

Review of Programmatic Responses to Adolescent and Women's Nutritional Needs in Low and Middle Income Countries

March 16, 2015 — March 17, 2015



DISCLAIMER

This report is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of the Cooperative Agreement AID-OAA-A-11-00031 (SPRING), managed by JSI Research & Training Institute, Inc. (JSI). The contents are the responsibility of JSI, and do not necessarily reflect the views of USAID or the United States Government.

ABOUT SPRING

The Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project is a five-year USAID-funded Cooperative Agreement to strengthen global and country efforts to scale up high-impact nutrition practices and policies and improve maternal and child nutrition outcomes. The project is managed by JSI Research & Training Institute, Inc., with partners Helen Keller International, The Manoff Group, Save the Children, and the International Food Policy Research Institute.

RECOMMENDED CITATION

Duffy, M, S Lamstein, C Lutter, and P Koniz-Booher. 2015. *Review of Programmatic Responses to Adolescent and Women's Nutrition Needs in Low and Middle Income Countries*. Arlington, VA: Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) Project.

ACKNOWLEDGMENTS

SPRING would like to thank Dr. Cintia Lombardi (SPRING consultant) who launched the research and developed a first draft of this paper. Special thanks goes to Peggy Koniz-Booher (SPRING); Dr. Chessa Lutter and Dr. Ruben Grajeda (PAHO); and Michael Manske, Raphael Makonnen, and Elaine Gray (USAID), for their inputs throughout the process and their review and feedback on the final drafts.

SPRING

JSI Research & Training Institute, Inc.
1616 Fort Myer Drive, 16th Floor
Arlington, VA 22209 USA
Phone: 703-528-7474
Fax: 703-528-7480
Email: info@spring-nutrition.org
Internet: www.spring-nutrition.org

COVER PHOTOS: SPRING and PAHO/WHO

TABLE OF CONTENTS

ACRONYMS	i
EXECUTIVE SUMMARY	iii
INTRODUCTION	1
METHODOLOGY	5
INCLUSION AND EXCLUSION CRITERIA.....	5
DATA ANALYSIS.....	5
LIMITATIONS AND DIFFICULTIES.....	6
FINDINGS	7
PROGRAMS/PROJECTS TARGETING ADOLESCENT GIRLS.....	9
PROGRAMS/PROJECTS TARGETING WOMEN OF REPRODUCTIVE AGE.....	14
EVIDENCE OF EFFICACY and EFFECTIVENESS.....	28
PROGRAMMING/POLICY CONSIDERATIONS	31
POLICIES AND SYSTEMS.....	31
PROGRAMS.....	32
ANNEX 1: TOOLS AND JOB AIDS	35
REFERENCES	37

ACRONYMS

BCC	behavior change communication
ENA	essential nutrition actions
ESHE	Emergency Services for Health in Ethiopia
FANTA	Food and Nutrition Technical Assistance
FFP	Food for Peace
GAIN	Global Alliance for Improved Nutrition
IFA	iron and folic acid
IFHP	Integrated Family Health Program
IUGR	intra-uterine growth restriction
IYCN	infant and young child feeding
LAC	Latin American and the Caribbean
LAUNCH	Liberian Agricultural Upgrading Nutrition and Child Health
LBW	low birth weight
LMIC	low and middle income countries
MCH	maternal and child health
MCHIP	Maternal and Child Health Integrated Program
MIYCN	maternal infant and young child nutrition
N-RNCD	nutrition-related noncommunicable diseases
NACS	nutritional assessment counseling and support
NCD	noncommunicable diseases
NASCAP	Nutrition Assessment Counseling and Support Capacity Building
NFFP	National Flour Fortification Program
PAHO	Pan American Health Organization
PMTCT	prevention of mother-to-child transmission
PLW	pregnant and lactating women
SPRING	Strengthening Partnerships, Results, and Innovations in Nutrition Globally
UMANG	Uplifting Marriage Age Nutrition and Growth
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WRA	women of reproductive age

EXECUTIVE SUMMARY

The 2013 Lancet Series on Maternal and Child Nutrition provided new evidence on the importance of women's nutrition at the time of conception and during pregnancy, not only to ensure optimal fetal growth and development but also for the health of the mother. The series also identified adolescent girls as a key priority, placing them together with women of reproductive age (WRA) and mothers at the center of nutrition interventions. Currently, there are more than 500 million adolescent girls living in low- and middle-income countries.

This paper is one of two discussion papers commissioned to identify key issues and practices regarding the scientific evidence, and to summarize recent and current programmatic experiences; this paper serves as the second of these papers. The goal of this paper is to review the approaches used, practices promoted, and lessons learned by projects and programs that set out to improve the nutrition of adolescent girls and WRA in low- and middle-income countries. Specifically, it sets out to 1) provide information on global programmatic experiences to improve the nutrition of WRA and 2) summarize inputs, outcomes, and lessons learned from implementers who have or are currently carrying out nutrition programs for WRA.

To gather information, two search strategies were used. First, a review of the literature was conducted covering programs from 2004 through 2014. Second, an online survey was developed and sent to practitioners in the field requesting information during the same time period. Out of 47 persons/institutions contacted, there were a total of 15 survey responses providing detailed programmatic information on eight projects. These survey responses and the review of the literature provided a total of 53 programs.

Priority nutrition practices have been promoted or delivered through a broad range of activities, strategies, and delivery platforms. Capacity building of local organizations/governments (23 percent) and community-based platforms for nutrition education and promotion (21 percent) were used most often while distribution of micronutrients, food, or cash (13 percent) and mass media (8 percent) were used least often. The most commonly promoted nutrition practices were described as improved eating practices (34 percent) followed by the consumption of iron folic acid intake (27 percent), consumption of a diverse diet (17 percent) and purchase/consumption of fortified foods (13 percent). Few programs promoted the consumption of micronutrient supplements (5 percent), intake of amounts of water (3 percent), or consumption of additional food (1 percent) as a priority practice. Out of the 53 programs identified, only nine targeted adolescent girls specifically, and only nine provided data on the effectiveness of the intervention. Detailed information on each program is provided.

Based on the synthesis of the literature findings and survey responses, the following policy-level recommendations are made: 1) address nutrition of adolescent girls and WRA in policies, systems, and guidelines; 2) define adolescence and bring attention to the specific nutritional needs of adolescent girls; 3) disaggregate data by age and gender at the national level; 4) integrate nutrition guidelines into existing adolescent, maternal and child health, prevention of maternal to child transmission of HIV, and other guidelines that address services for WRA; and; 5) streamline and collaborate at all levels. With respect to nutrition programming for adolescent girls and WRA, the paper identified the following: 1) expand upon lessons learned from IFA programs; 2) consider interventions to prevent and address risk factors for nutrition-related noncommunicable diseases (N-RNCDs); 3) identify platforms to address the nutritional needs of women outside of pregnancy and lactation periods; 4) involve women and communities in nutritional program planning; 5) identify opportunities for multisectoral collaborations and program integration; and, 6) address gender norms.

INTRODUCTION

The 2013 Lancet Series on Maternal and Child Nutrition provided new evidence on the importance of women's nutrition at the time of conception and during pregnancy, not only to ensure optimal fetal growth and development but also for the health of the mother (Black et al. 2013). The series also identified adolescent girls as a key priority, placing them together with women of reproductive age (WRA) and mothers at the center of nutrition interventions.

WRA have unique nutritional requirements because of menstruation, pregnancy, child bearing, and breastfeeding, that if not addressed, may lead to infertility, intra-uterine growth restriction (IUGR), hemorrhage during childbirth, as well as poor neonatal outcomes that may impact a child throughout its lifetime (Black et al 2008; Black et al 2013; Allen 2005). Furthermore, the nutritional and health status of a woman before and/or during early pregnancy affects physiologic adjustment to pregnancy and the condition of the periconceptual environment for the embryo, and ultimately the fetal environment.

New global estimates suggest that fetal growth restriction, resulting from poor in utero nutrition, including anemia and micronutrient deficiencies, is the cause of more than 800,000 neonatal deaths and 20 percent of stunting in children less than five years of age (Bhutta et al. 2013). Iron and calcium deficiencies, the two most important nutritional causes of maternal mortality, contribute to 23 percent and 19 percent of maternal deaths respectively (Black et al. 2013). Adequate nutrition during pregnancy and lactation is imperative to preventing maternal and child deaths (USAID 2014).

Over the last two decades there has been a growing body of evidence that in-utero, infant and young child undernutrition is directly linked to vulnerability to noncommunicable diseases (NCDs; (Barker 1992; Gluckman, Hanson, and Buklijas 2010)). This suggests that health and nutrition interventions in the 1,000 days period, or from conception to 2 years of age, can provide additional benefits beyond the immediate term in the form of reductions in N-RNCD incidence and mortality. Furthermore, birth outcomes such as low birth weight, preterm birth, or small for gestational age have been linked to maternal obesity (Cnattingius et al. 2013). In addition, overweight and obese women face increased risk for poor breastfeeding outcomes (Krause et al. 2011).

Currently, there are greater than 500 million adolescent girls living in low- and middle-income countries (LMIC). New findings from The Lancet series specifically identify the adolescent girl as a group especially vulnerable to the effects of undernutrition (Black et al. 2013). Given sufficient opportunity, including access to education and work, adolescent girls can become key contributors to the social and economic advancement of their countries. Fundamental to school achievement and productivity in the home and workplace, is good nutrition (UNFPA 2013).

Adolescent diets are vulnerable to peer pressure, media influence, and parental dietary choices (Rao 2007). While adolescents are generally a healthy group, the unique physiology of the pubertal stage increases the risk of adolescent girls to experience undernutrition. The pubertal years are critical for growth; almost half of adolescent girls' skeletal growth occurs during puberty and 15-25 percent of their total height (WHO 2005). Some argue that the potential exists for height catch-up during this time for children stunted in early childhood. However, this could only be achieved through marked improvements in dietary intake (Rao 2007) as well as delayed pregnancy. Early child marriage places girls at risk for adolescent pregnancy, which carries significant risks for both the young mother and baby (UNFPA 2013). Ninety percent of adolescents in the world live in LMIC, where adolescent pregnancy is three times higher than in high-income countries (Black et al., 2013). Almost 67 percent of adolescent girls in Africa and parts of Southeast Asia have their first child prior to 20 years of age (Rah 2008).

Adolescent pregnancy is also a problem in Latin America and the Caribbean (LAC) with 73 births per 1000 adolescent girls (World Bank 2013). Pregnant girls who have not yet finished growing are at an increased risk for obstructive labor, and their babies are also at an increased risk for low birth weight (LBW) and death (Population Reference Bureau 2003). Research in LMIC has also demonstrated that pregnant adolescents cease to gain height during pregnancy and lactation and experience further decreases in body mass index six months following birth (Rah n.d). In addition, adolescent girls who experience anemia during pregnancy demonstrate increased rates of maternal and perinatal mortality, premature birth, and LBW infants (Aguayo et al. 2012).

With just one year remaining until the Millennium Development Goals expire, much has been accomplished to improve health outcomes around the world, particularly for those living in LMIC. Hunger¹ is on the decline as are rates of underweight and stunted children and under-five child mortality. Increasing the availability of and access to nutrient-rich foods continues to be fundamental to achieving sustainable social and health improvements including the ability to fight disease, improve school and work performance, achieve economic advancement, and lift populations out of poverty ensuring healthier generations to come.

Through country-specific and global investments in nutrition by the United States Agency for International Development (USAID), including those of the Global Health Bureau, the Feed the Future Initiative and the Food for Peace (FFP) program, as well as investments from the Pan American Health Organization (PAHO/WHO), among others, there is a renewed commitment to focus on high impact nutritional interventions that address the spectrum of challenges across health, agriculture, water and sanitation, and food assistance sectors to ensure access to nutritious foods and optimal nutritional practices leading to improved health outcomes, particularly for the most vulnerable - women and children.

Recognizing the need to invest in nutrition, the USAID Multi-Sectoral Nutrition Strategy 2014-2025 aims to reduce chronic malnutrition by 20 percent (2014). The Strategy commits to “working across priorities to ensure that safe and nutritious foods are accessible, healthy dietary practices are followed, and the prevention and treatment of infectious diseases are prioritized” (USAID 2014). Additionally, the Strategy stresses the importance of reducing malnutrition among women of reproductive age and young children, with a focus on the first 1,000 days. Focusing primarily on optimal maternal nutrition and breastfeeding, dietary diversity and appropriate hygiene, intermediate results of the strategy include equitable provision and increased access to nutritional services; increases in country capacity to deliver nutritional services; multisectoral programming and coordination among sectors for improved nutrition outcomes; and increased global leadership for nutrition (USAID 2014).

The nutrition of WRA, adolescent health and pregnancy prevention, and prevention of maternal mortality are also priorities for PAHO. Its member states have endorsed several regional strategies and plans of action on these issues, which are currently being implemented. These include a Plan of Action for the Prevention of Obesity in Children and Adolescents, Plan of Action to Accelerate the Reduction of Maternal Mortality and Severe Maternal Morbidity, and a Regional Strategy and Plan of Action on Adolescent and Youth, 2010-2018. Each includes specific targets, strategic lines of action, and indicators to assess progress and impact.

Despite the recognized importance of adolescent girls’, women’s and maternal nutrition, programmatic responses to meet their nutritional needs have largely been neglected or have not been well documented (Maternal Child and Nutrition Study Group, 2013; Khara and Mates, 2015). In order to improve the nutritional status of adolescent girls and WRA, significant programmatic strides must occur.

¹ Hunger is defined as being synonymous with chronic undernourishment (FAO et al. 2014).

PAHO/WHO, USAID, and the two USAID global nutrition projects – Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) and Food and Nutrition Technical Assistance (FANTA) III – have identified a need for a similar set of guiding principles that address the nutritional needs of adolescent girls, pregnant and lactating women (PLW), and other WRA – based on a core set of key diet and eating practices. As the first step in a multi-step process, SPRING has commissioned two discussion papers to identify key issues and practices regarding the scientific evidence and summarize recent and current programmatic experiences. This paper serves as the second of those two papers.

The goal of this paper is to review the approaches used, practices promoted, and lessons learned by projects and programs that set out to improve the nutritional status of adolescent girls and WRA in LMIC. The specific objectives of this review are to:

1. Provide information on global programmatic experiences to improve the nutrition of adolescent girls and WRA; and
2. Summarize inputs, outcomes, and lessons learned from implementers who have or are currently carrying out nutrition programs for adolescent girls and WRA.

METHODOLOGY

A review of the literature was conducted covering programs from 2004 to the present using the search terms outlined in Text Box 1. Abstracts were reviewed; and those articles that were determined to be irrelevant were discarded while articles that appeared to be relevant were obtained (see inclusion and exclusion criteria presented in the following section).

Google, Google Scholar, USAID’s Development Experience Clearinghouse², and the World Bank Project Database were also searched using the search terms. Websites of major organizations, implementing agencies, and USAID-funded programs were also explored for relevant nutrition programs. Finally, relevant programs in articles reviewed during SPRING’s literature review of SBCC that fit the inclusion criteria for this activity were also included.

To gather more detailed programmatic information, an online survey³ was developed after an initial review of the literature including the 2013 Lancet series. The survey was reviewed by experts from SPRING and PAHO. The objective of the survey questions was to gather detailed programmatic information including program name, dates of implementation, program donor, geographic region of the program, programmatic approaches and priority practices, programmatic challenges, availability of program reports, and knowledge of other programs that should be contacted to include in the exercise. Individuals identified as program managers through the literature and internet search as well as others known by the authors were sent a link to the survey monkey to respond. Out of 47 persons/institutions contacted, there were a total of 15 survey responses providing detailed programmatic information on 8 projects.

Text Box 1: Search Terms

1. Adolescent girls and/or pregnant and/or lactating women and/or women of reproductive age and nutrition program
2. Adolescent girls and/or pregnant and/or lactating women and/or women of reproductive age and micronutrient and/or supplementation
3. Women and cash transfer and nutrition
4. Women and behavior change communication and nutrition

INCLUSION AND EXCLUSION CRITERIA

Articles were included in the review if they reported on activities implemented anytime between 2004 and 2014 and promoted dietary, eating, or other nutrition practices aimed at improving the nutritional status of adolescent girls and/or WRA. Articles were excluded from the review if they reported on activities implemented prior to 2004, were controlled trials, and/or did not provide program-specific information.

Programs identified through program websites and the grey literature were included if they implemented activities anytime during the period of 2004 to 2014 and promoted dietary, eating or other nutrition practices aimed at improving the nutritional status of adolescent girls and/or WRA. Programs were excluded if they ended prior to 2004, if the key population targeted was not specified, or if the program did not promote nutrition practices aimed at improving the nutritional status of our populations of interest.

DATA ANALYSIS

After reviewing the literature, survey responses, and program websites, project name, dates of implementation, primary implementer, programmatic activities, practice(s) promoted, and target audience(s) were extracted. Once

² The DEC is “the largest online resource for USAID-funded technical and project materials.” See: <https://dec.usaid.gov/dec/>

³ The online software SurveyMonkey® was used for this survey.

compiled in an Excel database, findings were summarized by the target population (adolescent girls and WRA). In addition, for each program, we identified the primary activities undertaken.

LIMITATIONS AND DIFFICULTIES

The findings provide an overview of the various programmatic approaches that have taken place throughout the past 10 years; however, there are some inherent limitations in this review. Survey response was minimal, decreasing the ability to gather detailed program implementation information directly from program implementers. The amount and degree of detailed information that was available via the literature and program websites and documents varied widely. Furthermore, although every effort was made to collect information on as many programs as possible, inevitably some were missed. It is likely that some programs that were identified during the search were unintentionally excluded because they only described nutrition programs relating to children or the general population and while they may have targeted interventions to WRA they were not described. It is also possible that some programs may have only very minimally touched on nutritional practices for our target populations. Finally, the scope of this review did not include an analysis of the effectiveness of these programs or any determination of the quality of implementation. Despite these limitations, our review provides a foundation to understanding the range of nutritional programmatic approaches used for promoting the nutritional status of adolescent girls and WRA in LMIC.

FINDINGS

This review includes a total of 53 programs that reported efforts to improve the nutritional status of adolescent girls and/or WRA in LMIC between 2004 and 2014.

Priority nutrition practices have been promoted or delivered through a broad range of delivery platforms, strategies, and activities which have been grouped into the following categories:

- Community-based platforms for nutrition education and promotion
- Mass media
- Distribution of micronutrients, food, or cash
- Capacity building of health workers (or other service delivery agents)
- Capacity building of local organizations / governments
- Policy/strategy/protocol development

Figure 1 shows the frequency that each delivery strategy or activity was used by the programs reviewed. Capacity building of local organizations / governments (31 programs, 58 percent) and community-based platforms for nutrition education and promotion (28 programs, 53 percent) were used most often while distribution of micronutrients, food, or cash (17 programs, 32 percent) and mass media (10 programs, 19 percent) were used least often.

The nutrition practices targeted by the projects and programs studied were grouped as follows:

- Improved eating practices⁴
- Consumption of a diverse diet
- Purchase/consumption of fortified foods
- Intake of adequate amounts of water
- Consumption/intake of IFA/iron
- Consumption/intake of micronutrient supplements

None of the programs reported promoting rest during pregnancy. Nutrition-sensitive practices were considered beyond the scope of this review.

As illustrated in **Figure 2**, the most commonly promoted nutrition practices were described as improved eating practices (30 programs, 57 percent) followed by the intake of IFA/iron (20 programs, 38 percent), consumption of a diverse diet (14 programs, 26 percent), and purchase/consumption of fortified foods (11 programs, 21 percent). Few programs promoted the intake of micronutrient supplements (4 programs, 8 percent), intake of adequate amounts of water (2 programs, 4 percent), and the consumption of additional food (1 program, 2 percent) as a priority practice.

Programs identified through the search are described in the sections below. Those programs that aimed to improve the nutritional status of more than one population of interest, and provided specific information for each targeted population, are described in each corresponding section.

⁴ The category 'Improved eating practices' was used when programs reported promoting 'dietary practices', 'eating practices', or 'food intake'.

Figure 1: Number of Programs that used each Delivery Platform, Strategy, and Activity

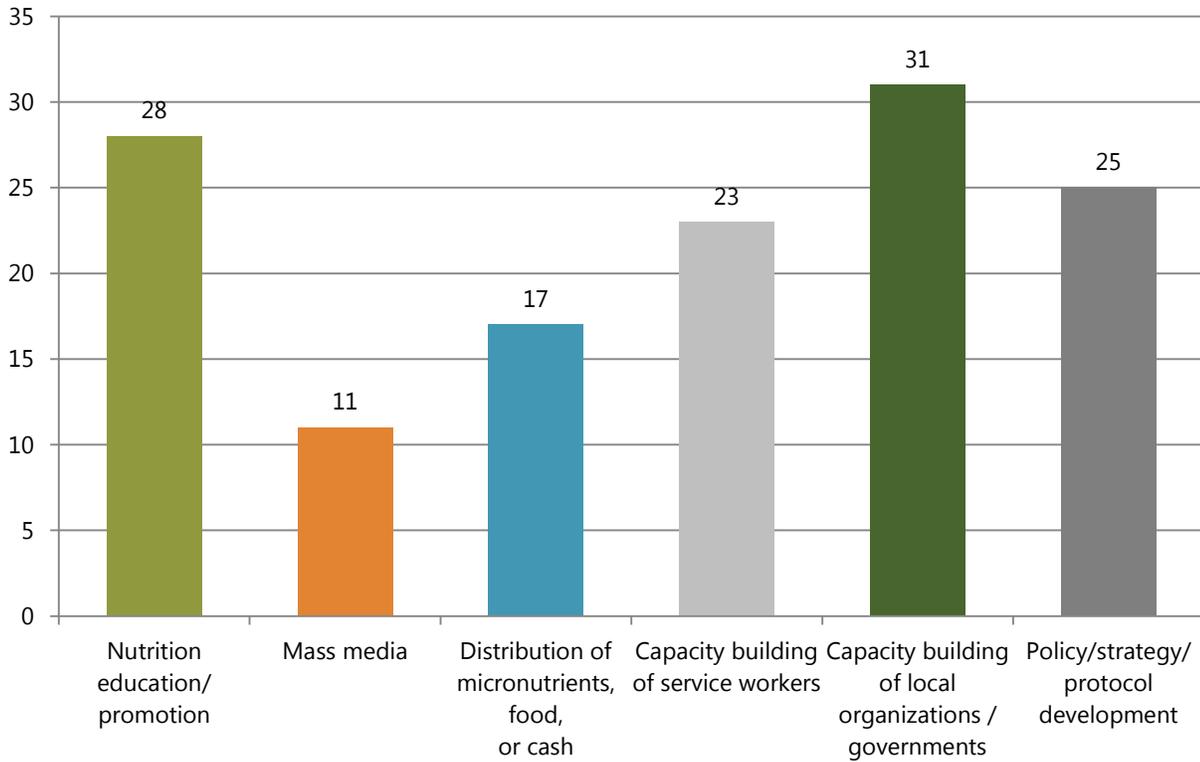
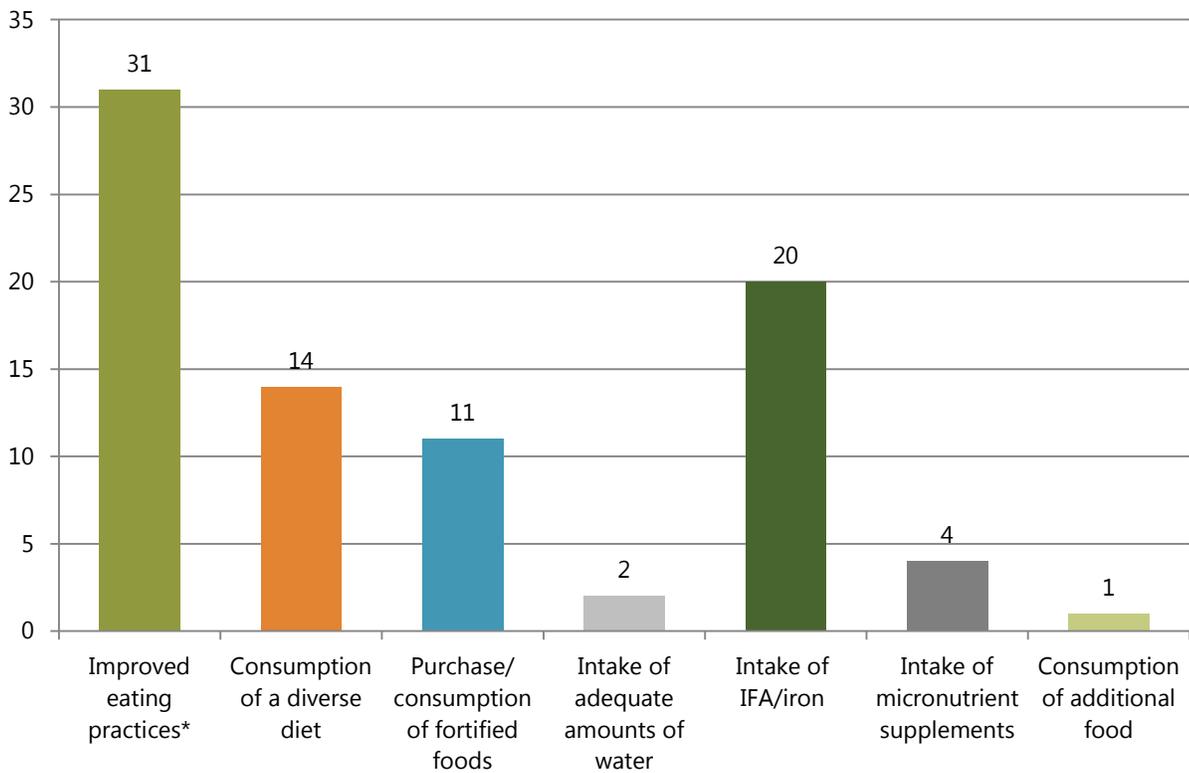


Figure 2: Number of Programs that Promoted each Nutrition Practice



*The category 'Improved eating practices' was used when programs reported promoting 'dietary practices', 'eating practices', or 'food intake.'

PROGRAMS/PROJECTS TARGETING ADOLESCENT GIRLS

Out of a total of 53 programs identified through the literature and internet searches, only ten targeted adolescent girls specifically. These are presented in Table 1 below. Programs that targeted WRA, which included adolescents but did not provide specific interventions for adolescent girls, can be found in the next section.

The most common programmatic approaches among this group included community-based platforms for nutrition education and promotion, the direct distribution of micronutrients, food, and/or cash, as well as the capacity building of health workers (or other service delivery agents). The most common priority practice was IFA/iron intake, followed by improved eating practices and the consumption of a diverse diet.

Activities that are unique to adolescent girls include sensitization of government and religious leaders surrounding the risks associated with early marriage and the benefits associated with delaying pregnancy until early adulthood. Government leaders may impact legislation surrounding child and adolescent marriage while religious leaders can provide education and counseling within their clergy and among the community to discourage early marriage and delay child bearing until the adolescent girl has completed puberty, optimizing the health potential for herself and her child.

Use of the interpersonal communication/nutrition education approach among adolescent girls is common, given the convenience of accessing girls within the academic setting. Most often teachers and affiliated education professionals were trained to provide nutrition education and/or direct supplementation to adolescent girls attending school. A unique approach to reach out-of-school girls involved using a cascade approach training in-school girls receiving a nutrition education/IFA intervention to provide similar services to their out-of-school female counterparts (Kotecha et al., 2009).

Other approaches involved mass media campaigns targeting adolescents to improve their general nutritional intake, intake of IFA supplements, and delay of early marriage and pregnancy. Media campaigns took place during national 'Adolescent Health Weeks' in which they were encouraged to attend health services. National/regional government strengthening approaches included mentoring of government officials surrounding adaptation of clinics such that they are able to provide adolescent friendly services.

Table 1: Programs Seeking to Improve Nutrition of Adolescent Girls

Years of Implementation	Project Name, Implementer ⁵ (Country ⁶)	Description of Activities	Categories of Activities Implemented	Practices Promoted
1997-Current	<i>Propsera / Progresa / Oportunidades</i> and the EsIAN pilot, Gov. of Mexico (Mexico)	<ul style="list-style-type: none"> - Served as the anti-poverty program of the Mexican government - Brought together multiple sectors for a scalable, systems approach. - Provided iron supplements to PLW (tablets) - Equipped health facilities - Built capacity for nutrition counseling - Conducted behavior change communication activities and trainings - Provided monthly subsidy to mothers contingent upon regular health clinic attendance by all family members and monthly attendance to health information sessions by the mother and adolescents in high school (grades 10–12) - Provided another subsidy contingent upon children attending and passing school 	<ul style="list-style-type: none"> - Policy/strategy/protocol development - Capacity building of health workers (or other service delivery agents) - Distribution of micronutrients, food, or cash - Mass media - Nutrition education and promotion 	<ul style="list-style-type: none"> - Consumption / intake of micronutrient supplements - Improved eating practices
1998-2008 (FANTA I) 2008-2013 (FANTA II) 2011-2016 (FANTA III)	Food and Nutrition Technical Assistance Project - FANTA I – III, FHI 360 (Global)	<ul style="list-style-type: none"> - Partnered with the African Regional Office of the World Association of Girl Guides and Girl Scouts - Designed the Girl Guides Anemia Prevention Badge Project handbook, workbook, and training manual for Girl Guide leaders - Trained adolescent girl educators to provide anemia prevention education to other girls within their communities - Mentored ministry officials at the state and national levels to develop adolescent friendly clinics including provision of nutritional services for adolescent girls 	<ul style="list-style-type: none"> - Policy, protocol and/or tool development - Capacity building of local organizations - Mass media - Nutrition education and promotion 	<ul style="list-style-type: none"> - Consumption of a diverse diet - Consumption/intake of IFA/iron

⁵ The implementer listed is limited to prime contractors only.

⁶ When programs are implemented on greater than two continents, the country is specified as “global”. When programs are implemented in greater than two countries on the same continent, the region is indicated.

Years of Implementation	Project Name, Implementer ⁵ (Country ⁶)	Description of Activities	Categories of Activities Implemented	Practices Promoted
		<ul style="list-style-type: none"> - Built capacity of government employed health workers to provide nutritional counseling, assessment and support services for vulnerable populations including adolescents 		
2000-2012	Adolescent Girls Anemia Control Program, UNICEF (India)	<ul style="list-style-type: none"> - Targeted in school-going adolescent girls using schools as the delivery channel and out-of-school adolescent girls using the community <i>anganwadi</i> center of India's Integrated Child Development Services (ICDS) program as the delivery platform - Provided weekly IFA supplementation - Provided bi-annual deworming prophylaxis - Information, counseling and support to adolescent girls on how to improve their diets and how to prevent anaemia 	<ul style="list-style-type: none"> - Distribution of micronutrients, food, or cash - Capacity building of health workers (or other service delivery agents) - Nutrition education and promotion 	<ul style="list-style-type: none"> - Consumption/intake of IFA/iron - Improved eating practices - Consumption of a diverse diet
2001-2006	Uplifting Marriage Age Nutrition and Growth – UMANG, Government of Uttar Pradesh (India)	<ul style="list-style-type: none"> - Targeted in-school and out-of-school adolescent girls - Was implemented in coordination with the three primary government agencies: Health, Education, and ICDS - Provided weekly IFA supplementation - Provided bi-annual deworming prophylaxis - ICDS <i>anganwadi</i> workers provided family life education on the benefits of regular consumption of iron–folic acid tablets and the importance of adhering to the preventive dose were discussed, the right age for marriage and conception, and sexually transmitted diseases 	<ul style="list-style-type: none"> - Nutrition education and promotion 	<ul style="list-style-type: none"> - Improved eating practices - Consumption of a diverse diet
2002-2004	Nutrition Education Intervention Program, <i>Universidad de Politécnica de Nicaragua</i> (Nicaragua)	<ul style="list-style-type: none"> - Conducted quarterly nutrition education programs for Nicaraguan adolescent girls from a very poor neighborhood, focusing on the importance of fruits and vegetables and their accessibility in the neighborhood 	<ul style="list-style-type: none"> - Distribution of micronutrients, food, or cash 	<ul style="list-style-type: none"> - Consumption/intake of additional food
2005-2006	Nutrition Program for Adolescent Girls, Ministry of Women	<ul style="list-style-type: none"> - Identified undernourished adolescent girls (below 35 kg.) in each state and provide 6 kg. of food grains 	<ul style="list-style-type: none"> - Nutrition education and promotion 	<ul style="list-style-type: none"> - Consumption/intake of IFA/iron ;Consumption of a diverse diet

Years of Implementation	Project Name, Implementer ⁵ (Country ⁶)	Description of Activities	Categories of Activities Implemented	Practices Promoted
	and Child Development (India)		<ul style="list-style-type: none"> - Capacity building of local organizations / governments - Distribution of micronutrients, food, or cash 	<ul style="list-style-type: none"> - Improved eating practice - Purchase/consumption of fortified foods
2005-2010	Indonesia Health Services Program, John Snow Inc. (Indonesia)	<ul style="list-style-type: none"> - Identified a teen community network in Indonesia that offers potential for scale up to address the nutritional status of adolescent girls including dietary diversity, general eating practices, and intake of fortified foods - Designed and implemented a training to enable community researchers to conduct interviews on adolescent girls' eating and hygiene habits that affect their iron status 	<ul style="list-style-type: none"> - Nutrition education and promotion - Policy/strategy/protocol development 	<ul style="list-style-type: none"> - Consumption of a diverse diet - Improved eating practices
2006-2012	The VISTAAR Project, IntraHealth (India)	<ul style="list-style-type: none"> - Sensitized state and district government officials on adolescent health needs, including prevention of early childhood marriage and prevention of anemia among adolescent girls. Religious leaders were also an advocacy target to discourage early marriage among congregants and community members - Employed a state-wide adolescent health communication strategy including messages and communications materials for short-term media campaigns during adolescent health weeks which included messages on adolescent anemia, the importance of IFA supplementation, delaying marriage and delaying first childbirth 	<ul style="list-style-type: none"> - Capacity building of health workers (or other service delivery agents) - Policy/strategy/protocol development 	<ul style="list-style-type: none"> - Consumption/intake of IFA/iron
2008-2014	Maternal and Child Health Integrated Program – MCHIP, JHPEIGO (Global)	<ul style="list-style-type: none"> - Provided performance-based financing for health centers providing nutrition services for women of reproductive age - Provided technical assistance to government officials for nutrition related training materials and data collection, and use of cell phone technology to enhance IFA outcomes to scale-up anemia interventions 	<ul style="list-style-type: none"> - Nutrition education and promotion - Distribution of micronutrients, food, or cash - Capacity building of health workers (or other 	<ul style="list-style-type: none"> - Consumption/intake of IFA/iron - Improved eating practices

Years of Implementation	Project Name, Implementer ⁵ (Country ⁶)	Description of Activities	Categories of Activities Implemented	Practices Promoted
			service delivery agents)	
2014-2019	Maternal and Child Nutrition Health Results Project, The World Bank (The Gambia)	<ul style="list-style-type: none"> - Conducted community mobilization for social and behavior change focusing on key family practices and health care seeking behaviors for improved maternal and child health and nutrition - Provided conditional cash transfers to communities and village support groups - Provided counseling and timely referrals for life-saving health services - Strengthened nutrition and health care service delivery at primary, and, where needed, referral health care levels, through: (a) performance-based grants; and (b) startup support - Built capacity for service delivery and results-based management 	- Capacity Development of Local Organizations	<ul style="list-style-type: none"> - Consumption of a diverse diet - Consumption/intake of IFA/iron

* Programs that reported on the effectiveness or impact of the program on the nutritional practice via the white or grey literature or on program website.

PROGRAMS/PROJECTS TARGETING WOMEN OF REPRODUCTIVE AGE

Out of a total of 53 programs identified, 46 targeted WRA. Key characteristics of these are presented in Table 2.

The most common programmatic approaches among this group included capacity building of local organizations/governments (29 programs), policy/strategy/protocol development (22 programs), community-based platforms for nutrition education and promotion (22 programs), and capacity building of health workers or other service delivery agents (19 programs). The most common priority practices included improved eating practices (26 programs) and the consumption/intake of IFA/iron (16 programs).

The majority of programs that included policy/strategy/protocol development focused on the development of guidelines and protocols for IFA intake, integration of nutrition into existing programs such as prevention of mother-to-child transmission (PMTCT), and guidelines surrounding food fortification processes.

Capacity development of local organizations typically consisted of development of nutrition program materials, such as training manuals and supportive supervision tools which were integrated into routine services for PLW. It also involved the provision of performance-based financing, technical and operational assistance for nutrition and agricultural supplies, assistance establishing integrated nutrition and HIV programs, and assistance developing community gardens for women of reproductive age. This programmatic approach also commonly involved the training of clinicians, health extension workers, and community volunteers to provide education on general eating practices and IFA intake. Most often these nutritional services also involved a significant focus on infant feeding as well, with the infant feeding often being the main focus of the intervention.

Training of government workers to implement nutrition services for PLW occurred frequently. It also involved regulations and guidelines for food fortification and assistance with purchasing initial supplies for food fortification start-up. A common priority practice for local organizations in receipt of capacity development was training for food fortification techniques and provision of equipment to fortify flour, oil, sugar, salt, and other food products.

The majority of mass media campaigns focused on increasing public awareness and acceptance of fortified food consumption. Meanwhile, community-based platforms for nutrition education and promotion approaches most often made use of nurses, volunteers, or 'leader mothers' who acted as community mentors. Nutrition education for PLW took place during community meetings, directly through community outreach, or in the home to pregnant and post-partum women with the intent to improve general eating practices and dietary diversity, provide IFA supplementation, as well as fortified foods to PLW who were undernourished.

Direct food distribution involved dispensing fortified foods, oil, and beans to undernourished PLW. One program provided women with vouchers for sweet potato seedlings during pre-natal visits and agricultural education to help them grow their own plants. This contributed to their household food supply and improved their nutrition during pregnancy and post-partum (Mama Sacha Project).

Table 2: Programs Seeking to Improve Nutrition of WRA

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
1996-2006	Integrated Nutrition and Health Project, Care India (India)	<ul style="list-style-type: none"> - Built capacity of service providers and community-based organizations and networks from all sectors - Provided need based inputs to the community - Established continuous community-based monitoring systems - Developed and trained a cadre of change agents - Conducted information, education, and communication (IEC) / public awareness campaigns 	<ul style="list-style-type: none"> - Capacity building of local organizations / government - Distribution of micronutrients, food, or cash - Nutrition education and promotion - Capacity building of health workers (or other service delivery agents) - Mass media 	<ul style="list-style-type: none"> - Consumption / intake of IFA/iron - Improved eating practices
1997-Current	<i>Propsera / Progresa / Oportunidades</i> and the EsIAN pilot, Gov. of Mexico (Mexico)	<ul style="list-style-type: none"> - Served as the anti-poverty program of the Mexican government - Brought together multiple sectors for a scalable, systems approach. - Provided iron supplements to PLW (tablets) - Equipped health facilities - Built capacity for nutrition counseling - Conducted behavior change communication activities and trainings - Provided monthly subsidy to mothers contingent upon regular health clinic attendance by all family members and monthly attendance to health information sessions by the mother and adolescents in high school (grades 10–12) - Provided another subsidy contingent upon children 	<ul style="list-style-type: none"> - Policy/strategy/protocol development - Capacity building of local organizations / governments - Capacity building of health workers (or other service delivery agents) - Distribution of micronutrients, food, or cash - Mass media - Nutrition education and promotion 	<ul style="list-style-type: none"> - Consumption / intake of micronutrient supplements - Improved eating practices

⁷ The implementer is limited to prime contractors only.

⁸ When programs are implemented on greater than two continents, the country is specified as “global”. When programs are implemented in greater than two countries on the same continent, the region is indicated.

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
		attending and passing school		
1998-2008 (FANTA I) 2008-2013 (FANTA II) 2011-2016 (FANTA III)	FANTA - I – III, FHI 360 (Global)	<ul style="list-style-type: none"> - Developed maternal health and nutrition policies and supportive supervision tools - Strengthened government capacity to integrate nutrition into health programs - Provided supportive supervision to health care workers providing nutrition services to mothers and children - Supported integration of Nutrition Assessment Counseling and Support (NACS) into service delivery by training facility-based health care providers and community volunteers - Supplied anthropometric equipment - Trained community volunteers to provide nutrition education and encourage IFA intake - Built the capacity of journalists and media gatekeepers 	<ul style="list-style-type: none"> - System strengthening - Policy, protocol and/or tool development - Capacity building of local organizations - Mass media 	<ul style="list-style-type: none"> - Consumption of a diverse diet - Consumption / intake of IFA/iron
2003-2008	Ethiopia Child Survival Project – ESHE, John Snow Inc. & Pathfinder International (Ethiopia)	<ul style="list-style-type: none"> - Trained volunteer health promoters at the community level to promote Essential Nutrition Actions (ENA) including use of iodized salt 	<ul style="list-style-type: none"> - Nutrition education and promotion - Capacity building of health workers (or other service delivery agents) - Capacity building of local organizations / governments 	<ul style="list-style-type: none"> - Purchase / consumption of fortified foods
2003-Present	National Food Fortification Program – NFFP, GAIN (19 countries)	<ul style="list-style-type: none"> - Funded work on legislation and regulation and purchase of premix and equipment for food fortification. - Provided quality assurance training for government officials on food fortification - Trained staff in mills, refineries and plants in food fortification techniques. 	<ul style="list-style-type: none"> - Capacity building of local organizations / governments - Policy/strategy/protocol development 	<ul style="list-style-type: none"> - Purchase / consumption of fortified foods
2004	<i>Plan Más Vida</i> – PMV,	<ul style="list-style-type: none"> - Provided supplementary wheat- and maize-fortified 	<ul style="list-style-type: none"> - Distribution of 	<ul style="list-style-type: none"> - Purchase /

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
	Ministry of Human Development (Argentina)	flour, rice or sugar, and fortified soup to low-income families including lactating women	micronutrients, food, or cash	consumption of fortified foods
2004-2008	DAI Urban Nutrition Program HIV/AIDS Affected Children and Women, Development Alternatives Inc. (Ethiopia)	- Worked with local organizations to establish community gardens targeting women and children to increase availability of nutritious foods	- Nutrition education and promotion - Capacity building of health workers (or other service delivery agents)	- Improved eating practices
2004-2015	Nutrition Assessment Counseling and Support Capacity Building – NACSCAP, FHI 360 (South Africa)	- Provided technical support to health care workers and community caregivers to integrate and expand PMTCT and improve maternal health and infant and young child feeding into health facilities and community services	- Capacity building of local organizations / governments - Capacity building of health workers (or other service delivery agents) - Policy/strategy/ protocol development	- Improved eating practices
2005	Republic of Uzbekistan's National Flour Fortification Program, Ministry of Health of the Republic of Uzbekistan (Uzbekistan)	- Equipped 14 flour-mills in six provinces with fortification equipment - Conducted policy advocacy directed at political, business and social leadership - Conducted behavior change communication - Conducted social mobilization and partnership-building directed at mobilizing all stakeholders and new/appropriate partners. - Funded work on legislation and regulation and purchase of premix and equipment for food fortification. Provide quality assurance training for government officials on food fortification - Trained staff in mills, refineries and plants in food fortification techniques. Train and equip flour mills with iron fortification materials and equipment - Established a mass media campaign for flour fortification including "Healthy Family" stickers, indoor posters, brochures for retailers and bakers, awareness leaflets for customers, flour and bread	- Policy/strategy/ protocol development - Capacity building of local organizations / governments - Mass media	- Purchase / consumption of fortified foods

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
		transporting trucks branding, outdoor banners, T-shirts for young parliamentarians, caps for children and journalists, and tents for launches at mills		
2005-2010	Chinese National Folate Program, China Ministry of Health (China)	<ul style="list-style-type: none"> - Provided and supervised folic acid intake from village doctors over a 6 month period for women preparing for marriage 	<ul style="list-style-type: none"> - Distribution of micronutrients, food, or cash - Capacity building of health workers (or other service delivery agents) 	<ul style="list-style-type: none"> - Consumption / intake of IFA/iron
2005-2011	A2Z, FHI360 (Global)	<ul style="list-style-type: none"> - Formulated national guidelines on food fortification standards and food control procedures - Supported the National Nutrition Program in Cambodia to draft guidelines for IFA supplementation for pregnant and postpartum women and to implement a national anemia policy and operations strategy - Strengthened the state maternal child health program to train midwives to provide IFA supplementation, deworming medication, and nutrition education to PLW 	<ul style="list-style-type: none"> - Capacity building of local organizations / governments - Policy/strategy/ protocol development - Nutrition education and promotion - Capacity building of health workers (or other service delivery agents) 	<ul style="list-style-type: none"> - Purchase / consumption of fortified foods - Consumption / intake of IFA/iron
2005-2011	Africa's Health in 2010, FHI 360 (various countries in Africa)	<ul style="list-style-type: none"> - Built capacity for the implementation of ENA - Facilitated incorporation of nutritional support into other health programs - Fostered collaboration among governments and donors in West Africa and linkages between the nutrition and agriculture sectors - Promoted policy and program links between nutrition and food security - Addressed the nutritional and food security needs of orphans and vulnerable children affected by HIV/AIDS 	<ul style="list-style-type: none"> - Policy/strategy/protocol development - Capacity building of local organizations / governments - Capacity building of health workers (or other service delivery agents) 	<ul style="list-style-type: none"> - Consumption / intake of IFA/iron - Improved eating practices
2006-2007	Vietnam Folate Supplementation Pilot, Univ. of Melbourne, Walter and	<ul style="list-style-type: none"> - Provided IFA from trained village health workers to women of reproductive age during community meetings or during home visits 	<ul style="list-style-type: none"> - Capacity building of health workers (or other service delivery agents) 	<ul style="list-style-type: none"> - Consumption / intake of IFA/iron

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
	Eliza Hall Institute of Medical Research, WHO (Vietnam)		<ul style="list-style-type: none"> - Nutrition education and promotion 	
2006-2012	Capable Partners Program, FHI 360 (South Africa)	<ul style="list-style-type: none"> - Strengthened and expanded integrated PMTCT programming at national, provincial, district, sub-district, clinic and community levels - Built capacity of facility and community health care providers - Mobilized nongovernmental organizations and communities to influence social norms and encourage community adoption of healthy behaviors 	<ul style="list-style-type: none"> - Capacity building of local organizations / governments - Policy/strategy/protocol development - Capacity building of health workers (or other service delivery agents) - Nutrition education and promotion 	<ul style="list-style-type: none"> - Improved eating practices
2006-2012	Infant and Young Child Nutrition Project – IYCN, PATH (Global)	<ul style="list-style-type: none"> - Contributed to national nutrition policies and guidance to improve the nutritional status of mothers and children - Supported governments to develop national maternal nutrition strategies - Developed job aids and training curricula to train community- and facility-based health workers in nutrition - Integrated quality improvement principles into nutritional assessment and counseling in health facilities and communities - Strengthen infant-feeding counseling and support 	<ul style="list-style-type: none"> - Policy/strategy/protocol development - Capacity building of local organizations / governments 	<ul style="list-style-type: none"> - Improved eating practices - Consumption of a diverse diet
2006-2012	The VISTAAR Project, IntraHealth (India)	<ul style="list-style-type: none"> - Increased capacity of workers to make targeted home visits to provide nutrition counseling and to provide nutrition education through women's group meetings - Provided technical assistance to district officials to improve quality and coverage of Village Health and Nutrition Days to improve nutrition services for women and children 	<ul style="list-style-type: none"> - Nutrition education and promotion - Policy/strategy/protocol development - Capacity building of local organizations / governments 	<ul style="list-style-type: none"> - Consumption of a diverse diet - Improved eating practices

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
2007-2009	Bolivia Vegetable Oil, Wheat Flour and Milk Fortification Project, Bolivia's Ministry of Health and Sports (Bolivia)	<ul style="list-style-type: none"> - Trained staff in mills, refineries and plants in food fortification techniques. - Trained and equipped flour mills with iron fortification materials and equipment - Conducted communication and marketing campaigns - Trained food control inspectors in quality assurance - Developed fortification standards, systems, and a protocol for national registry of birth defects in six primary maternity hospitals 	<ul style="list-style-type: none"> - Capacity building of local organizations / governments - Mass media 	<ul style="list-style-type: none"> - Purchase / consumption of fortified foods
2007-2011	Niger Multi Year Assistance Program, Mercy Corps/Counterpart International (Niger)	<ul style="list-style-type: none"> - Trained Health Extension Workers to provide monthly nutrition services to populations in remote villages including pregnant and lactating women 	<ul style="list-style-type: none"> - Capacity building of health workers (or other service delivery agents);Community-based platforms for nutrition education and promotion;;; 	<ul style="list-style-type: none"> - Improved eating practices
2008-2009	Bangladesh Micronutrient Powder Program, Save the Children USA and Proshika (Bangladesh)	<ul style="list-style-type: none"> - Provided foods for PLW affected by Cyclone Sidr - Provided micronutrient powder (MixMe) to PLW affected by Cyclone Sidr - Conducted home visits from nutrition workers to pregnant women in the community and including four nutrition home visits during pregnancy and 12 post-partum providing nutrition education 	<ul style="list-style-type: none"> - Distribution of micronutrients, food, or cash - Nutrition education and promotion - Capacity building of health workers (or other service delivery agents) - Mass media 	<ul style="list-style-type: none"> - Consumption / intake of micronutrient supplements
2008-2013	Kenya Nutrition and HIV Program, FHI 360 (Kenya)	<ul style="list-style-type: none"> - Supported protocol development to ensure that postpartum and lactating women receive fortified food products - Built capacity of local organizations to integrate nutrition education into PMTCT programming and support linkages to community nutrition and food security services - Developed training materials and train health workers on implementing a maternal nutrition program 	<ul style="list-style-type: none"> - Policy/strategy/ protocol development - Capacity building of health workers (or other service delivery agents) - Capacity building of local organizations / governments 	<ul style="list-style-type: none"> - Purchase / consumption of fortified foods - Improved eating practices - Consumption/intake of IFA/iron

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
2008-2014	Maternal and Child Health Integrated Program, JHPEIGO (Global)	<ul style="list-style-type: none"> - Provided performance-based financing for health centers providing nutrition services for women of reproductive age - Provided technical assistance to government officials for nutrition related training materials and data collection, and use of cell phone technology to enhance IFA outcomes to scale-up anemia interventions 	<ul style="list-style-type: none"> - Policy/strategy/ protocol development 	<ul style="list-style-type: none"> - Consumption / intake of IFA/iron
2008-2015	Integrated Family Health Program – IFHP, John Snow Inc. & Pathfinder International (Ethiopia)	<ul style="list-style-type: none"> - Provided practical complementary food demonstrations from locally available food staff by health extension workers and health development army 	<ul style="list-style-type: none"> - Nutrition education and promotion - Capacity building of health workers (or other service delivery agents) - Capacity building of local organizations / governments - Mass media - Policy/strategy/protocol development 	<ul style="list-style-type: none"> - Improved eating practices
2009-2012	Egypt Wheat Flour and Vegetable Oil Fortification Project, GAIN & World Food Programme (Egypt)	<ul style="list-style-type: none"> - Funded work on legislation and regulation and purchase of premix and equipment for food fortification. Provide quality assurance training for government officials on food fortification - Trained staff in mills, refineries and plants in food fortification techniques. - Trained and equipped flour mills with iron fortification materials and equipment 	<ul style="list-style-type: none"> - Capacity building of local organizations / governments - Policy/strategy/protocol development 	<ul style="list-style-type: none"> - Purchase / consumption of fortified foods
2009-2010	<i>Proyecto de Seguridad Alimentaria y Nutricional de Chiquimula - PROSANO2</i> , Save the Children (Guatemala)	<ul style="list-style-type: none"> - Targeted children under the age of 5, PLW experiencing or at risk of malnutrition - Improved availability of nutritious foods 	<ul style="list-style-type: none"> - Distribution of micronutrients, food, or cash 	<ul style="list-style-type: none"> - Improved eating practices

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
2009-2014	Mama Sasha Project, Bill and Melinda Gates Foundation (various countries in Africa)	- Distributed vouchers to pregnant women for sweet potato plant materials at pre-natal visits	- Distribution of micronutrients, food, or cash - Nutrition education and promotion	- Improved eating practices
2009-2014	Tubaramure Program for Preventing Malnutrition in Children under 2 Approach - PM2A, Catholic Relief Services (Burundi)	- Trained "leader mothers" to train fellow program beneficiaries attending mother care groups on topics relating to health, hygiene and nutrition - Distributed food rations including corn-soy blend (a micronutrient fortified flour) and oil with an emphasis towards improving intake of micronutrient rich foods by pregnant and lactating women	- Distribution of micronutrients, food, or cash - Nutrition education and promotion	- Improved eating practices
2009-2015	Mother-Child Community Food Diversification Program – PROCOMIDA, Mercy Corps (Guatemala)	- Provided monthly community education sessions including cooking demonstrations, and information on how to use monthly food rations dispensed (rice, beans, corn-soy flour and vegetable oil) for pregnant and lactating women	- Distribution of micronutrients, food, or cash - Nutrition education and promotion	- Purchase / consumption of fortified foods
2009-2013 (LIFT I) 2013-2018 (LIFT II)	Livelihoods and Food Security Technical Assistance project – LIFT, FHI 360 (Africa)	- Established a referral system among local organizations working with people living with HIV/AIDS (including HIV positive WRA) to link livelihoods and economic strengthening support including household gardening and food support	- Capacity building of local organizations / governments	- Improved eating practices
2010-2012	Homestead Food Production Programs – HFPP, Helen Keller International (Southeast Asia)	- Provided technical and operational assistance, supplies including seedlings, saplings, and chicks to local NGOs which integrate homestead food production into nutrition activities targeting women for economic empowerment and improved nutrition	- Capacity building of local organizations / governments	- Consumption of a diverse diet
2010-2015	Liberia Agricultural Upgrading Nutrition and Health - LAUNCH (Liberia)	- Distributed corn-soy blend packets, bulgur wheat, yellow peas, and vegetable oil to pregnant and lactating women	- Policy/strategy/ protocol development - Capacity building of health workers (or other service delivery agents)	- Consumption / intake of micronutrient supplements - Improved eating

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
			<ul style="list-style-type: none"> - Capacity building of local organizations / governments - Distribution of micronutrients, food, or cash 	<ul style="list-style-type: none"> practices - Consumption of a diverse diet - Consumption / intake of IFA/iron
2010-present (ongoing)	African Mothers' Health Initiative, African Mothers' Health Initiative (Malawi)	<ul style="list-style-type: none"> - Conducted home visits from nurses to critically ill post-partum women who receive basic health assessments including anemia assessments, nutrition assessments, and provision of food packages 	<ul style="list-style-type: none"> - Nutrition education and promotion - Distribution of micronutrients, food, or cash - Capacity building of health workers (or other service delivery agents) 	<ul style="list-style-type: none"> - Improved eating practices
2011-Present	Pakistan Wheat Flour Fortification Program, GAIN & Pakistan Flour Mills Association (PFMA) (Pakistan)	<ul style="list-style-type: none"> - Collaborated with Pakistan Flour Mills Association (PFMA) and other key private and public stakeholders - Developed fortification standards and cost models, - Established multistakeholder coalitions and working groups on policies and legislation 	<ul style="list-style-type: none"> - Capacity building of local organizations / governments - Policy/strategy/protocol development 	<ul style="list-style-type: none"> - Purchase / consumption of fortified foods
2011-2013	The Livelihood Support to Returnees and Host Communities Initiative – LSRHC, African Development Solutions (South Sudan)	<ul style="list-style-type: none"> - Targeted female headed households to receive small livestock under a restocking plan enabling them to establish a base livelihood to provide nutrients for their families 	<ul style="list-style-type: none"> - Distribution of micronutrients, food, or cash 	<ul style="list-style-type: none"> - Consumption of a diverse diet
2011-2015	Nutrition Embedding Evaluation Program, PATH (Global)	<ul style="list-style-type: none"> - Supported innovative approaches to scale up effective nutrition strategies to improve maternal and child nutrition through providing small grants to civil society organizations for micronutrient supplementation, agriculture, women's empowerment, WASH, social protection, private sector engagement, and advocacy. - Identified evidence-based approaches for specific maternal and newborn nutrition interventions and disseminate evidence to key policy makers, 	<ul style="list-style-type: none"> - Capacity building of local organizations / governments 	<ul style="list-style-type: none"> - Consumption / intake of micronutrient supplements

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
		implementing partners and donors.		
2011-2015	Community Based Integrated Health Program Malagasy Health Families – MAHEFA, John Snow Inc. (Madagascar)	<ul style="list-style-type: none"> - Trained and equipped community health workers to disseminate key nutrition messages for PLW 	<ul style="list-style-type: none"> - Policy/strategy/ protocol development - Capacity building of local organizations / governments - Capacity building of health workers (or other service delivery agents) - Nutrition education and promotion - Mass media 	<ul style="list-style-type: none"> - Improved eating practices - Consumption of a diverse diet - Intake of adequate amounts of water - Consumption / intake of IFA/iron
2011-2016	Suaahara, Save the Children (Nepal)	<ul style="list-style-type: none"> - Provided training on a package of integrated and evidence-based essential nutrition actions for health and non-health service providers - Strengthened nutrition and maternal and child health services through a focus on quality improvement - Mainstreamed homestead food production activities - Enhanced multisectoral coordination on nutrition 	<ul style="list-style-type: none"> - Policy/strategy/ protocol development - Capacity building of local organizations / governments - Capacity building of health workers (or other service delivery agents) - Nutrition education and promotion - Mass media 	<ul style="list-style-type: none"> - Consumption of a diverse diet - Improved eating practices
2012	Improving the Nutritional and Health Status of Children under-5 and PLW in the Center Ford Region of Burkina Faso, Plan USA (Burkina Faso)	<ul style="list-style-type: none"> - Provided community nutrition outreach education for pregnant and lactating women including proper nutrition during pregnancy, information on micronutrient deficiencies, and consumption of nutrient-rich foods 	<ul style="list-style-type: none"> - Nutrition education and promotion - Capacity building of health workers (or other service delivery agents) 	<ul style="list-style-type: none"> - Consumption of a diverse diet
2012-2016	Emergency Support Critical Education Health and Nutrition Services, The World Bank & <i>Programme National</i>	<ul style="list-style-type: none"> - Covered 19 communes in the provinces of Sanmatenga and Namentenga, the project worked with Health District providers to 	<ul style="list-style-type: none"> - Capacity building of local organizations / governments - Capacity building of health 	<ul style="list-style-type: none"> - Improved eating practices

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
	<i>de Nutrition Communautaire</i> (Madagascar)	<ul style="list-style-type: none"> - Increased the capacity of healthcare facilities to address severe acute malnutrition - Supported local communes and villages to engage community volunteers in nutrition and screening education - Provided subsidies for critical education services - Support the delivery of a comprehensive basic health package with a focus on pregnant women and children 	<ul style="list-style-type: none"> workers (or other service delivery agents) - Nutrition education and promotion 	
2012-2016	SPRING Project, JSI Research and Training Institute, Inc. (Global)	<ul style="list-style-type: none"> - Supported policies related to industrial and home fortification of foods - Provided assistance to the ministries of health and agriculture to integrate the ENA platforms with other important aspects of nutrition-sensitive actions, including agricultural linkages and the promotion of hand washing - Increased household access to and utilization of diversified foods through homestead food production using farmer nutrition schools - Strengthened the capacity of facility-based providers to deliver NACS services using on-the-job training and quality improvement methods 	<ul style="list-style-type: none"> - Nutrition education and promotion - Capacity building of local organizations / governments - Policy/strategy/ protocol development - Mass media 	<ul style="list-style-type: none"> - Improved eating practices - Consumption of a diverse diet - Intake of adequate amounts of water - Purchase / consumption of fortified foods - Consumption / intake of IFA/iron
2012-2017	Malawi Nutrition and HIV/AIDS Project, Malawi National AIDS Commission and Department of Nutrition and AIDS (Malawi)	<ul style="list-style-type: none"> - Enhanced and scaled up maternal and child nutrition service delivery at community level - Strengthened sectoral policy and program development, management and coordination 	<ul style="list-style-type: none"> - Capacity building of local organizations / governments - Mass media - Policy/strategy/ protocol development 	<ul style="list-style-type: none"> - Improved eating practices - Consumption / intake of IFA/iron
2012-2017	Community Action for Nutrition Project, Ministry of Federal Affairs and Local Development (Nepal)	<ul style="list-style-type: none"> - Built capacity of leaders who work within community forums to select nutrition goals and targets relevant to women of reproductive age within the community and mobilize communities to reach the nutrition goals 	<ul style="list-style-type: none"> - Capacity building of local organizations / governments 	<ul style="list-style-type: none"> - Improved eating practices - Consumption / intake of IFA/iron

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
2013-2016	The SHIKHA project, FHI 360 (Bangladesh)	<ul style="list-style-type: none"> - Scaled up maternal nutrition and infant and young child feeding interventions in 26 subdistricts in Bangladesh. - Built capacity for and support home visits by nutrition workers - Conducted health forums / meetings comprised of pregnant women, mothers of children under 2, mothers-in-law and adolescent girls to discuss issues about health and hygiene practices in the community 	<ul style="list-style-type: none"> - Nutrition education and promotion - Capacity building of health workers (or other service delivery agents) 	<ul style="list-style-type: none"> - Improved eating practices
2014-2018	Enhanced Nutrition for Mothers and Children, Pakistan Provincial Departments of Health (Pakistan)	<ul style="list-style-type: none"> - Contracted NGOs to promote appropriate infant and young child feeding practices, CMAM and sprinkles - Built capacity of LHWs to promote a few key behaviors to improve nutritional outcomes and provision of micronutrient sprinkles - Supported the ready-to-use food (RUTF) called Plumpy Nut and explore the feasibility of producing a similar food in Pakistan - Conducted mass media campaigns to increase nutrition service uptake and improve knowledge and attitudes around nutrition 	<ul style="list-style-type: none"> - Capacity building of local organizations / governments - Capacity building of health workers (or other service delivery agents) - Distribution of micronutrients, food, or cash - Mass media - Nutrition education and promotion 	<ul style="list-style-type: none"> - Improved eating practices
2014-2018	Maternal and Child Health and Nutrition Services Support Project, Togo Ministry of Health (Togo)	<ul style="list-style-type: none"> - Managed, supervised, and conducted behavioral change communication to ensure effective utilization of services - Built capacity of community- based nutrition services for pregnant women and young children under five years of age - Strengthened health monitoring and evaluation systems, management, and coordination 	<ul style="list-style-type: none"> - Policy/strategy/ protocol development - Capacity building of local organizations / governments - Capacity building of health workers (or other service delivery agents) - Nutrition education and promotion 	<ul style="list-style-type: none"> - Consumption / intake of IFA/iron

Years of Implementation	Project Name, Implementer ⁷ (Country ⁸)	Description of Activities	Categories of Activities Implemented	Practices Promoted
2014-2019	Maternal and Child Nutrition Health Results Project, The World Bank (The Gambia)	<ul style="list-style-type: none"> - Conducted community mobilization for social and behavior change focusing on 12 family and community practices as well as health care seeking behaviors - Provided conditional cash transfers to communities for counseling and timely referrals for life-saving health services - Provided performance-based grants to health centers - Provided startup support for effective service delivery - Built capacity for service delivery 	<ul style="list-style-type: none"> - Policy/strategy/ protocol development - Capacity building of local organizations / governments - Capacity building of health workers (or other service delivery agents) - Nutrition education and promotion 	<ul style="list-style-type: none"> - Improved eating practices
2014-2020	Maternal, Child Health and Nutrition Project, Ghana Ministry of Health (Ghana)	<ul style="list-style-type: none"> - Supported community-based maternal and child health and nutrition interventions promoting - Built capacity of government for supervision, monitoring and evaluation, and project management. - Developed effective intersectoral coordination, ownership, and accountability for health and nutrition - Strengthened Ministry of Health capacity to provide stewardship, coordinate, supervise and monitor implementation of the community-based services 	<ul style="list-style-type: none"> - Policy/strategy/protocol development - Capacity building of local organizations / governments 	<ul style="list-style-type: none"> - Improved eating practices

*Programs that reported on the effectiveness or impact of the program on the nutritional practice via the white or grey literature or on program website.

EVIDENCE OF EFFICACY AND EFFECTIVENESS

Due to the range in quality and availability of data from program websites, and to ensure rigor, the impact data described below only includes data from the peer reviewed literature. Only nine of the programs provided data on the effectiveness of the approach in changing practices and/or the efficacy of the practice in changing nutritional status. This highlights the need for rigorous programmatic research, documentation, and dissemination of impact and the processes leading to impact as well as lessons learned.

These findings are briefly summarized below. Assessment of methodological rigor, including sample size and study design, was not considered within the scope of this paper. Additional data on the efficacy of priority nutrition practices for adolescent girls and WRA is reported separately by Caulfield et al.

Progresa (Oportunidades) in Mexico

The *Oportunidades* program in Mexico found that when cash transfers were provided to pregnant women in exchange for nutritional supplementation and attending educational prenatal and nutrition classes, participants had increased fruit and vegetable intake and vitamin A, vitamin C, fiber, iron, and zinc intake. However, higher rates of obesity were found among already overweight program participants (Leroy et al. 2013) and rates of deliveries by cesarean sections increased (Barber 2009).

Adolescent Girls Anemia Control Program in India

The Adolescent Girls Anemia Control Program in India found that use of a knowledge-centered approach is feasible to reach large population groups. The program reached 27.6 million adolescent girls of whom 16.3 million were school-going girls and 11.3 million were out-of-school girls (Aguayo et al. 2012). The authors reported a 21.5 percent reduction in anemia prevalence (from 74.7 to 53.2 percent, $p < 0.05$, total $N = 5826$) and improvements in hemoglobin in 80 percent of girls (from 110.8 ± 14.2 to 117.2 ± 12.7 , $p < 0.05$, total $N = 5826$) (Kotecha et al. 2009).

Nutrition Intervention Program in Nicaragua

The Nutrition Intervention Program in Nicaragua found that after three years of quarterly nutrition education classes, significant differences were found in height for age z-scores (mean HAZ of -1.3413 pre-intervention vs. -0.8721 post-intervention, $p = 0.000$, $n = 40$) and weight for age z-scores (mean WAZ of -0.7402 pre-intervention vs. -0.5296 post-intervention, $p = 0.014$, $n = 40$). However, BMI for age Z-scores did not change significantly (mean BMIZ of 0.181 pre-intervention vs. 0.049 post-intervention, $p = 0.211$, $n = 37$) (Pawloski & Moore 2007). While nutritional knowledge improved, the translation of these improvements into practice was not measured.

UMANG Program in India

Also in India, the UMANG program found that following four years of program implementation, anemia prevalence decreased from 73.3 percent to 25.4 percent six months later. The p value of this difference was not reported; however the decrease from 92.6 percent to 58.0 percent in anemia prevalence among schools girls and from 73.3 percent to 39.0 percent were both significant ($p < 0.01$). Compliance with IFA supplementation intake was greater than 85 percent throughout program implementation among school girls (Vir et al. 2008). Compliance rates were not compared with a baseline and/or control site.

Bangladesh Micronutrient Powder Program in Bangladesh

With regard to micronutrient supplementation, the Bangladesh Micronutrient Powder Program found that prevalence rates of thinness and anemia were lower among lactating women who consumed at least 75 percent of the sachets than among those who consumed less than 75 percent of the sachets (thinness, 31 vs. 46 percent, $p < 0.05$; anemia, 50 vs. 61 percent, $p = 0.07$) (Rah et al. 2011).

Plan Mas Vida Program in Argentina

The *Plan Mas Vida* Program in Argentina was evaluated in what the authors described as a “prospective, nonexperimental study” of 150 lactating mothers. This study found that one year following the provision of supplementary wheat- and maize-fortified flour, rice or sugar, and fortified soup to low-income families including lactating women, there were significant increases in the intake of energy, calcium, proteins (g/day), iron, zinc, folates, and Vitamin A. However, there were no significant changes in anemia rates or anthropometric measures among PLW (Varea et al. 2012).

Vietnam Folate Supplementation Pilot

In Vietnam, the distribution of IFA supplementation and de-worming for WRA was correlated to reductions in prevalence of LBW infants at district hospitals (Passerini et al. 2012).

Chinese National Folate Program

The Chinese National Folate Program was evaluated among a sample of 1254 pregnant women at baseline and 1730 post-intervention. The authors reported that periconception folate intake increased from 15.3 percent to 84.6 percent ($p < 0.05$) in high prevalence area of neural tube defects and from 66 percent to 92 percent ($p < 0.05$) in a low prevalence area following the program implementation. The percentage of women reporting intake of folic acid on eight out of the previous ten days increased from 78 percent to 88 percent in the low-prevalence population ($p < 0.05$) but not in the high prevalence population (Liu et al. 2013).

National Flour Fortification Program in Uzbekistan

Finally, the Republic of Uzbekistan’s National Flour Fortification Program (NFFP) found that anemia rates decreased around the time of the NFFP. Fortified flour products were widely available following conception of the program in Uzbekistan, however, consumer knowledge surrounding anemia and use of fortified products was low (Hund et al. 2013).

PROGRAMMING/POLICY CONSIDERATIONS

Addressing the nutritional needs in all WRA is fundamental to the health of women, children and future generations. Undernutrition, when carried into childhood and adulthood pre-dispose the next generation to the intergenerational effects of malnutrition and NCD. Effective programmatic approaches that address the dynamic nutritional requirements and problems of this diverse group are required. Programs for WRA, particularly targeting adolescents, must take into account the unique developmental, physical, and psychosocial status of the individual in order to address their nutritional needs in a developmentally and contextually appropriate manner.

Too little is known regarding the most efficacious approaches and practices for improving nutritional status. While evidence abounds on the effectiveness of IFA intake in reducing anemia rates among WRA and the relationship between dietary diversity and the nutritional status of WRA has been increasingly documented, there are a myriad of other nutritional needs that should be addressed throughout a woman's life – needs that, if not addressed, affect her own health status as well as the growth and development of the next generation. By examining effective programmatic approaches that have led to successful IFA intake, programmers can design and/or adapt programs aiming to increase intake of fortified foods and micronutrient supplements and promote healthy diet and eating practices.

Programs should move beyond provision of basic nutritional services that only reach pregnant and lactating women. This requires identification of innovative platforms outside of ANC and post natal services to reach adolescent girls and WRA in school, their places of work, home, and in the community. Addressing the nutritional status of these groups prior to pregnancy has the potential to impact conception, pregnancy, birth, and long term health outcomes. These and other approaches that aim to change social norms and address behaviors that improve the nutritional status of WRA need to be further tested, evaluated, and disseminated globally.

What follows are several considerations for policies and systems as well as programs to address the nutritional needs of WRA derived based upon the synthesis of literature findings and survey responses.

POLICIES AND SYSTEMS

1. Address nutrition of adolescent girls and WRA in policies, systems, and guidelines. Few national strategies and guidelines specifically address nutrition programs and policies for women of reproductive age. Some countries may provide some nutritional strategies and guidelines for pregnancy, but these generally do not address the broader nutritional needs of all WRA. In order to build a platform that provides quality nutrition prevention and response services for all WRA, an essential first step is to address key issues and provide gender sensitive guidance within the broader health system guidelines.

2. Define adolescence and bring attention to the specific nutritional needs of adolescent girls. Countries often overlook the unique needs of adolescent girls who are often included in policies and programs for all women of reproductive age without specific consideration to unique developmental stages, and physiologic and psychosocial needs. Without clear and consistent definitions of adolescence at the national level, data cannot be collected and disaggregated to identify nutritional needs and inform nutrition programming at all levels.

3. Disaggregate data by age and by gender at the national level. While data disaggregated by gender is a common practice, data disaggregated by age is less common. Most often, data is collected into two age ranges: 0-15 for children, and 15 and above for adults. This disallows for data collection on younger adolescents, older

adolescents, and older WRA. Without this level of data, planning interventions that take into account the context of a woman's age and reproductive status is not possible.

4. Integrate nutrition into existing guidelines for services that reach adolescent girls and/or WRA.

Integration of nutrition into current guidelines that meet WRA where they are already receiving services will provide a platform to identify and address undernutrition, micronutrient deficiencies, and other nutritional imbalances where they occur. Other general opportunities to integrate nutrition should also be identified. These may include integration of nutrition indicators for WRA into health information systems, and integration of nutrition into job descriptions for health workers who provide services to WRA.

5. Streamline and collaborate at all levels. Nutrition services within a country should be complementary and comprehensive across government, donor and implementing agencies to reduce duplication and to provide a platform for national planning such that geographic regions and specific populations can be monitored and planned for and when problems arise, they can be addressed quickly and in a methodical manner.

PROGRAMS

1. Expand upon lessons learned from IFA programs. Approximately 30 percent of the programs in this review included an IFA priority practice. Programmatic approaches for IFA have been very well developed, and use a variety of platforms to address anemia in women. Lessons learned from implementation of IFA programs can inform other priority practice areas such as dietary diversity, general eating practices, exercise, and food fortification among others. Consideration of such models may include expansion upon programmatic approaches that use community models such as women's groups, mother's clubs, teen clubs, health extension workers, and community volunteers who provide services in the community and in the home. These platforms, which currently are most often used for IFA programs, may also be used to provide education surrounding food diversification via household gardens/seed programs, general eating practices to improve household nutrition including cooking classes and community sensitization surrounding fortified foods.

2. Consider interventions to prevent and address risk factors for N-RNCDs. None of the programs identified through this review implemented practices that specifically address obesity prevention and physical activity. While undernutrition has traditionally been a major issue in LMIC, overweight and obesity are now more prevalent than undernutrition in LAC and Asia and continue to rapidly increase. Programs must expand in scope beyond general nutrition education for undernourished WRA to also address the epidemic of overweight and obesity.

3. Identify platforms to address the nutritional needs of women outside of pregnancy and lactation periods. The majority of programs identified through this review targeted PLW. It is assumed that this is due to the multiple opportunities to address nutritional needs during frequent antenatal care and pediatric visits post-partum. Moreover, the focus of the programs for PLW was largely on the nutrition of the child; the nutrition of the mother post-partum was typically found to be a much smaller programmatic component. The nutritional status and programming for PLW, and all WRA should be recognized as important in and of itself. Without nutritionally healthy adolescent girls and women, it is difficult to have a healthy conception, pregnancy, delivery, and post-partum period, and even more difficult to care for one's family over time. This requires identification of platforms to reach adolescent girls and other WRA outside of the pregnancy and lactation period.

4. Involve women and communities in nutritional program planning. Women typically are responsible for food preparation and preservation within the home and are knowledgeable surrounding seasonal availability of foods, and various methods of food preparation based upon cooking tools available and availability of water (FAO 2012). They are also best positioned to identify specific challenges for maintaining optimal nutrition as well as the

most effective platform through which to address these issues. Use of existing community platforms, such as women's groups, community advisory boards, and teen clubs, among others can be used as an entry point for women's involvement.

5. Identify opportunities for multisectoral collaborations and/or program integration. Some partnerships, like those between the nutrition and health and agricultural sectors, are more obvious than others, but there are opportunities for additional collaborations such as with the education and private sectors that can effectively address the nutritional needs of women of reproductive age. Opportunities for program integration are numerous. This review revealed a number of examples of programmatic integration that may be considered to expand interventions to promote the nutritional status WRA. Nutrition integration strategies identified through this review are summarized below.

- Promotion of labor and time-saving agricultural technologies for women's use
- Instruction on preparation of nutrient-dense foods using locally grown plants
- Cultivation of plants for firewood
- Promotion of water, sanitation, and hygiene for the prevention of disease and environmental enteropathy
- Micronutrient supplementation for adolescent girls attending school
- Nutrition education for adolescent girls attending school
- Fortification of food products served to adolescent girls attending school
- Gardening programs in schools for adolescent girls for livelihoods and dietary diversity
- Identification of undernourished pregnant women in antenatal care and provision of follow up nutrition home visits by nurses antepartum and post-partum
- Provision of plant starts to undernourished women attending antenatal services
- Provision of nutrition education for women attending PMTCT services
- Dissemination of nutrition education materials to women attending family planning services
- Train mill, refinery, and plant workers to fortify foods
- Provide food fortification equipment to private food industries
- Integrate nutrition education into existing community structures including women's groups and mother's groups
- Train existing community volunteers to provide nutrition education and micro supplementation during home visits
- Train girls scouts in the community setting to provide nutrition education to community members
- Provide cooking demonstrations during women's community forums

6. Address gender norms. Research demonstrates that acute and chronic undernutrition is associated with gender inequality (FAO 2012). Women have varying levels of control within different country contexts which impact their purchasing power, ability to make decisions on behalf of themselves and their family, and the amount of food available to them when resources are sparse. There are many opportunities to address gender through nutrition programming; this is particularly important as nutrition may be used as an entry point to address gender in related sectors including agriculture, water and sanitation, and health care. Examples of gender sensitive approaches identified through this review include:

- Sensitization for national/local government and religious leaders surrounding risks associated with early marriage;
- Financial compensation to women who are compliant with daily IFA supplementation;

- Task shifting initiatives that train adolescent girls on nutrition approaches including general eating practices and IFA supplementation and empowers them to provide services to their peers within the community;
- Promotion of more equitable intra-household distribution of food;
- Inclusion of agricultural programs in the school setting for adolescent girls to learn about crop raising to increase future earning potential and to positively impact household dietary diversity;
- Training female community members on gardening techniques to increase their ability to contribute to household nutrition; and
- Targeting female-headed households for livestock raising programs to provide a base earning potential and increase available nutritious foods available within the household.

ANNEX 1: TOOLS AND JOB AIDS

Nutrition Program Design Assistant: A Tool for Program Planners

<http://www.fantaproject.org/tools/nutrition-program-design-assistant-npda>

This tool assists program planners to design nutrition interventions and select community-based approaches for implementation. This resource includes a reference guide which provides instruction on identifying nutrition issues, program objectives, and selecting context-specific approaches. It is also accompanied by a workbook which helps the program planner to document the program planning process.

Girls Guides Anemia Prevention Badge Project

<http://www.fantaproject.org/focus-areas/maternal-and-child-health-and-nutrition/girl-guides-anemia>

FANTA, in collaboration with the African Regional Office of the World Association of Girls Scouts, designed a series of material including a training manual, handbook, and workbook that allows girls to earn girl scout badges through carrying out a series of educational and community activities surrounding anemia prevention and control. The materials target girls ages 7-18.

Nutrition Advocacy Training

<http://www.fantaproject.org/countries/uganda/uganda-nutrition-advocacy-training>

FANTA developed a training to increase skills surrounding implementation of nutrition programs at community, hospital, district and national levels. The training builds skills around advocacy skills, identifying key decision makers, developing nutrition advocacy messages, and provides important information on forming strategic alliances.

Community Worker's Training Guide and Handbook

<http://www.spring-nutrition.org/publications/training-materials/community-workers-training-guide-and-handbook>

SPRING/Bangladesh has created a training manual and workbook for implementing ENA through agriculture for specific and relevant nutrition and hygiene actions. These training materials include a set of reference tools to be used at the community level to promote and support improved nutrition practices.

Integrated Anemia Prevention and Control Toolkit

<https://www.k4health.org/toolkits/anemia-prevention>

This toolkit provides information, instruction and recommendations to address the major causes of anemia. Basic anemia information is provided in addition to guidance for integration of an anemia package into existing programs. Other anemia tools and resources are also provided within the toolkit.

Maternal Infant and Young Child Nutrition and Family Planning (MIYCN-FP) Integration Toolkit

<https://www.k4health.org/toolkits/miy-cn-fp>

This toolkit provides information and tools on integration of MIYCN within a family planning context. Covering the adolescent, pregnancy, and post-natal periods, the toolkit describes advocacy, social and behavior change communication, training, and monitoring and evaluation information and tools for integration.

Maternal Nutrition Poster

<http://www.spring-nutrition.org/publications/tools/maternal-nutrition-poster-bangla>

SPRING/Bangladesh is collaborating with the Government of Bangladesh to improve maternal, infant, and young child nutrition in Bangladesh. An important step in this process is to ensure that relevant information about nutrition is accessible to the community. This poster provides practical examples of nutritious and affordable foods that can be made using locally-available items, with suggested proportions depicted on a plate. This allows for a more easily understood message about dietary diversity and a healthy diet.

Toolkit on How to Promote and Protect the Nutrition of Mothers and Children

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/LACEXT/EXTLACREGTOPHEANUTPOP/EXTLACREGTOPNUT/0,,contentMDK:23342299~pagePK:34004173~piPK:34003707~theSitePK:4160378,00.html>

This toolkit guides nutrition strategy at the country level to respond during times of stability, crisis, and emergency to the needs of women and children living in poverty. The toolkit provides policy and practice recommendations as well as recommendations for evidence-based approaches.

REFERENCES

- Africa's Health in 2010. Nutrition. Retrieved from <http://africahealth2010.fhi360.org/nutrition.html>
- African Health Mothers Initiative. Retrieved from <http://www.africanmothers.org/>
- Aguayo, V., Paintal, K., and Singh, G. 2012. The adolescent girls anaemia control programme: a decade of programming experience to break the inter-generational cycle of malnutrition in India. *Public Health Nutrition* 16(9): 1667-1676.
- Andalón, Mabel. 2011. "Oportunidades to Reduce Overweight and Obesity in Mexico?" *Health Economics* 20 (S1): 1–18.
- Arimond, M., Torheim L., Wiesmann, D., Joseph, M., and Carriquiry, A. 2009. Dietary Diversity as a Measure of the Micronutrient Adequacy of Women's Diets: Results from Rural Bangladesh Site. FANTA 2. Retrieved from, http://www.fantaproject.org/sites/default/files/resources/WDDP_Bangladesh_Dec09.pdf
- Barber, S. 2009. Mexico's conditional cash transfer programme increases cesarean section rates among the rural poor. *European Journal of Public Health* 20(4): 383-388.
- Barker, D. J. 1990. "The Fetal and Infant Origins of Adult Disease." *BMJ* (Clinical Research Ed.) 301 (6761): 1111.
- Behavior Change Communication (n.d). Jhpiego. Retrieved from, www.jhpiego.org/.../CDIModule19BehaviorChangeCommunication.pptx
- Bhutta, Zulfiqar A, Jai K Das, Arjumand Rizvi, Michelle F Gaffey, Neff Walker, Susan Horton, Patrick Webb, Anna Lartey, and Robert E Black. 2013. "Evidence-Based Interventions for Improvement of Maternal and Child Nutrition: What Can Be Done and at What Cost?" *The Lancet* 382 (9890): 452–77.
- Black, Robert E, Cesar G Victora, Susan P Walker, Zulfiqar A Bhutta, Parul Christian, Mercedes de Onis, Majid Ezzati, et al. 2013. "Maternal and Child Undernutrition and Overweight in Low-Income and Middle-Income Countries." *The Lancet* June.
- 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*, 1, 371 (January): 243–60.
- Cnattingius, Sven, Eduardo Villamor, Stefan Johansson, Anna-Karin Edstedt Bonamy, Martina Persson, Anna-Karin Wikström, and Fredrik Granath. 2013. "Maternal Obesity and Risk of Preterm Delivery." *JAMA* 309 (22): 2362–70.
- DAI. Urban Gardens Program for HIV Affected Women and Children. Retrieved from <http://dai.com/our-work/projects/ethiopia%E2%80%94urban-gardens-program-hiv-affected-women-and-children-ugp>
- FAO, IFAD and WFP. 2014. The State of Food Insecurity in the World 2014. Strengthening the enabling environment for food security and nutrition. Rome, FAO.
- FAO. 2012. Gender and Nutrition. Retrieved from http://www.fao.org/fileadmin/user_upload/wa_workshop/docs/Gender-Nutrition_FAO_IssuePaper_Draft.pdf
- Food and Nutrition Technical Assistance. Retrieved from <http://www.fantaproject.org/>
- Food and Nutritional Technical Assistance. Maternal and Child Health and Nutrition. Retrieved from <http://www.fantaproject.org/focus-areas/maternal-and-child-health-and-nutrition>
- GAIN National Food Fortification Program. Retrieved from <http://www.gainhealth.org/programs/gain-national-food-fortification-program>
- Gluckman, PD, MA Hanson, and T Buklijas. 2010. "A Conceptual Framework for the Developmental Origins of Health and Disease." *Journal of Developmental Origins of Health and Disease* 1 (01): 6–18.
- Helen Keller International. Homestead Food production Program. Retrieved from <http://www.hki.org/reducing-malnutrition/homestead-food-production/>
- Hund L, Northrop-Clewes CA, Nazario R, Suleymanova D, Mirzoyan L, et al. 2013. A Novel Approach to Evaluating the Iron and Folate Status of Women of Reproductive Age in Uzbekistan after 3 Years of Flour Fortification with Micronutrients. *PLoS ONE* 8(11): e79726.

- Indonesia Health Services Program. John Snow Inc. Retrieved from <http://www.jsi.com/JSIInternet/IntlHealth/project/display.cfm?ctid=na&cid=na&tid=40&id=380>
- Infant and Young Child Nutrition Project. Retrieved from <http://www.iycn.org/>
- Integrated Nutrition and Health Project. CARE/India. Retrieved from <http://www.basics.org/documents/pdf/India-country-example.pdf>
- IntraHealth International. The VISTAAR Project. Retrieved from <http://www.intrahealth.org/page/vistaar-project>
- Katz, J, ACC Lee, N Kozuki, JE Lawn, S Cousens, H Blencowe, M Ezzati, et al. 2013. "Mortality Risk in Preterm and Small-for-Gestational-Age Infants in Low-Income and Middle-Income Countries: A Pooled Country Analysis." *The Lancet* 382 (9890): 417–25.
- Kawai, K., Spiegelman, D., Shankar, A., and Fawzi, W. 2011. Maternal multiple micronutrient supplementation and pregnancy outcomes in developing countries: meta-analysis and meta-regression. *Bulletin of the World Health Organization* 89: 402-411B.
- Khara T and E Mates. 2015. *Adolescent nutrition Policy and programming in SUN+ countries*. London: The Save the Children Fund.
- Kotecha, P., Nirupam, S., Karkar, P. 2009. Adolescent Girls Anaemia Control Program, Gujarat, India. *Indian Journal of Medical Research*. 130: 584-589.
- Krause, Katrina M., Cheryl A. Lovelady, and Truls Østbye. 2011. "Predictors of Breastfeeding in Overweight and Obese Women: Data from Active Mothers Postpartum (AMP)." *Maternal and Child Health Journal* 15 (3): 367–75.
- Lagarde M, Haines A, Palmer N. 2009. The impact of conditional cash transfers on health outcomes and use of health services in low and middle income countries. *Cochrane Database of Systematic Reviews*, Issue 4.
- Leroy, J., Gadesden, P., González de Cossío, T., and Gertler P. 2013. Cash and in-kind transfers lead to excess weight gain in a population of women with a high prevalence of overweight in rural Mexico. *The Journal of Community and International Nutrition*. 143:378-383.
- Liberian Agricultural Upgrading Nutrition and Child Health. ACDI VOCA. Retrieved from <http://www.acdivoca.org/site/ID/liberialAUNCH>
- LIFT II. Retrieved from, <http://theliftproject.org/>
- Liu, Jufen, Lei Jin, Qinqin Meng, Lili Gao, Le Zhang, Zhiwen Li, and Aiguo Ren. 2015. "Changes in Folic Acid Supplementation Behaviour among Women of Reproductive Age after the Implementation of a Massive Supplementation Programme in China." *Public Health Nutrition* 18 (04): 582–88.
- Madagascar Community-Based Integrated Health Program. John Snow Inc. Retrieved from <http://www.jsi.com/JSIInternet/IntlHealth/project/display.cfm?ctid=na&cid=na&tid=40&id=8561>
- Mama Sacha Project. PATH. Retrieved from, <http://www.path.org/projects/sweetpotato-project.php>
- Maternal and Child Health Integrated Program. Retrieved from <http://www.mchip.net/>
- Middleton, P., Crowther, C., Bubner, T., et al. 2012. Nutrition interventions and programs for reducing mortality and morbidity in pregnant and lactating women and women of reproductive age: a systematic review. *The Campbell Collaboration*. Retrieved from <http://campbellcollaboration.org/lib/project/219/>
- Passerini, Luca, Gerard J. Casey, Beverley A. Biggs, Dai T. Cong, Luong B. Phu, Tran Q. Phuc, Marco Carone, and Antonio Montresor. 2012. "Increased Birth Weight Associated with Regular Pre-Pregnancy Deworming and Weekly Iron-Folic Acid Supplementation for Vietnamese Women." Edited by Jeffrey Michael Bethony. *PLoS Neglected Tropical Diseases* 6 (4): e1608.
- Pawloski, Lisa Renee, and Jean Burley Moore. 2007. "Impact of a Nutrition Intervention Program on the Growth and Nutritional Status of Nicaraguan Adolescent Girls." *Collegium Antropologicum* 31 (2): 403–11.
- Phuc, T., Mhrshahi, S., Casey, G., et al. 2009. Lessons learned from implementation of a demonstration program to reduce the burden of anemia and hookworm in women in Yen Bai Province, Viet Nam. *BMC Public Health*. 9:266.

- Presidents Emergency Plan for AIDS Relief. 2012. Capacity Building and Strengthening Framework. Version 2.0. Retrieved from <http://www.pepfar.gov/documents/organization/197182.pdf>
- Rah J., Christian P., Shamim A et al. 2008. Pregnancy and lactation hinder growth and nutritional status of adolescent girls in rural Bangladesh. *J Nutrition*; 138:1505–1511.
- Rah, J. (n.d.). Adolescent pregnancy: Its impact on the growth and nutritional status of young mothers: What does the evidence say? Sight and Life. Retrieved from http://www.sightandlife.org/fileadmin/data/Magazine/2013/27_3_2013/nutrition_of_adolescent_girls_in_low_and_middle_income_countries.pdf
- Rah, J., Pee, S., Halati, S., et al. 2011. Provision of micronutrient powder in response to the Cyclone Sidr emergency in Bangladesh: Cross-sectional assessment at the end of the intervention. *Food and Nutrition Bulletin*. 37: 277-285.
- Ransom, E., Elder, L. 2003. Nutrition of Women and Adolescent Girls: Why it Matters. Population Reference Bureau. Retrieved from <http://www.prb.org/Publications/Articles/2003/NutritionofWomenandAdolescentGirlsWhyItMatters.aspx>
- Rao, D., Vijayapushpam, T., Rao, G., Antony, G., Sarma, K. 2007. Dietary habits and effect of two different educational tools on nutritional knowledge of school going adolescent girls in Hyderabad, India. *European Journal of Clinical Nutrition*. 61: 1081-1085.
- Sanghvi T., Harvey P. and Wainwright E. 2010. Maternal iron-folic acid supplementation programs: evidence of impact and implementation. *Food Nutrition Bulletin*. Jun;31 (2 Suppl):S100-7.
- Shanghai's Poverty Conference (n.d). Mexico's Oportunidades Program. Retrieved from <http://info.worldbank.org/etools/docs/reducingpoverty/case/119/summary/Mexico-Oportunidades%20Summary.pdf>
- Strengthening Partnerships, Results, and Innovations in Nutrition Globally. SPRING. Retrieved from. <http://www.spring-nutrition.org/>
- Suaahara Nutrition Project in Nepal. Retrieved from <https://www.k4health.org/toolkits/suaahara-nutrition-project>
- UNFPA. 2013. UNFPA's Adolescent Girls Initiative. Programme Document. Retrieved from <http://www.unfpa.org/webdav/site/global/shared/youth/UNFPA%20AGI%20programme%20document.pdf>
- USAID Multi-Sectoral Nutrition Strategy 2014-2025. 2014. Retrieved from <http://www.usaid.gov/nutrition-strategy>
- Varea, A., Malpeli, A., Disalvo, L., et al. 2012. Evaluation of the impact of a food program on the micronutrient nutritional status of Argentinian lactating mothers. *Biological Trace Element Research*. 150:104-108.
- Vir, S., Singh, N., Nigam, A., and Jain, R. 2008. Weekly iron and folic acid supplementation with counseling reduces anemia in adolescent girls: A large scale effectiveness study in Uttar Pradesh, India. *Food and Nutrition Bulletin*. 29(3): 186-194.
- Vistaar. 2012. Delaying age of marriage and anaemia among adolescent girls in Jharkhand. Retrieved from http://www.intrahealth.org/files/media/delaying-age-of-marriage-and-reducing-anaemia-among-adolescent-girls-in-jharkhand/DAOM_26_10_12.pdf
- World Bank. 2011. Capacity Development Resource Center. Retrieved from <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTCDRC/0,,contentMDK:20295295~menuPK:645091~pagePK:64169212~piPK:64169110~theSitePK:489952,00.html>
- World Bank. 2013. LAC: Poverty, Poor Education and Lack of Opportunities Increase Risk of Teenage Pregnancy. Retrieved from <http://www.worldbank.org/en/news/press-release/2013/12/12/lac-poverty-education-teenage-pregnancy>
- World Health Organization. 2005. Nutrition and Adolescence – Issues and Challenges for the Health Sector. Retrieved from http://whqlibdoc.who.int/publications/2005/9241593660_eng.pdf
- World Health Organization. 2014. Adolescent Health. Retrieved from http://www.who.int/topics/adolescent_health/en/
- World Health Organization and Food and Agriculture Organization of the United Nations. Guidelines on food fortification with micronutrients. Edited by Lindsay Allen, Bruno de Benoist, Omar Dary and Richard Hurrell. WHO Press; Geneva: 2006. Page xxvii



SPRING

JSI Research & Training Institute, Inc.
1616 Fort Myer Drive, 16th Floor ◦ Arlington, VA 22209 ◦ USA
Phone: 703-528-7474
Fax: 703-528-7480
Email: info@spring-nutrition.org
Internet: www.spring-nutrition.org

JSI Research and Training Institute, Inc. ◦ Helen Keller International ◦
The International Food Policy Research Institute ◦ Save the Children ◦ The Manoff Group