconsider providing a one-size-fits-all individual+household ration. If a program decides to provide this ration, it should estimate by how much the ration will shortchange the needs in households with multiple individual beneficiaries and determine how the BCC materials will address meeting individual beneficiary requirements while sharing the ration among multiple individual beneficiaries.

2.1.8 Illustrative PM2A Rations

This section presents examples of ration composition and size used in PM2A programs and explains the rationale and justification for the programs' choices.

TABLE I. MONTHLY RATION SIZES FOR DIFFERENT BENEFICIARY GROUPS: PROGRAM I

	MONTHLY RATION (KG)				KCAL/DAY	% ENERGY FROM FAT
	CSB	RICE	PINTO BEANS	VEGETABLE OIL		
PLW and children 6-23 months old	4				501	16.5
Household		7	3	1.84	1671	33.2
Total ration	4	7	3	1.84	2171	29.5

Program I chose a different commodity mix for the household than for the individual beneficiaries. The household ration commodities selected, rice, pinto beans and oil, are similar to the traditional diet in the

²⁹ Note, however, that there is no evidence-based guidance on what defines a “significant” proportion of households.

communities in which the program was implemented. CSB was identified as a “special” food specifically for pregnant women and mothers of children 0-5 months and children 6-23 months with the expectation that identifying a “special” food, packaging it distinctly, including appropriate BCC messages and providing different commodities to the household would prevent sharing.

The program used secondary data from a national maternal and child health survey to estimate the average size of PM2A-eligible households in the program area. The average household size is 6.88 people. The household ration covers a little more than 100 percent (105 percent) of the estimated calorie gap at the household level (1,589 calories) using the FAO intensity-of-hunger measure and increasing it by 10 percent to account for moderate rather than light activity levels. The individual ration covers a varying proportion of needs of individual beneficiaries (see **Table 2**). While mothers breastfeeding children 6-11 months are not an explicit target group for rations, the program decided to encourage sharing of the CSB between breastfeeding mothers and their children 6-11 months to mitigate the risk of displacing breastfeeding by providing too many calories to the children 6-11 months.

TABLE 2. PERCENTAGE OF ENERGY REQUIREMENTS COVERED BY THE INDIVIDUAL RATION: PROGRAM I

TARGET GROUP	REQUIREMENT (KCAL/DAY)	% OF INDIVIDUAL KCAL REQUIREMENTS PROVIDED BY CSB RATION	NOTES
Pregnant women - % of additional requirements due to pregnancy (average second and third trimester requirements)	417.8	120%	
Mothers of children 0-5 months - % of additional requirements due to lactation	500	100%	
Children 6-8 months average breast milk intake - % of requirements from complementary food	200	100%	BCC instructs the breastfeeding mother how much to feed a child 6-8 months to provide the 200 kcal required and to consume the remaining 301 kcal herself
Children 9-11 months average breast milk intake - % of requirements from complementary food	300	100%	BCC instructs the breastfeeding mother how much to feed a child 9-11 months to provide the 300 kcal required and to consume the remaining 201 kcal herself
Children 12-23 months average breast milk intake - % of requirements from complementary food	550	91%	Child receives all of the CSB plus locally-available foods promoted through BCC; Mother does not consume ration

Program I decided to centrally prepackage the rations so that each household would receive the same monthly ration (one-size-fits-all individual+household ration) regardless of how many individual program beneficiaries were enrolled. The program estimated that less than 5 percent of PM2A-eligible households had more than one PM2A-eligible beneficiary and decided that the benefits of prepackaging a single, one-size-fits-all ration – including increased food safety and hygiene, streamlined operations,

reduced potential for diversion and increased dignity of the ration recipients – outweighed the risk of not providing enough CSB in households with more than one eligible beneficiary. The BCC element of the program is essential to help caregivers provide an appropriate amount of food for their children, including supplementing the single, individual ration with locally available foods.

Program 2 decided to provide the same two commodities (CSB and oil) for both the individual and household ration to reduce the number of distinct meals that needed to be prepared (families in the program area tend to prepare single-pot meals from which the entire family eats rather than preparing meals for the household and separate ones for mothers or children). The amounts needed for PLW and children 6-23 months would be made clear to caregivers during BCC sessions.

Each participating household is provided a single ration of either 2,723 kcal per day of CSB and oil for pregnant women and mothers of children 0-5 months or 2,269 kcal per day of CSB and oil for children 6-23 months (**Table 3**).

TABLE 3. MONTHLY RATION SIZES (KG) FOR DIFFERENT BENEFICIARY GROUPS: PROGRAM 2

	CSB	OIL	KCAL/DAY	% ENERGY FROM FAT
PLW	6	0.6	908	32.8
Children 6-23 months old	3	0.3	454	32.8
Household	12	1.2	1,815	32.8
Total Ration - PLW + Household	18	1.8	2,723	32.8
Total Ration - Child + Household	15	1.5	2,269	32.8

After meeting 100 percent of the additional energy requirements of the mothers due to pregnancy or lactation or the required energy from complementary foods for children (using BCC messages and special tools, such as a marked bowl), the remaining CSB and oil are intended for consumption by the household. This remaining portion covers 16-23 percent of estimated household requirements and 72-104 percent of the estimated household calorie gap (**Table 4**).

TABLE 4. PERCENTAGE OF HOUSEHOLD ENERGY REQUIREMENTS AND ENERGY GAP COVERED BY RATION: PROGRAM 2

INDIVIDUAL BENEFICIARY	% OF HOUSEHOLD REQUIREMENTS* (10,784 KCAL/DAY) MET AFTER MEETING 100% OF THE ADDITIONAL KCAL REQUIREMENTS FOR PLW OR 100% OF KCAL REQUIREMENTS FROM COMPLEMENTARY FOOD FOR CHILDREN 6-23 MONTHS (ASSUMING AVERAGE BREASTMILK INTAKE)	% OF HOUSEHOLD ENERGY GAP** (2,383 KCAL/DAY) MET AFTER MEETING 100% OF THE ADDITIONAL KCAL REQUIREMENTS FOR PLW OR 100% OF KCAL REQUIREMENTS FROM COMPLEMENTARY FOOD FOR CHILDREN 6-23 MONTHS (ASSUMING AVERAGE BREAST MILK INTAKE)
Pregnant woman***	21%	104%
Lactating woman	21%	93%
Child 6-8 months	19%	87%
Child 9-11 months	18%	83%
Child 12-23 months	16%	72%

* Household requirements calculation: minimum dietary energy requirements for Burundi (1,720 kcal/person/day) increased by 10 percent to account for moderate activity level multiplied by average household size of 5.7.

** Household energy gap calculation: intensity of food deprivation for Burundi (380 kcal/person/day) increased by 10 percent to account for moderate activity level multiplied by average household size of 5.7.

***Additional kcal requirements calculated as the average kcal requirements in the second (360 kcal/day) and third (475 kcal/day) trimesters.

2.2 COMMUNITY AND HOUSEHOLD BEHAVIOR CHANGE PROGRAMMING

2.2.1 Why to Focus on Behavior Change

Care and feeding practices of women and children are critical to growth, development, and achieving and maintaining good nutritional status. Inappropriate breastfeeding, complementary feeding and care practices are important causes of malnutrition. To reduce malnutrition, it is essential to ensure that mothers/caregivers are able to optimally care for and feed themselves and their children. Counseling and BCC targeted to mothers, caregivers, family members and decision-makers should be central to strategies to improve the nutrition of infants and young children.³⁰

2.2.2 Key Behaviors

Given that malnutrition is associated with both illness and inadequate quantity and quality of food intake, potential Awardees should concentrate the MYAP's BCC efforts on promoting the Essential Nutrition Actions (ENA), key household hygiene actions, and preventive and curative health-related practices like timely immunization, appropriate home health care, recognizing signs of malnutrition and illness, and care-seeking behavior. A program would not necessarily promote all of the listed behaviors; exact behaviors and messages to promote in a specific program area will be determined based on formative research to identify the behaviors that are most likely to impact child growth and nutrition, are achievable and that are in need of improvement.

³⁰ WHO/UNICEF. 2008. *Strengthening action to improve feeding of infants and young children 6-23 months of age in nutrition and child health programmes: Report of proceedings 6-9 October, 2008*. Geneva: WHO.
http://www.who.int/child_adolescent_health/documents/9789241597890/en/index/html.

BOX 3. KEY BEHAVIORS TO PROMOTE

ENA

- Optimal breastfeeding during the first 6 months of life
- Optimal complementary feeding starting at 6 months with continued breastfeeding to 2 years and beyond
- Optimal nutrition care of sick and severely malnourished children
- Prevention of vitamin A deficiency for women and children
- Adequate intake of iron and folic acid, and prevention and control of anemia for women and children
- Adequate intake of iodine by all members of the household
- Optimal nutrition for women

Key Household Hygiene Actions

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

Other Key Practices

- Antenatal care attendance, including at least four visits, tetanus toxoid vaccine, iron/folic acid supplementation
- Full course of immunizations for all children before their first birthday
- Children and women sleeping under insecticide-treated bednets
- Recognize when a sick child needs treatment outside of the home and seek care from appropriate providers
- Recognize pregnancy danger signs

2.2.3 Key Behavior Change Programming Principles³¹

A strong behavior change strategy should address the range of practices that are recommended for specific ages in a culturally-appropriate and timely way, targeting not just those who practice the behaviors, but those who influence behavior in a household and community. The behavior change program will seek to achieve the highest coverage possible, maintain regular and frequent contact with target groups, ensure appropriate targeting, and facilitate adoption of the behaviors. A review by Caulfield et al. found that clear, age-appropriate and action-oriented messages delivered through

³¹ This section draws from the USAID Child Survival and Health Grants Program TRM, *Behavior Change Interventions*, 2007, www.childsurvival.com, as well as the CORE Social and Behavior Change Working Group's *Designing for Behavior Change Curriculum*, http://207.226.255.12/working_groups/behavior.cfm.

multiple contact points and channels are most effective, and visual materials such as posters, counseling cards and take-home brochures can help to promote adoption of behaviors.³²

PM2A programs should strive to have bi-weekly contact with pregnant women and mothers of children under 2. If this is not possible, monthly contact should be assured. The program should also maintain regular contact with others who influence mothers on key food security behaviors (e.g., husbands, mothers-in-law, leaders). The potential Awardee can determine the optimal frequency of these regular contacts based on program resources and priority of the target group.

Key principles to consider in developing an effective behavior change strategy are:

- Base it on evidence, employing formative research.
- Understand the target groups and work from their perspective(s).
- Explore the multiple factors that affect behavior.
- Address barriers to change.
- Target those who influence behavior as well as those who directly practice it.
- Tailor programming to each target group.
- Reach target groups through multiple channels and contact points.
- Maintain frequent and consistent contact.
- Keep in mind that knowledge is not enough to change behavior.
- Ensure that messages are relevant and timely, i.e., in the context of feeding children under 2. The key behaviors change as the child grows older, so messages should be given when they are most useful.

BOX 4. KEY QUESTIONS FOR DEVELOPING A BEHAVIOR CHANGE STRATEGY

- Whose behavior do you want to change?
- What behavior do you want to help them practice?
- Why aren't they doing it now?
- What approaches can you use to address the factors that influence their behavior?

2.2.4 Examples of Common Behavior Change Activities

As discussed, PM2A programs should use multiple channels to reach pregnant women and mothers, and each can determine the program design to achieve the behavior change goals. A portion of the BCC contacts should be in a setting where the health worker can interact individually with the mother to discover her barriers to change, work through them, seek commitments to change and interact with

³² Caulfield, L.E., S.L. Huffman, and E.G. Piwoz. 1999. "Interventions to improve the intake of complementary foods by infants 6-12 months of age in developing countries: Impact on growth and prevalence of malnutrition and potential contribution to child survival." *Food and Nutrition Bulletin* 20: 183-200.

other family members who influence her decisions. Ideally, this would be done during a home visit. Working with mothers in small groups (eight to 12 members) may also be an opportunity to have individual discussions with mother and provide peer support for behavior change. There are many ways to support behavior change, and potential Awardees are encouraged to develop a comprehensive behavior change strategy that is suited to their program context. The following are some common behavior change approaches.

Home Visits

Community health workers (CHWs), auxiliary nurses, trained birth attendants or nutrition volunteers who are trained on one-to-one counseling skills provide home visits. They can provide outreach, follow up and support to pregnant women, lactating women, caregivers of children and their families. Visits may include checking on the health of a baby, counseling caregivers, or following up with a child who has experienced growth faltering or illness. This is an opportunity to tailor messages to individual needs and engage in dialogue to negotiation change.

Care Groups

A variation of home visits, Care Groups are a community-based strategy for improving coverage and behavior change through building teams of women who individually represent, serve and promote health among women in 10-15 households in their community. The leaders form a Care Group that meets weekly or bi-weekly and is trained by a paid facilitator. These Care Group members visit the women for whom they are responsible, offering support, guidance and education to promote behavior change.

Small Groups

Examples of small groups are mother's clubs, support groups, women's groups and men's clubs. In small groups, mothers can receive support for practicing optimal pregnancy self-care care, child care and child feeding behaviors. The group maintains a comfortable, supportive and respectful environment, and follows adult education techniques. It may be facilitated by a mother in the group, a health care provider or other community member. Ideally, groups would be organized according to mothers' physiological status or children's ages in order to target behavior change messages appropriately.. Small groups can also target men, mothers-in-law or other key groups, and may choose to add health and nutrition programming to already existing community groups, such as marketing groups or village savings and loan programs.

Community-Based Growth Promotion (CBGP)

CBGP is a strategy implemented at the community level to prevent malnutrition and improve child growth through monthly monitoring of child weight gain, one-on-one counseling and negotiation for behavior change, home visits, and integration with other health services. Action is taken based on whether a child has gained adequate weight – not their nutritional status – identifying and dealing with growth problems before the child becomes malnourished.

Community Gatherings

Program beneficiaries may attend monthly sessions at a central community meeting spot at which brief behavior change sessions are held. This may be combined with provision of other essential health and

nutrition services, such as immunization, micronutrient supplementation and growth monitoring and promotion (GMP). Community gatherings would complement a larger BCC strategy to reinforce messages delivered through other contact points.

Nutrition Counseling

Individual nutrition counseling targeted to the specific needs of the mother/caregiver is an essential tool in behavior change and is often part of comprehensive behavior change programming. It may be done at a health facility, community health post or in the home. It may be provided by health staff or community volunteers trained in counseling and negotiation skills in addition to maternal and child nutrition. The counselor is supportive and takes time to listen to the mother's concerns and constraints, and works with her to overcome them. The MYAP trains the counselors, provides regular support to and supervision of the counselors, and develops appropriate counseling materials, if necessary.

Mass Media

As a complement to more intensive and targeted one-on-one and small group activities, mass media such as radio spots, billboards and posters can serve to create awareness of specific behaviors or draw attention to ongoing activities or health issues. Mass media permits the program to target all community members with broad behavior change messages.

Community Edu-tainment

Dramas, storytelling and other performances can also complement intensive behavior change programming, serving as an entertaining way to share information across a large part of the community or spark discussion of cultural challenges to certain behavior change.

BOX 5. REFERENCES FOR DESIGNING BEHAVIOR CHANGE INTERVENTIONS

- CORE Social and Behavior Change Working Group. 2008. Designing for Behavior Change. http://207.226.255.123/working_groups/DBC_Curriculum_Final_2008.pdf
- Lisa Howard-Grabman and Gail Snetro. 2004. How to Mobilize Communities for Health and Social Change. Health Communication Partnership. <http://db.jhuccp.org/docs/191220.pdf>
- Social and Behavior Change Working Group, the CORE Group: http://207.226.255.123/working_groups/behavior.cfm.
- Emory University; Nutrition Research Institute, Peru; National Institute of Public Health, Mexico; and PAHO. 2003. ProPAN: Process for the Promotion of Child Feeding. www.paho.org/English/AD/FCH/NU/ProPAN-index.htm
- Doug McKenzie-Mohr and William Smith. 1999. Fostering Sustainable Behavior: An Introduction to Community-based Social Marketing. New Society Publishers.
- Alan Andreasen. 1995. Marketing Social Change: Changing Behavior to Promote Health, Social Development and the Environment. Jossey-Bass.
- Robert Cialdini. 2008. Influence: Science and Practice. Fifth edition. Allyn and Bacon.

Technical References to Support Behavior Change Intervention Design

- Child Survival and Health Grant Program (CSHGP). 2007. Technical Reference Materials (TRMs) on: Behavior Change Interventions and Integrated Management of Childhood Illness. <http://www.childsurvival.com/documents/trms/xcut.cfm>
- CSHGP. 2007. TRMs on: Nutrition and Diarrheal Disease. <http://www.childsurvival.com/documents/trms/tech.cfm>
- WHO. 2003. Guiding Principles for Complementary Feeding of the Breastfed Child. Geneva: WHO. http://www.who.int/child_adolescent_health/documents/a85622/en/index.html
- WHO. 2005. Guiding Principles for Feeding Non-breastfed Children 6-24 months of age. Geneva: WHO. http://www.who.int/child_adolescent_health/documents/9241593431/en/index.html

2.3 PREVENTIVE AND CURATIVE HEALTH AND NUTRITION SERVICES

2.3.1 Reasons to Include Preventive and Curative Health and Nutrition Services

Because of the strong causal link between child illness and malnutrition, basic preventive and curative health services are essential in any program promoting improved child nutrition. To encourage uptake of available health services, mothers/caregivers participating in PM2A must receive preventive health services in order to obtain the individual and household rations. Each MYAP should establish the required health services based on MOH protocol and program context. The MOH or agency that operates the local health system usually provides these services.

Awardees implementing Title II MYAPs often work in difficult environments with limited or no access to even minimally-functioning health services. The existing system may not have the capacity to cope if demand for services increases suddenly. In these circumstances, the priority of the MYAP will be to strengthen essential health services, improve quality, and improve community access and ownership. Potential Awardees should adjust program design and PM2A program eligibility conditions accordingly.

2.3.2 Description of Preventive and Curative Health and Nutrition Services in PM2A

General descriptions of the preventive and curative health and nutrition services considered essential to PM2A are below, followed by components that are useful complementary services. The descriptions are general guidelines and will vary from country to country based on MOH protocol. In general, the health services are offered by trained health care providers, such as doctors, nurses and midwives at the health facility, in the community or both. Some services are provided by CHWs. The role of the MYAP is to promote these services, coordinate and promote health campaigns, advocate for sufficient supplies and resources, and provide supplementary training and support as needed. As discussed earlier, each MYAP will determine what aspects of these services are considered requirements for program participation.

Essential Components

Specific details will vary from country to country.

Antenatal and Post-Natal Care

Typical services provided at prenatal consultations include physical examinations, provision of iron/folate supplements and tetanus toxoid immunizations, among others. Regular postnatal consultations include home visits to the mother (ideally at days 1, 3 and 7),³³ physical examinations of the mother and newborn, provision of one dose of postpartum vitamin A to the mother within six weeks of delivery (if the mother did not already receive this via a home visit soon after delivery), and other health services.

Child Immunization

Standard childhood immunizations should be given by a trained health provider according to country protocol. At a minimum, the required childhood immunizations typically include Bacillus Calmette-Guérin (BCG), oral polio vaccine, diphtheria-tetanus-pertussis (DTP), measles (or measles-mumps-rubella), and may also include yellow fever, hepatitis B and haemophilus influenza b (Hib).

Routine Child Micronutrient Supplementation and Deworming

In many countries, MOH policy indicates that children 6-59 months should receive twice-yearly high-dose vitamin A supplementation and routine deworming. In addition, in non-malarious areas, some country protocols include iron supplementation for children.

³³ WHO and UNICEF. 2009. Home Visits for the Newborn Child: A Strategy to Improve Survival. WHO/UNICEF Joint Statement. http://www.unicef.org/health/files/WHO_FCH_CAH_09.02_eng.pdf.

Treatment of Illness/Integrated Management of Childhood Illness (IMCI)

(Community-Based IMCI [C-IMCI] is also practiced at the community level.)

Services that examine ill children and manage their illnesses should be available and accessible, and provide needed treatment and medications, such as oral rehydration therapy and zinc for diarrhea, antibiotics for infections, malaria treatment, counseling, and other essential curative services. Many countries have adopted IMCI, a facility-based program that addresses the five major causes of childhood morbidity and mortality – pneumonia, diarrhea, malaria, malnutrition and measles – by focusing on case-management skills, strengthening the health system, and improving family and community practices through an integrated approach.

Screening and Referral for SAM

Children with SAM are at high risk of death. PM2A programs, which have regular contacts with children, should have mechanisms in place to screen for SAM using mid-upper arm circumference (MUAC) and refer cases of SAM to appropriate treatment programs. In circumstances where a program detects high levels of SAM and there are no appropriate treatment programs, indicating a need for SAM-specific services, the MYAP should advocate for or create a separate but linked program for SAM.

Useful Complementary Health and Nutrition Services

BCC/Nutrition Counseling at Health Facilities

In addition to community- and household-level BCC, visits to the health facility provide another contact opportunity for nutrition counseling. Well-baby visits, such as those for immunization, provide an opportunity to discuss optimal breastfeeding, complementary feeding and hygiene practices, while sick-child visits may focus on proper feeding of the sick child. All messages delivered at health facilities should be consistent with the BCC done at the household and community level, thereby reinforcing good behaviors.

GMP

In countries and communities that have facility-based GMP or CBGP programs in place, MYAPs should consider linking their PM2A activities with them. Through PM2A, the MYAP can encourage beneficiaries to participate in GMP/CBGP, support the facility or community implementing the program, provide nutrition counseling and BCC services at GMP/CBGP, and train GMP/CBGP staff and volunteers. In locations where there is no GMP/CBGP, a MYAP may choose to establish a CBGP program.

BOX 6. REFERENCES FOR PREVENTIVE AND CURATIVE HEALTH SERVICES AND HEALTH SYSTEMS STRENGTHENING

- CSHGP. TRMs on: Diarrheal Disease, Immunization, Maternal and Newborn and Nutrition. <http://www.childsurvival.com/documents/trms/tech.cfm>
- CSHGP TRMs on: Integrated Management of Childhood Illness, Health Systems Strengthening and Capacity Building. <http://www.childsurvival.com/documents/trms/xcut.cfm>
- The Food and Nutrition Technical Assistance Project (FANTA). 2008. Training Guide for Community-Based Management of Acute Malnutrition. Washington, DC: FANTA at the Academy for Educational Development (AED). <http://fantaproject.org/cmam/training.shtml>
- CORE Group, IMCI Working Group: http://207.226.255.123/working_groups/childhood.cfm.
- Global Health e-learning center: <http://www.globalhealthlearning.org/login.cfm>. (Online courses to strengthen existing health systems.)
- Marcia Griffiths, Kate Dickin, and Michael Favin. 1996. Promoting the Growth of Children: What Works? Tool #4. The World Bank Nutrition Toolkit. Washington, DC: The World Bank.

3. PROGRAM DESIGN

3.1 LINKING WITH OTHER MYAP FOOD SECURITY ACTIVITIES

MYAPs are multi-sectoral programs that implement coordinated activities in health, nutrition, agriculture and livelihoods to improve the overall food security and nutrition of a given community. PM2A is just one component of a comprehensive MYAP and should be implemented in the same communities as the MYAP's access and availability components. Ideally, individual households will participate in as many different MYAP interventions as possible. For example, families with a pregnant woman or child under 2 may participate in an income generation activity in addition to PM2A, and PM2A could seek BCC contact points outside of the health sector if PM2A participants are also active in agriculture, marketing or other activities. Households in the community that are not participating in PM2A would still have access to the other MYAP interventions and would be encouraged to participate in multiple MYAP activities in agriculture and livelihoods.

It is up to individual MYAPs to design an integrated program that is appropriate to the local context. If constraints, such as limited access to health services, prevent a MYAP from providing a fully-integrated package in certain communities, the proposal should discuss those constraints, explain the plans to overcome them and eventually offer an integrated program. For example, if limited access to key health services restricts the number of communities where PM2A can be implemented at project start-up, applicants may consider starting PM2A in a smaller number of communities while working to strengthen health services in the other communities in preparation for phasing in PM2A. Alternatively, projects may consider implementing a reduced PM2A package in program areas with limited health services and phase in the health services package as they become accessible to the community, eventually implementing the full PM2A.

3.2 COVERAGE

PM2A aims to reach 100 percent of the target population, and programs should incorporate intensive community mobilization and outreach in order to maximize coverage. However, given the challenging environments in which MYAPs operate, even a very well-implemented program may not reach everyone. To date, there is not enough program experience to recommend an expected PM2A coverage to guide program planning and budgeting. Therefore, a MYAP team should design the PM2A component based on the absolute maximum coverage it estimates it can achieve in the target area so that PM2A rations, health services and BCC programs are available to all who meet eligibility criteria and wish to enroll in the program. Estimates can be made based on past program experience, feedback from communities and community leaders, and the Haiti experience of reaching 73 percent of the target population in its catchment area.

Note: In the context of program design and planning, expected coverage is not a performance indicator against which program success will be measured, but a planning tool to ensure adequate resources to provide the full PM2A services in a program area.

To achieve high coverage, programs have used strong community outreach, census-based programming, social mapping, Participatory Rapid Appraisal techniques to identify eligible people, and worked with community workers who are well-respected and know most families in their program area.

3.3 COMMUNITY OUTREACH

All programs must include a strong community outreach component in order to gain and maintain community support, overcome barriers to community participation and achieve the high coverage that PM2A requires. The MYAP should introduce PM2A to the community, explain the program goals, describe the services and requirements, and address any community concerns. The outreach will also help to identify program beneficiaries and encourage their participation.

Each program must determine the most effective methods of achieving community outreach in their own program area. Some programs have conducted community outreach through home visits by CHWs, meetings with key community leaders who help to mobilize community members, or providing services and information at key community gathering places.

3.4 FORMATIVE RESEARCH³⁴

Formative research is the essential first phase of developing a behavior change strategy and will take place as a first step in implementing the new MYAP. It will assess the current care and feeding practices, and identify constraints and facilitating factors to adopting optimal feeding practices. Formative research will help the program design team to understand the target group's perspective and why they do or do not practice certain behaviors, identify the key target audiences for behavior change, identify feasible priority behaviors to promote, understand what influences those behaviors, and identify the best methods of delivering BCC.

There are several different formative research methods that programs use to develop their behavior change interventions and programs may wish to use a combination of methods to suit their needs. Some common methods include: doer/non-doer analysis, barrier analysis, trials of improved practices (TIPS), positive deviance inquiry (PDI), focus groups, in-depth interviews and local determinants of malnutrition studies, among others.

³⁴ Parts of this section were adapted from the CSHGP TRM on *Behavior Change Interventions* (2007). www.childsurvival.com.

BOX 7. RESOURCES FOR CONDUCTING FORMATIVE RESEARCH

- CORE Group Social and Behavior Change Working Group. 2008. Designing for Behavior Change. http://207.226.255.123/working_groups/DBC_Curriculum_Final_2008.pdf
- For PDI: CORE Group. 2003. Positive Deviance/Hearth: A Resource Guide for Sustainably Rehabilitating Malnourished Children. http://207.226.255.123/working_groups/Hearth_Book.pdf
- Emory University; Nutrition Research Institute, Peru; National Institute of Public Health, Mexico; PAHO. 2003. ProPAN: Process for the Promotion of Child Feeding. www.paho.org/English/AD/FCH/NU/ProPAN-index.htm
- For barrier analysis: Thomas P. Davis. November 2004. Barrier Analysis: A tool for improving behavior change communication in child survival and community development programs. Food for the Hungry. http://barrieranalysis.fhi.net/how_to/how_to_conduct_barrier_analysis.htm
- For TIPS: K. Dickin, M. Griffiths, and E. Piwoz. 1997. Designing by Dialogue: A Program Planner's Guide to Consultative Research for Improved Young Child Feeding. Washington, DC: Support for Analysis and Research in Africa (SARA) Project at AED. <http://www.pronutrition.org/files/Designing%20by%20Dialogue%20Young%20Child%20Feeding.pdf>

3.5 ADDRESSING ACUTE MALNUTRITION

3.5.1 SAM in Children Under 5

PM2A is focused on preventing malnutrition among children under 2; however, any child under 5 who develops SAM should be referred to therapeutic services urgently.

How a MYAP chooses to address SAM will depend on the magnitude of the problem and the existence of other SAM management services in the community. If SAM is of concern and there are no treatment services available, a potential awardee may wish to set up a community-based management of acute malnutrition (CMAM) program as a separate IR in the MCHN component of the MYAP. This program should follow all MOH protocols and be linked with PM2A, including referral in both directions. If there are already SAM services available, MYAPs are better placed to link with these services and set up a strong detection and referral system. If SAM is an uncommon problem, referral to the nearest appropriate treatment services is probably the best strategy for MYAPs.

3.5.2 MAM in Children 24-59 Months

If the prevalence of moderate acute malnutrition (MAM) (weight-for-height [WFH] < -2 Z-score and > -3 Z-score) in children 24-59 months is of concern in the program area and there are no MAM management services available, a MYAP may choose to include a separate IR that addresses MAM in this age group, and link it with any programs addressing SAM. This would be separate from the PM2A program, but may be included as part of a MYAP's MCHN program.

3.6 SUSTAINABILITY

From the program design phase, a Title II MYAP should incorporate an exit strategy to help sustain program impacts and maintain the program activities that will help the community to continue improving their food security. Activities that produce permanent or self-sustaining results can be phased out completely while other activities may be phased over to the community, the government or another institution. To-date, there is no evidence to support any one strategy for phase-out or phase-over of PM2A, but the following are guidelines for sound exit strategies that will promote overall MYAP sustainability:

- Include an exit strategy from the program design phase. The specific details of how a program will exit may develop over the first half of the project.
- Develop a comprehensive sustainability strategy that examines ways to sustain outcomes and impacts of all MYAP components: availability, access and utilization.
- Communicate clearly with the community from the outset of the program, establishing a program timeline and expectations.
- Build the capacity of the community and community-based organizations to gradually take responsibility for some program activities. Phase-over to the community is best achieved on activities that the community values and is committed to maintaining. For example, Care Groups have continued well past program exit in several communities because the community valued their contribution. Key stakeholders and their responsibilities should be identified early in the project so that they can build the skills necessary.
- Design activities that empower individuals and communities so that they are more able to demand and provide certain services.
- Link PM2A closely with the MYAP activities that promote increased agricultural production and improved livelihoods. By increasing the population's ability to access food while also improving care and feeding practices through BCC the ration component may become less essential, as some families are better able to fill their energy gap and are better poised to practice optimal care and feeding.
- Collaborate with the government to have it take over certain aspects of PM2A, such as the food ration or support for CHWs. In some circumstances, Ministries of Health have adopted or scaled-up interventions that were originally implemented by an NGO.
- Strengthen existing services so that strong BCC and health services continue to be demanded and provided in the program area.
- Seek opportunities to access locally-produced fortified and nutrient-dense foods.
- Plan for close-out, determining when to cease enrollment in any aspects of PM2A that will be phased out. Communicate with the community about this so that it is not surprised when enrollment ceases.

3.7 COST CONSIDERATIONS³⁵

PM2A may cost more per beneficiary than other components of the Title II program. The increased cost per beneficiary will come not only from the amount of food, but also from increased need for

³⁵ Adapted from: CORE Nutrition Working Group. nd. *Pathways for Selecting Appropriate Nutrition Approaches*. Draft.

transportation, storage and inventory control. This may have implications on the numbers and locations of beneficiaries targeted and on the total MYAP budget. In planning for a PM2A intervention, there are several cost considerations to take into account, including program inputs, staffing, direct implementation needs and technical assistance needs to successfully implement the program. Exact needs and costs will vary among programs and countries. The following is a list of costs generally required to implement a food-assisted preventive MCHN program.

3.7.1 Program Inputs

There are several supplies that are commonly used in PM2A programs that the MYAP would need to supply. These include:

- Food: household and individual rations
- Scales for weighing rations (unless they are prepackaged elsewhere)
- Beneficiary cards: e.g., health and ration cards with space to record immunizations, vitamin A supplementation cards, eligibility and track rations received
- Scales for weighing children if there is GMP (preferably digital)
- Length boards
- Visual aids/information, education and communication (IEC) materials/job aids for BCC, health and nutrition counseling, or education sessions
- MUAC tapes for screening for SAM
- Office equipment
- Staff transportation equipment (e.g., vehicles, bicycles, motorbikes)

3.7.2 Staffing

PM2A includes an array of services that would require different types of qualified personnel. Potential staffing needs include:

- Nutritionists
- Qualified medical professionals to support health service strengthening
- CHWs or volunteers (may need incentives instead of pay)
- BCC experts
- Commodity and logistics staff
- Program managers
- Administrative staff
- Monitoring and evaluation (M&E) staff

3.7.3 Direct Program Implementation

Activities that programs need to consider in developing their budget include:

- Formative research
- Operations research (OR)
- M&E and Reporting
- Development of BCC materials
- Printing of materials
- Training health facility staff and CHWs

- BCC methods: support groups, counseling, home visits
- Outreach efforts
- Food distribution
- Commodity transport
- Commodity storage
- Commodity management
- Support to health services: advocacy, campaigns, skills improvement

3.7.4 Technical Assistance Needs

The program will need to determine how much technical assistance it will seek in-house and when it will need to hire consultants for certain activities.

4. PROGRAM IMPLEMENTATION

4.1 PROGRAM START-UP

At program start-up, Awardees will need to determine how best to provide high-quality PM2A services as quickly as possible to all eligible program beneficiaries. Because the program will need to develop and test behavior change curricula and materials, train staff and volunteers, assure a minimum package of health services, and have food rations available, some time will elapse between the beginning of the program and the provision of PM2A. Each MYAP should determine the most efficient way to start up its program based on its country context, training needs and requirements, and logistical constraints. For example, if a MYAP is unable to handle providing all services at the same time to a large caseload at the beginning of the program, it may choose to phase in the program one target group at a time or one service at a time, or gradually phase in communities over an established timeframe.

4.2 SERVICE DELIVERY POINTS

4.2.1 Key Principles

As PM2A is an approach delivering multiple services provided by multiple stakeholders, including the MOH, community members and program staff, multiple service delivery points will be necessary. A MYAP will need to work with the community to identify where and how it will distribute rations, deliver behavior change programs and messages, and collaborate with the MOH to provide essential health and nutrition services.

Country contexts vary and a MYAP will need to select service delivery points that make the most sense to its context, specifically locations that are accessible, culturally appropriate and do not pose major barriers to program participation. **Sections 4.2.2, 4.2.3 and 4.2.4** contain examples of potential delivery points which may be adapted to suit program needs.

4.2.2 Food Distribution

A program will want to establish a food distribution schedule and a set food distribution point for a defined program area. The location should be reasonably accessible for program beneficiaries and large enough to handle the population it serves. At the food distribution point, there should be systems for verifying eligibility (e.g., monitors verifying beneficiary cards), distributing the ration, and verifying the ration composition and quantity.

4.2.3 Behavior Change Contact Points³⁶

Key principles of behavior change programming include delivering consistent and clear messages through multiple channels, providing individual contact and group support, using visual materials to support the messages. A MYAP will need to investigate the opportunities for delivering behavior change in their communities. The following are examples of locations that behavior change services are frequently offered.

³⁶ Sections adapted from: CORE Nutrition Working Group. nd. *Pathways for Selecting Appropriate Nutrition Approaches*. Draft.

At Home

A home visit conducted by someone trained in nutrition counseling ensures direct interaction between the mother and the CHW or community volunteer, which helps the CHW or volunteer to better understand the mother's particular barriers to behavior change, jointly develop strategies to overcome those barriers, negotiate behavior change and interact with other influential people in the household. This direct support provided to the individual mother addressing her individual needs is a critical component of achieving long-term improvements in nutrition.

Ration Distribution Site or Other Community Meetings or Festivals Involving PM2A Target Groups

Because mothers/caregivers must regularly collect the ration at a central site, the site is a potential BCC contact point. Programs could choose to perform skits or songs, hold group sessions, or conduct individual counseling if there is appropriate space. In addition, printed materials reinforcing key messages may be made available at the ration distribution site. Community meetings are an opportunity to reach a wider target audience.

Health Facilities and Community Health Posts

A health worker can provide individual counseling to mothers who attend antenatal and post-partum care or bring their children for well-baby visits, sick child visits or immunization. The program may also hold group sessions if many mothers gather for antenatal care or well-child visits on certain scheduled days. If the community health posts are convenient and centrally located, they may be a place to hold scheduled peer support meetings.

Child Health Days or Weeks

If the community has regular organized campaigns to deliver vitamin A, immunizations or other preventive services to young children, the MYAP can use this opportunity to conduct BCC activities, such as performing dramas or songs, holding group sessions, or distributing or posting visual materials.

CBGP or GMP Sessions

If a CBGP or GMP program meets regularly at the community level and achieves high coverage, this is a great opportunity to provide BCC services. CBGP programs will already include nutrition counseling and BCC, but the PM2A program may help to strengthen them. Facility-based GMP programs will usually include a weak BCC component. These monthly gatherings of mothers and young children are a useful opportunity to provide individualized guidance based on the child's growth pattern and age, as well as group support, community edu-tainment and visual materials.

Public Spaces

Mass media, such as radio spots, billboards and posters, can be put in public spaces in the community to create awareness of specific behaviors or draw attention to ongoing activities or health issues. Mass media permits the program to target all community members with broad behavior change messages.

4.2.4 General Health Services

Home Visits

Trained health staff make home visits to check on women in late pregnancy and postpartum, and to follow up on absentee children or those with growth faltering. Services provided vary according to the reason for the visit. For pregnant women, visits might include pregnancy follow-up, provision of iron/folate and detection of danger signs. For mothers of newborns, visits might include a postnatal follow-up (on days 1, 3 and 7 after birth or according to MOH protocol) and the provision of postpartum vitamin A (within six weeks of delivery). Visits for other groups might include an examination of the child's health and nutritional status (including anthropometric measurement) or discussion with the mother to identify constraints to participation. In all cases, appropriate counseling is also provided. Some of these activities, including following up of absentees and children with growth faltering and nutrition counseling, may also be performed by a CHW. Provision of medical services, however, would need to be conducted by trained health professionals, following country protocol.

Community Health Centers or Health Posts

Community members may not be able to easily access fully-functioning, staffed health facilities. In these circumstances, it is useful to have certain essential services available at the community level provided by trained community members, such as traditional birth attendants, or health staff who visit the community. If country policy permits, antenatal and post-natal care, micronutrient supplementation, vaccinations, and treatment of common illnesses can be done at the community level.

Ration Distribution Site

Certain preventive services, such as vaccinations, deworming and micronutrient supplementation, may be provided at the ration distribution site if conditions are appropriate. This will help to streamline services and minimize the numbers of people not meeting PM2A participation conditions by providing the required services on-site.

Health Facilities

Program beneficiaries can receive their preventive and curative health services at health facilities that are staffed by nurses, physicians, midwives and other qualified health personnel. Mothers can receive antenatal and post-natal health consultations and give birth at the health facility. Children can receive vaccinations, vitamin A supplementation, well-baby examinations and treatment for illness. Additionally, nutrition and health counseling can be provided at the health facility.

4.3 QUALITY ASSURANCE (QA)³⁷

While essential to program success, a well-designed program is not sufficient to reduce malnutrition. The quality of delivery and utilization of interventions will determine whether the program is truly successful. MYAPs must continually work to assure that the program is being implemented well, is tailored to the local situation. They must adjust the program when challenges or problems are identified.

³⁷ Sections adapted from: CSHGP. 2007. *Technical Reference Materials: Quality Assurance*. <http://www.childsurvival.com/documents/trms/xcut.cfm>.

QA includes activities that contribute to defining, designing, assessing, monitoring and improving the quality of program implementation.³⁸ Useful principles of QA include focusing on the client's perspective and needs, viewing work in terms of systems and processes, making data-based decisions, and working as a team with stakeholders at various levels. Core QA activities include defining quality in terms of what is optimal and achievable; measuring quality through baseline measures and M&E; and improving quality through identifying what need to be improved and who will improve it, analyzing processes and systems, developing and testing hypotheses about solutions, and monitoring the changes. There are several QA methods and tools available to apply/adapt to PM2A. A few are briefly described below.

4.3.1 Operations Research (OR)

OR assesses the quality of program implementation and service delivery, and identifies operational and utilization constraints. It is based on the MYAP's program theory, which is the cause and effect plan of activities (key inputs, outputs and outcomes), and evaluates key steps in program implementation. OR conducts quantitative and qualitative assessments to collect information on each essential step to improve understanding of how the program works or why it is not working. If the OR determines that the program is being implemented well based on program theory but expected outcomes and impacts are not achieved, there may be a flaw in the program theory.

OR may use both quantitative and qualitative methods to examine constraints to optimal program implementation, utilization of services, perceptions of beneficiaries, staff motivational factors or others. OR obtains information from a range of stakeholders, including program staff at all levels, program participants and those not participating in the program. The OR results are discussed with program implementers and other key stakeholders to identify priority problems to address, determine solutions and develop an action plan. A follow-up round to assess progress in implementing the action plan is recommended, if feasible.

4.3.2 Quality Improvement and Verification Checklists (QIVC)³⁹

A QIVC is a supervisory tool used to monitor and improve a CHW's or volunteer's work, particularly on activities that are conducted regularly, have multiple steps and can be observed. It can be applied to different program activities, such as counseling or GMP. A supervisor observes the activity that the worker or volunteer is performing and notes whether he/she performed key tasks in carrying out the activity. After observing, the supervisor privately provides supportive feedback to the health worker and analyzes and discusses strengths and weaknesses with him/her, making a commitment to improve performance in areas of weakness. In addition to providing individual feedback, the information used can be aggregated to identify system-wide weaknesses, and individual workers can be tracked over time.

4.3.3 Client-Oriented, Provider-Efficient Services (COPE)

COPE is a process developed by EngenderHealth that helps health care staff continuously improve the quality and efficiency of services provided at their facilities and make services more responsive to client

³⁸ The content of this paragraph is summarized from the CSHGP TRMs. For more details, see: <http://www.childsurvival.com/documents/trms/xcut.cfm>.

³⁹ Adapted from: Food for the Hungry. 2006. "Quality Improvement and Verification Checklists." Presented at the CORE Spring Meeting, April 24-28, 2006, Easton, Maryland, US.

needs. It provides staff with tools to identify problems and develop solutions using local resources, and encourages all levels of staff and supervisors to work together as a team and involve clients in assessing services. COPE emphasizes staff involvement, ownership, self-assessment and teamwork. All staff – including managers, supervisors, doctors, nurses, counselors, health educators, receptionists, guards, cleaning staff and community volunteers who support clinics – participate in the COPE process.

COPE consists of a set of tools used together:

1. Ten self-assessment guides organized around client rights and staff needs
2. Client interview guides for staff to conduct informal interviews with clients following clinic visits
3. Client flow analysis to track the flow of clients in a clinic from entry to exit
4. Action plan to help resolve problems identified during the COPE exercise

COPE is meant to be integrated with other quality improvement (QI) approaches and tools, and is part of a QI package that also includes:

- **Facilitative supervision:** Mentoring, joint problem solving, and two-way communication between supervisor and supervisees
- **Medical monitoring:** Identifies gaps between best and actual practices and makes recommendations
- **Whole-site training:** Links supervision and training, and emphasizes teamwork and sustainability
- **Quality measurement tool:** Measures quality annually based on COPE self-assessment tools
- **Cost-analysis tool:** Staff measure the direct costs of providing specific health services to improve efficiency of staffing and use of staff time and supplies, and to set user fees, if necessary, to reflect actual direct costs
- **Community COPE:** A participatory process and tool for health care staff to build partnerships with community members to improve services so they are more responsive to local needs

4.3.4 Partnership Defined Quality (PDQ)

PDQ is a method developed by Save the Children to improve the quality of health services and involve the community in defining, implementing and monitoring QI processes through linking QA and QI with community mobilization. The process includes four phases:

1. Building support by obtaining commitment for participation from all key stakeholders, both facility-and community-based and at the local or national level
2. Exploring quality through understanding various stakeholders' perspectives on quality
3. Bridging the gap through bringing relevant stakeholders together to share ideas and perspectives, form a team to develop a shared vision of quality, and identify and prioritize problems and constraints to achieving quality
4. Working in partnership to solve problems as a team through dialogue and analysis of the root causes of problems with quality, identification of solutions and selection of indicators to monitor progress

PDQ considers inputs from communities and health workers on quality; however, it is important to note that PDQ is not a substitute for a technical assessment of quality. PDQ should preferably be conducted in coordination with standardized QA at the facility level.

4.3.5 Quick Investigation of Quality (QIQ)

QIQ was developed by the Monitoring and Evaluation to Assess and Use Results (MEASURE) Evaluation Project in collaboration with various Awards to provide a low cost, practical way to routinely measure quality of care (QC) in family planning services. The method includes collecting data for a specified list of QC indicators using a set of field-tested instruments designed to measure the indicators. The indicators are measured using three methods of data collection:

1. A facility audit with questions for the program manager that is used to determine the readiness of each facility to serve the client, including types of services provided, types and amounts of supplies in stock, condition of the facility, and types of records
2. Observation of provider-client interactions and selected clinical procedures, including evaluation of the performance of the provider during counseling and clinical sessions
3. Exit interviews with clients departing from the facility to collect information about the client's experience

Used together, the three methods measure all of the indicators, each instrument contributing to a more comprehensive picture of QC. The tools can potentially be adapted for services other than family planning.

BOX 8. REFERENCES FOR QUALITY ASSURANCE METHODOLOGIES

- The Quality Assurance Project (QAP): <http://www.qaproject.org/>.
- The Framework for Operations and Implementation Research in Health and Disease Programs. www.theglobalfund.org/documents/me.FrameworkForOperationsResearch.pdf
- COPE. <http://www.engenderhealth.org/pubs/quality/cope.php>
- Ronnie Lovich, Marcie Rubardt, Debbie Fagan, and Mary Beth Powers. 2003. Partnership Defined Quality: A Tool for Partnership and Health Provider Collaboration. http://www.phishare.org/files/2265_PDQ_Final_Manual.pdf
- Quick Investigation of Quality (QIQ). February 2001. A User's Guide for Monitoring Quality of Care in Family Planning. MEASURE Evaluation Manual Series No. 2. <http://www.cpc.unc.edu/measure/tools/family-planning/monitoring-quality-of-care-in-fp>

4.4 STAFFING NEEDS

The provision of PM2A services requires both health care and community staff (e.g., trained health care providers, nutritionists, health promoters and CHWs) and commodities management staff. The program will require trainers on a short-term basis. Strong supervisory support over the course of the project is essential to program quality. The organizational structure for both staff teams might vary according to Awardee practices, local resources, the MOH's level of presence and other factors.

5. MONITORING AND EVALUATION

5.1 TITLE II M&E GUIDELINES

The United States Agency for International Development (USAID) Office of Food for Peace (FFP) requires MYAP Awardess to report on annual monitoring indicators to assess progress in the implementation of the program and on baseline and final evaluation indicators to assess program impact. Midterm evaluations are also encouraged, with a focus on implementation processes at the beneficiary level. M&E procedures should follow standard Title II MYAP Guidance (see **Box 10**).

5.1.1 Monitoring

There are seven required FFP monitoring indicators on anthropometry, behavior change and community resilience, which are reported annually at the beneficiary level (**Box 9**). In addition, MYAPs can and should establish their own monitoring indicators for important program processes and outputs they wish to monitor, such as program participation or percentage of beneficiaries achieving certain program benchmarks. The indicators are reported using the Standardized Annual Performance Questionnaire (SAPQ) and Summary Request and Beneficiary Tracking Tables.

5.1.2 Evaluation

FFP requires that MYAPs measure and report on four impact indicators, two anthropometric indicators and two household food access indicators (**Box 9**). These indicators have a fixed definition and are measured at the population level. MYAPs may also include other impact indicators appropriate to their program. The required evaluation design includes a baseline survey and a final evaluation survey. Pre-post comparisons should be based on “program adequacy,” meaning no control groups or causality analysis is required, but sample size must be sufficient to determine whether differences between point estimates at baseline and final are statistically significant. MYAPs should include all required impact and outcome indicators, according to FFP Guidance.

BOX 9. FFP REQUIRED MYAP M&E INDICATORS

Impact Indicators

Access

1. Average number of months of adequate food provisioning
2. Average household dietary diversity score

Utilization

3. Percentage of underweight (WFA < -2 Z-score) children 0-59 months
4. Percentage of stunted (height-for-age [HFA] < -2 Z-score) children 6-59 months

Monitoring Indicators

Anthropometry

1. Anthropometric indicator of program's choice to regularly monitor the nutritional status of beneficiaries

Behavior Change

2. Percentage of beneficiaries adopting an improved health, nutrition or hygiene behavior (chosen from FFP menu)
3. Percentage of beneficiaries (farmers) using a project-defined minimum number of sustainable agricultural technologies

Community Resilience

4. Number of program-assisted communities with improved physical infrastructure to mitigate the impact of shocks, in place as a result of program assistance
5. Number of assisted communities with disaster early warning and response systems in place, as a result of program assistance
6. Number of assisted communities with safety-nets to address the needs of their most vulnerable members in place, as a result of program assistance
7. Number of assisted communities with improved community capacity as a result of MYAP assistance

BOX 10. REFERENCES FOR M&E OF TITLE II MYAPS

- Gilles Bergeron, Megan Deitchler, Paula Bilinsky, and Anne Swindale. February 2006. Monitoring and Evaluation Framework for Title II Development-oriented Projects. FANTA Technical Note No. 10. http://www.fantaproject.org/downloads/pdfs/TN10_MEFramework.pdf
- Gilles Bergeron, Anne Swindale, Megan Deitchler, and Paula Bilinsky. March 2006. Evaluating Title II Development-oriented Multi-Year Assistance Projects. FANTA Technical Note No. 11. http://www.fantaproject.org/downloads/pdfs/TN11_MYAP.pdf
- Food for Peace Information Bulletins:
http://www.usaid.gov/our_work/humanitarian_assistance/ffp/ffpib.html
 - FFPIB 07-01: USAID and Food for Peace Indicators and Reporting Systems
 - FFPIB 07-02: New Reporting Requirements for Food for Peace
 - FFPIB 09-07: Title II Awardee Reporting Requirements

REFERENCES

- Bhandari, Nita, Sarmila Mazumder, Rajiv Bahl, Jose Martines, Robert E. Black, Maharaj K. Bhan, and other members of the Infant Feeding Study Group. 2004. "An educational intervention to promote appropriate complementary feeding practices and physical growth in infants and youth in Rural Haryana, India." *Journal of Nutrition* 134: 2342-2348.
- Bhutta, Z.A., T. Ahmed, R.E. Black, S. Cousens, K. Dewey, E. Giugliani, B.A. Haider, B. Kirkwood, S.S. Morris, H.P. Sachdev, and M. Shekar. 2008. "What Works? Interventions for maternal and child undernutrition and survival." *The Lancet* 371 (9610): 417-40 (February 2).
- Black, Robert E., Lindsay H. Allen, Zulfiqar A. Bhutta, Laura E. Caulfield, Mercedes de Onis, Majid Ezzati, Colin Mathers, and Juan Rivera. 2008. "Maternal and child undernutrition: global and regional exposures and health consequences." *The Lancet Series on Maternal and Child Undernutrition. The Lancet* 371: 243-60 (January 19).
- Caulfield, L.E., S.L. Huffman, and E.G. Piwoz. 1999. "Interventions to improve the intake of complementary foods by infants 6-12 months of age in developing countries: Impact on growth and prevalence of malnutrition and potential contribution to child survival." *Food and Nutrition Bulletin* 20: 183-200.
- Child Survival and Health Grants Program (CSHGP). 2007. *Technical Reference Materials: Behavior Change Interventions*. <http://www.childsurvival.com/documents/trms/xcut.cfm>.
- . 2007. *Technical Reference Materials: Quality Assurance*. <http://www.childsurvival.com/documents/trms/xcut.cfm>.
- CORE Group Social and Behavior Change Working Group. 2008. *Designing for Behavior Change Curriculum*. http://207.226.255.123/working_groups/DBC_Curriculum_Final_2008.pdf.
- CORE Nutrition Working Group. nd. *Pathways for Selecting Appropriate Nutrition Approaches*. Draft.
- Dewey, Kathryn G., and Seth Adu-Afarwuah. 2008. "Systematic review of the efficacy and effectiveness of complementary feeding interventions in developing countries." *Maternal and Child Nutrition* 4: 24-85.
- Food and Agriculture Organization of the United Nations (FAO). nd. "Intensity of food deprivation." http://www.fao.org/fileadmin/templates/ess/documents/food_security_statistics/Depth_Hunger_en.xls.
- . nd. "Prevalence of undernourishment in total population." http://www.fao.org/fileadmin/templates/ess/documents/food_security_statistics/PrevalenceUnder_nourishment_en.xls.

- . nd. "Minimum dietary energy requirements."
http://www.fao.org/fileadmin/templates/ess/documents/food_security_statistics/MinimumDietaryEnergyRequirement_en.xls.
- Food for the Hungry. 2006. "Quality Improvement Verification Checklists." Presented at CORE Spring Meeting, April 24-28, 2006, Easton, Maryland, US.
- Food and Nutrition Technical Assistance Project (FANTA). 2007. *Recommendations for the Nutrient Requirements for People Living with HIV/AIDS*. Washington, DC: FANTA at the Academy for Educational Development (AED).
http://www.fantaproject.org/downloads/pdfs/Nutrient_Requirements_HIV_Feb07.pdf.
- Institute of Medicine (IOM). 2005. *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids*. Washington, DC: The National Academies Press.
- Lutter et al. 1990. "Age-specific responsiveness of weight and length to nutritional supplementation." *American Journal of Clinical Nutrition* 51: 359-64.
- Pan American Health Organization (PAHO). 2004. *Guiding Principles for Complementary Feeding of the Breastfed Child*. Geneva: WHO.
http://www.who.int/child_adolescent_health/documents/a85622/en/index.html.
- Roy, S.K., G.J. Fuchs, Zeba Mahmud, Gulshan Ara, Sumaya Islam, Sohana Shafique, Syeda Sharmin Akter, and Barnali Chakraborty. 2006. "Intensive nutrition education with or without supplementary feeding improves the nutritional status of moderately-malnourished children in Bangladesh." *Journal of Health, Population and Nutrition* 23(4): 320-30 (January 1).
- Ruel, Marie T., Purnima Menon, Jean-Pierre Habicht, Cornelia Loechl, Gilles Bergeron, Gretel Pelto, Mary Arimond, John Maluccio, Lesly Michaud, and Bekele Hankebo. 2008. *The Lancet* 371 (9612): 588-595 (February 16).
- Schroeder, D.G., R. Martorell, J.A. Rivera, M.T. Ruel, and J.P. Habicht. 1995. "Age Differences in the Impact of Nutritional Supplementation on Growth." *Journal of Nutrition Supplement: The INCAP Follow-Up Study*. *Journal of Nutrition* 125 (April) (4Suppl): 1051S-1059S.
- Shrimpton, Roger, Cesar G. Victora, Mercedes de Onis, R.C. Lima, Monika Blossner, and Graeme Clugston. 2001. "Worldwide Timing of Growth Faltering: Implications for Nutritional Interventions." *Pediatrics* 107 (5): E75 (May).
- UNU/WHO/FAO. 2004. *Human energy requirements: Report of a joint FAO/WHO/UNU expert consultation, 17-24 October 2001*. Rome: FAO. <http://www.fao.org/docrep/007/y5686e/y5686e00.HTM>

- USAID. 1999. *Commodities Reference Guide*. Washington, DC: USAID.
http://www.usaid.gov/our_work/humanitarian_assistance/ffp/crg/intro.htm
- WHO. 1998. *Safe vitamin A dosage during pregnancy and lactation*. WHO Micronutrient Series WHO/NUT/98.4. Geneva: WHO.
http://www.usaid.gov/our_work/humanitarian_assistance/ffp/crg/intro.htm (Accessed October 12, 2009).
- WHO/FAO/UNU. 2007. *Protein and amino acid requirements in human nutrition: Report of a joint WHO/FAO/UNU expert consultation*. WHO Technical Report Series No. 935. Geneva: WHO.
http://whqlibdoc.who.int/trs/WHO_TRS_935_eng.pdf.
- WHO/UNICEF. 2008. *Strengthening action to improve feeding of infants and young children 6-23 months of age in nutrition and child health programmes: Report of proceedings 6-9 October, 2008, Geneva*. Geneva: WHO and UNICEF.
http://www.who.int/child_adolescent_health/documents/9789241597890/en/index.html.

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