USAID
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MULTI-SECTORAL NUTRITION STRATEGY
2014–2025

Technical Guidance Brief

The 1,000-day Window of Opportunity

INTRODUCTION

Good nutrition in the first 1,000 days lays the foundation for health, development, and even prosperity of the next generation.

The 1,000 days between pregnancy and a child's 2nd birthday are the most critical time for positive impact on a child's cognitive and physical development. The health and well-being of a pregnant and lactating woman is directly connected to the growth and health of her infant. The right nutrition for the mother and for the child during this time can have a profound impact on the child's growth and development and reduce disease risk, as well as protect the mother's health. Undernutrition during pregnancy, affecting fetal growth, is a major determinant of stunting and can lead to consequences such as obesity and nutrition-related non-communicable diseases in adulthood.

Focusing multi-sectoral nutrition efforts on evidence-informed interventions targeting this critical window can have lasting implications across the lifecycle. The combination of good health and reduced disease risk for both mothers and their children can also have a powerful, lasting effect on a country's prosperity.

MULTI-SECTORAL NUTRITION STRATEGY

The goal of the U.S. Agency for International Development's (USAID's) nutrition-related efforts is "to improve nutrition to save lives, build resilience, increase economic productivity, and advance development." To realize this vision, we are building a world where countries sustain healthy, well-nourished populations and every child has the potential for a healthy and productive life. One important target toward this goal is to reduce chronic malnutrition, which can lead to stunting, by 20 percent over 5 years in the areas of focus where we work. It is widely recognized that the "window of opportunity" for reducing stunting is the first 1,000 days from pregnancy to a child's 2nd birthday. USAID will focus on high-impact actions targeted at this important period.

LATEST TECHNICAL AND EVIDENCE-BASED INFORMATION

The *Lancet Maternal and Child Nutrition Series* (2013) ends its first paper[1] with a reconfirmation of the **focus on "pregnancy and the first 2 years of life, the crucial 1,000 days**," called for in the previous (2008) series. Based on new evidence, the 2013 paper adds more emphasis to the "nutritional conditions in adolescence, at the time of conception, and during pregnancy as important for maternal health and survival, fetal growth, and subsequent early childhood survival, growth, and development. Fetal growth restriction and poor growth early in infancy are now recognized as important determinants of neonatal and infant mortality, stunting, and overweight and obesity in older children and adults. Preventive efforts should continue to focus on the 1,000 days, while therapeutic efforts continue to target severe wasting."[2]

Approximately one-third of stunting is manifested as small for gestational age and preterm babies, which reflects the importance of targeting women during pregnancy and the pre-pregnancy period. Recent studies show the importance of

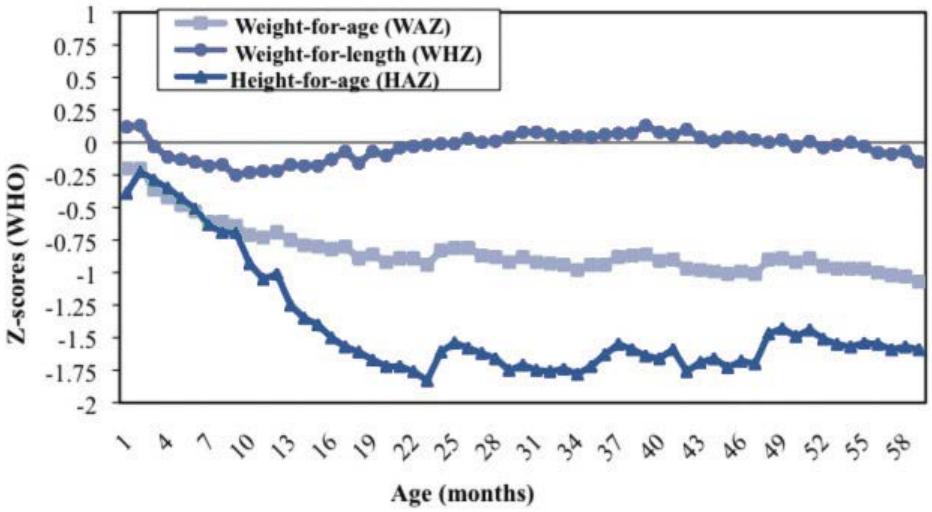
[1] Black R, et al., Maternal and Child Undernutrition and Overweight in Low-income and Middle-income Countries, Maternal and Child Nutrition 1, *Lancet* 2013.
[2] Ibid p. 33

diet and energy expenditure and seasonality during pregnancy for healthy birth outcomes.[3] In addition to a variety of factors such as reducing infections and improving birth spacing, sufficient food, and rest for pregnant women, especially those engaged in agriculture and other strenuous jobs, should be important components of programs that support healthy pregnancies (see Maternal Nutrition technical brief for more information).

It is important to integrate maternal and newborn care as the health outcomes for mothers and their newborns and children are inextricably linked; maternal deaths and morbidities have an impact on newborn and child survival, growth, and development.[4] Therefore, an integral part of 1,000 days nutrition programming is to protect and support the mother-baby relationship and to encourage integrated strategies and service delivery for both[5]; for example, preparation for immediate and exclusive breastfeeding should begin during prenatal care.

Pregnancy and infancy are critically important periods for brain development for a child. Mothers and babies need good nutrition to lay the foundation for the child's future cognitive, motor and social skills, school success, and productivity. Children with restricted development of these skills during early life are at risk for later neurological problems, poor school achievement, early school drop out, low-skilled employment, and poor care of their own children, thus contributing to the intergenerational transmission of poverty and malnutrition.[6]

Figure A-6. Undernutrition and the window of opportunity: A child's first 1,000 days



Source: Victora C.G., de Onis M., Hallal P.C., Blössner M., Shrimpton R. 2010. Worldwide timing of growth faltering: revisiting implications for interventions using the World Health Organization growth standards. *Pediatrics*.

It is widely recognized that the "window of opportunity" for reducing stunting is the 1,000 days from pregnancy through 2 years of age. Assuring adequate maternal nutrition prior to pregnancy is also likely to be important.[7] A detailed review of what can be done to address maternal and child malnutrition and at what cost was recently published.[8]

Although stunting reduction activities generally target children under 5 years of age, a large proportion of the linear

[3] Toe, L.C., Bouckaert, K.P., DeBeuf, K et al., "Seasonality Modifies the Effect of a Lipid-based Nutrient Supplement for Pregnant Rural Women on Birth Length" *J. of Nutrition*. January 14, 2015.
[4] UNICEF. 2009. State of the World's Children: Maternal and Newborn Health.
[5] Starrs A.M. (2014). Survival Convergence: Bringing Maternal and Newborn Health Together for 2015 and Beyond. *Lancet.*
[6] Alive and Thrive. Nutrition and Brain Development in Early Life. (Washington, DC: 2012).
[7] de Onis M., Dewey K., et al. The World Health Organization's Global Target for Reducing Childhood Stunting by 2025: Rationale and Proposed Actions, *Maternal and Child Nutrition* (2013), **9** (Suppl. 2), pp. 6–26.
[8] Bhutta Z.A., Das J.K., Rizvi A., Gaffey M.F.,Walker N., Horton S., ... Maternal and Child Nutrition Study Group (2013). Evidence-based Interventions for Improvement of Maternal and Child Nutrition: What Can Be Done and at What Cost? *Lancet, 382* (9890), 452-477.

growth deficits that make up the under-5 stunting burden are accumulated in the first 1,000 days.[9],[10] Similarly, acute malnutrition (caused by an illness and/or a recent and severe decrease in food consumption) peaks within this period before 24 months as a result of inadequate infant and young child feeding practices and high risk of exposure to infections.

Timely **nutrition-specific** interventions, at critical points in the lifecycle, can have a dramatic impact on reducing malnutrition globally if taken to scale in high-burden countries. If scaled to 90 percent coverage, it is estimated that 10 evidence-based, nutrition-specific interventions could reduce stunting by 20 percent and severe wasting by 60 percent.[11] In addition, effective prevention and management of infectious diseases can also decrease the harmful effects of illness on nutritional status.[12]

Nutrition-specific interventions alone will not eliminate undernutrition; however, in combination with **nutrition-sensitive** interventions, there is enormous potential to enhance the effectiveness of nutrition investments worldwide.[13] Emerging evidence shows the opportunities for nutrition impact with a number of nutrition-sensitive interventions.

The economic argument for nutrition investments is very strong. Evidence shows that the right nutrition during the 1,000-day window can[14]:

1. Save more than 1 million lives each year
2. Significantly reduce the human and economic burden of diseases such as tuberculosis, malaria and HIV and AIDS
3. Reduce the risk for developing various non-communicable diseases such as diabetes and other chronic conditions later in life
4. Improve an individual's educational achievement and earning potential
5. Increase a country's gross domestic product by at least 2–3 percent annually

BEST PRACTICES: FOCUS ON HIGH-IMPACT INTERVENTIONS

High-impact actions to ensure optimal health and survival that health services and other community care should provide include:

1. Promote and support good maternal nutrition during pregnancy and lactation

Maternal nutrition plays a critical role in fetal growth and development and a woman's own health and survival. Meeting women's nutrient requirements is key as nutrient needs increase during pregnancy and lactation. This includes:

- Provision of adequate micronutrients before and during pregnancy and lactation, especially iron, folic acid, calcium, iodine, and vitamin A through supplementation, fortification, and food consumption
- Standards of nutritional care for prenatal, postnatal, and delivery services developed and followed; guidelines are needed to promote optimum weight gain during pregnancy, to diagnose and treat anemia safely, support dietary diversity, and other facets of nutritional care (see Maternal Nutrition and IYCN technical briefs for more detail)
- Education for mother on the benefits and resources to promote and support early and exclusive breastfeeding should be part of birth preparedness

[9] Dewey K.G. & Huffman S.L. (2009) Maternal, Infant, and Young Child Nutrition: Combining Efforts to Maximize Impacts on Child Growth and Micronutrient Status. Food and Nutrition Bulletin 30, S187–S189.
[10] Victora C.G., de Onis M., Hallal P.C., Blossner M. & Shrimpton R. (2010) Worldwide Timing of Growth Faltering: Revisiting Implications for Interventions. Pediatrics 125, e473–e480.
[11] Bhutta Z.A., Das J.K., Rizvi A., Gaffey M.F.,Walker N., Horton S., ... Maternal and Child Nutrition Study Group (2013). Evidence-based Interventions for Improvement of Maternal and Child Nutrition: What Can Be Done and at What Cost? *Lancet, 382* (9890), 452-477.
[12] Ibid
[13] Bhutta Z.A., Das J.K., Rizvi A., Gaffey M.F.,Walker N., Horton S., ... Maternal and Child Nutrition Study Group (2013). Evidence-based Interventions for Improvement of Maternal and Child Nutrition: What Can Be Done and at What Cost? *Lancet, 382* (9890), 452-477.
[14] http://www.thousanddays.org/about/ Accessed June 11, 2015.

- Health provider and other community worker education and continuing training are essential to deliver quality nutrition services
- Engagement of fathers, grandmothers, and other community influencers to assure that pregnant and lactating women receive adequate food and support and are able to rest

2. Promote and support optimal infant and young child feeding and care practices.

Health services should promote **optimal infant and young child feeding (IYCF) and care practices**, with an emphasis on:

- Immediate initiation of breastfeeding after birth
- Exclusive breastfeeding for the first 6 months of life
- Starting at 6 months appropriate complementary feeding (e.g., dietary diversity) together with continued breastfeeding to 2 years or beyond
- Adequate care and feeding of sick children to prevent both acute malnutrition and stunting
- Management of acute malnutrition
- Integration of key hygiene practices with IYCF (see WASH-Nutrition technical brief and IYCN technical brief)
- Proper IYCF guidance for HIV-infected mothers and exposed infants[15]
- National programs to ensure adequate intake of essential micronutrients through supplementation, fortification and food consumption

3. Give special focus to the 1,000-day period within USAID health, nutrition, agriculture, and humanitarian assistance programs

Behind malnutrition is a range of factors – from poverty, to lack of education, to poor caregiving practices, to gender dynamics that disadvantage girls and women when it comes to allocating household resources. Illness has an impact on nutrient absorption and use and increases requirements; therefore, water, sanitation and hygiene actions as well as adequate health care are essential to improve nutrition. These underlying causes are where more can be done to prevent malnutrition in women and young children through nutrition-sensitive actions as well as nutrition-specific work.

Solutions to improve nutrition in the 1,000-day window are readily available, affordable, and cost-effective and include:

- Integrate key hygiene actions (safe drinking water, handwashing with soap, safe disposal of excreta, and food hygiene) as essential components in all targeted nutrition programs.
- Scale up community management of acute malnutrition in emergency and development settings, including the provision of improved commodities for prevention and treatment of acute malnutrition.
- Support preventive and curative health and nutrition services in maternal and child health and nutrition programs.
- Promote healthy timing and spacing of pregnancies to decrease the risk of neonatal mortality, preterm births, small for gestational age, and low birth weight and allow for exclusive and continued breastfeeding until at least 24 months.
- Promote dietary diversity for women and children through integrated agriculture and nutrition programming.
- Strengthen the evidence base for and scale up (1) proven nutrition-sensitive agriculture interventions and (2) nutrition assessment, counseling, and support as a component of routine clinical health care.
- Increase significantly the number of professionals and frontline workers, especially women, formally trained and employed in nutrition to meet country and local needs across sectors.

4. Social and behavior change

A strong multichannel social and behavior change strategy should address the range of practices that are recommended for specific stages in the 1,000-day window in a culturally-appropriate and timely way, targeting not just those who practice the behaviors but those who influence behavior in a household and community. Clear, age-appropriate and

[15] WHO Guidelines on HIV and Infant Feeding 2010.

action-oriented messages delivered through repeated, multiple contact points and channels are most effective. Social and behavior change communication messaging reinforced by community mobilization and mass media should include:

- Interpersonal counseling

Regular, quality contacts for nutrition-specific services with mothers/direct caregivers and their families
Can include home visits, peer support, "mothers groups," and counseling by health workers

- Multiple media channels

Informal means (community theater and songs), videos, posters, and leaflets
Targeted mass media (community radio), mass media (television and social media), cell phones, and other technology

- Community mobilization and advocacy

Educating and motivating influential audiences to take action and support specific measures to advance maternal, infant and young child nutrition.

Early and exclusive breastfeeding have been identified by USAID as *accelerator behaviors* for nutrition, as described in *The Behavior Change Framework: A Template for Accelerating the Impact of Behavior Change in USAID-supported Ending Preventable Child and Maternal Deaths (EPCMD) Programs in 24 Priority Countries*. The framework helps to mainstream behavior change activities in the global health agenda for EPCMD. Accelerator behaviors are priority behaviors for programming because they have the highest potential to hasten the decline of child and maternal deaths. Key considerations to support breastfeeding include:

- Train community members to form breastfeeding support groups for mothers and other family members.
- Assist community health workers/providers to facilitate an enabling environment where opportunities are maximized (e.g., water, saniation and hygiene, nutrition, mother's health, prevention of mother-to-child transmission of HIV).
- Align policymakers and donors in supporting "optimal practices" and friendliness of early breastfeeding, especially at facilities.
- Include men and other influencers (e.g., mothers-in-law) in behavior change activities.

PROGRAM EXAMPLES

1. Suaahara/Nepal

Suaahara is a 5-year USAID-funded integrated nutrition program (August 2011–August 2016) in Nepal. It uses a comprehensive, household-based approach to improve access to and consumption of nutritious foods in areas with populations with poor nutritional status indicators. Its main objective is to **improve the nutritional status of pregnant and lactating women and children under 2 years of age** by directly addressing the vulnerable points of development that result in stunting. The program
Complementary nutrition and hygiene education, small-scale backyard farming, and greater access to and understanding of the need for a variety of healthful foods will improve the impact of agriculture production and economic development on nutritional status. The project works within the government system, primarily through female community health volunteers who disseminate health messages, services and commodities at the household level and through mothers' group discussion forums.

The impact evaluation for Suaahara (scheduled for 2016) will address the following overarching evaluation question: What overall project-level impact did the Suaahara program have on child stunting and anemia (among children under 5 years of age) and infant and young child feeding practices (among children 0–24 months of age)?

2. Preventing Malnutrition in Children Under 2 Approach (PM2A)

PM2A is a food-supported conditional food transfer approach being implemented in several Food for Peace development programs around the world. Its goal is to **reduce the prevalence of child malnutrition by targeting a package of health and nutrition interventions to all pregnant women, mothers of children 0–23 months, and children under 2 in food-insecure program areas**, regardless of nutritional status. Because these women and children are the most nutritionally vulnerable members of the population, the program targets everyone in these groups to protect children from malnutrition and its long-term consequences, such as diminished psycho-motor skills, work capacity, intelligence quotient, and income, among others.

The primary interventions consist of: 1) Health – required attendance at regular preventive health visits, which include pre- and postnatal health visits for pregnant and lactating women and preventive health and nutrition services for children under 2 years of age; 2) Care – required participation by beneficiary mothers in behavior change communication activities, which are designed to improve maternal and child care, health and nutrition related knowledge and practices; and 3) Food – access to high-quality nutritious foods for pregnant and lactating women and optimal complementary foods for children under 2 years old. PM2A is most effective as part of a multi-sectoral approach. These interventions should be considered alongside other health and nutrition activities and be linked with agriculture and livelihoods activities as well as complementary services provided by the government or other organizations operating in the program area.

In the publication on the original research study of community-based targeting of women and children during the first 1,000 days from pregnancy to age 2, results suggested that in highly food insecure environments, providing micronutrient-enriched food supplements earlier (from 6 months on) had a greater effect on protecting linear growth and reducing wasting, than later introduction of supplements or providing these food supplements only when children under 2 were already malnourished.[16]

The PM2A approach is currently being evaluated in Burundi and Guatemala (2010–2015) in order to deepen understanding of the relationship between the conditional food transfers and improved nutritional status of children during the first 1,000 days.

CONCLUSION

Targeting the important 1,000-day period is one of the best investments that can be made to improve health, nutrition and economic outcomes. Nutrition-specific and nutrition-sensitive interventions will have the most impact when working in collaboration to focus on this critical window of opportunity.

TECHNICAL RESOURCES

- 1,000 Days: http://www.thousanddays.org/.
- Strengthening Partnerships, Results, and Innovation in Nutrition Globally (SPRING): https://www.spring-nutrition.org.
- Bhutta Z.A., Das J.K., Bahl R., et al., for The Lancet Every Newborn Interventions Review Group and The Lancet Every Newborn Study Group. *Can Available Interventions End Preventable Deaths in Mothers, Newborn Babies, and Stillbirths, and at What Cost? Lancet* 2014; published online May 20. http://dx.doi.org/10.1016/S0140-6736(14)60792-3.
- Casanovas M.C., Lutter C.K., Mangasaryan N., Mwadime R., Hajeebhoy N., Aguilar A.M. et al. 2013. *Multi-sectoral Interventions for Healthy Growth.* Maternal & Child Nutrition 9 (Suppl. 2), 46–57.
- FANTA-2. *Title II Technical Reference Materials.TRM-01: Preventing Malnutrition in Children Under 2 Approach (PM2A): A Food-Assisted Approach. Version 1: October 2009.* Washington, D.C.: Food and Nutrition Technical Assistance II Project (FANTA-2), Academy for Educational Development (AED), 2009.
- PM2A: http://fantaproject.org/sites/default/files/resources/TRM_PM2A_RevisedNov2010_ENGLISH.pdf
- Renfrew M.J., McCormick F.M., Wade A., Quinn B., Dowswell T. Support for Healthy Breastfeeding Mothers with Healthy Term Babies. *Cochrane Database Syst. Rev.* 2012; **5**. CD001141.
- Save the Children 2012. *Nutrition in the First 1,000 Days: State of the World's Mothers 2012.*
- Scaling Up Nutrition: http://scalingupnutrition.org/
- UNICEF 2013. *Improving Child Nutrition: The Achievable Imperative for Global Progress* http://www.unicef.org/gambia/Improving_Child_Nutrition_-_the_achievable_imperative_for_global_progress.pdf -- great success stories in scaling up nutrition.
- USAID. May 2015. *The Behavior Change Framework: A Template for Accelerating the Impact of Behavior Change in USAID-supported Ending Preventable Child and Maternal Deaths (EPCMD) Programs in 24 Priority Countries*

[16] Ruel, M et al. Age-based preventive targeting of food assistance and behaviour change and communication for reduction of childhood undernutrition in Haiti: a cluster randomised trial. The Lancet: Volume 371, No. 9612, p588–595, 16 February 2008

- van Haeften R., Anderson M.A., Caudill H., and Kilmartin E. 2013. *Second Food Aid and Food Security Assessment (FAFSA-2)*. Washington, DC: FHI 360/FANTA.
- WHA Nutrition Policy Briefs and Target Setting and Tracking Tool: http://www.who.int/nutrition/trackingtool/en/ , http://www.who.int/nutrition/global-target-2025/en/.
- WHO e-Library of Evidence for Nutrition Actions (eLENA): http://www.who.int/elena/en/.

This technical brief will be periodically updated. Comments from readers are welcome, especially comments to help clarify the information provided or where additional information may be useful (last updated December 3, 2015).