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Lipid-Based Nutrient Supplements: Evidence and Program Guidance

This guidance was developed for the USAID Bureau for Humanitarian Assistance-managed International Food Relief Partnership (IFRP). The lipid-based nutrient supplements (LNS) described below are for nutrition promotion/protection and not for treatment.

Introduction

This technical brief provides information for designing small- and medium-quantity lipid-based nutrient supplement (LNS-SQ and LNS-MQ) programs that promote improved nutritional status of women and young children in resource-limited settings. The following sections feature an overview of recent evidence, considerations for program design, and details of ways that LNS can complement or enhance a wide range of community health and development programs.

Recent Evidence for Effectiveness

Although multiple factors influence child growth and development, the diets of pregnant and breastfeeding women and children play a critical role. In settings where these vulnerable populations are not able to afford or access a healthy and diverse diet, LNS products may reduce the risk of death and improve growth and brain development for children 6–24 months of age and offer potential benefits in birth outcomes for pregnant women. Lipid-based nutrient supplement products provide energy (110–270 kcals per sachet), protein, multiple micronutrients, and essential fatty acids.



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Children

Strong evidence indicates that both small- and medium-quantity LNS products are beneficial for children 6–24 months of age.¹⁻³ Children who take LNS are less likely to die, become anemic, or become deficient in vitamin A and more likely to grow taller and gain adequate weight.¹⁻³ Moderate evidence shows that children who take these products are also more likely to develop well: walk within the first year of life, and speak and interact with others in ways that are appropriate for their age.³ For certain results, the effect of LNS may be greater on children in need, particularly those living in poor households, those who are thin for their height (wasted), or those who have mothers with depression.³ Programs designed with child growth, nutritional status, and development as the goal are well positioned to leverage the potential of LNS, as described in the section on Considerations for Program Design.

Pregnant and Breastfeeding Women

At this time, relatively few studies have evaluated the effect of LNS on pregnancy and birth outcomes for pregnant women.^{4,5} These studies did not find differences in certain outcomes such as weight gain during pregnancy and premature birth (preterm). However, they found differences in anemia during pregnancy and the birth weight and length of the child.^{4,5} Specifically, these studies showed the following:

- **Anemia during pregnancy:** LNS is **less** effective than iron and folic acid (IFA) and multiple micronutrient supplementation (MMS)
- **Birth weight and length:** LNS is **more** effective than IFA and **equally** effective as MMS.

LNS may be more effective in improving these outcomes for pregnant women who are underweight, but more research is needed to improve our understanding of this relationship.⁶ Supplementing breastfeeding women with LNS does not improve child growth, but more research is required to understand how LNS impacts breast milk quality and production and the micronutrient status of breastfeeding women.⁷

Considerations for Program Design

The following recommendations are for optimal programming use of LNS products and align with manufacturer instructions. The recommendations for women are specific to IFRP programs.

 PROGRAM ASPECT	 CHILDREN	 WOMEN
Population	All children 6–24 months of age in areas with a high burden of child micronutrient deficiency, food insecurity, and poor growth and development	All pregnant women in areas with a high burden of low newborn size, micronutrient deficiency, food insecurity, and where MMS or IFA may not be readily available
Program Entry	6–11 months of age	As early as possible in pregnancy
Program Exit	24 months of age	End of pregnancy; if resources are available, while breastfeeding as well
Duration	6–12 months or longer if resources are available If only provided for 6 months, children should start the program at or close to 6 months of age	As long as possible in pregnancy and during the first six months of breastfeeding if resources are available
Frequency of Consumption	Daily	Daily
Ration Size	 20–50g	 20g

Complementary Programming Actions

Lipid-based nutrient supplements may have a greater impact on child growth and development when implemented with programmatic approaches that together address multiple drivers of undernutrition. Where nutrient-deficiencies are significant, and programs provide messages regarding LNS, integration with other interventions can serve as an entry point. Also, program engagement increases when participants receive an immediate tangible benefit, such as LNS.

LNS and Nutrition Education

The provision of LNS should be accompanied by appropriate messages that communicate who the products are intended for, how to use the products, and associated benefits.⁸ Since the role of LNS is to enhance diets that are nutritionally deficient, LNS programs should also provide additional messages on promotion of good nutrition practices for women (e.g., diet diversity) and young children (e.g., breastfeeding, appropriate complementary feeding, and consumption of animal-source foods). All messages should be tailored to the context in which the programs are implemented.

LNS in Existing Programs

Below are examples that illustrate how LNS can be incorporated into existing programs to support the achievement of program objectives:

- **Nutrition:** In food-insecure settings, LNS distribution can be included in programs that promote good nutrition practices for pregnant and breastfeeding women and children during the complementary feeding period (6–24 months). Nutrition promotion programs can also provide LNS to encourage caregivers to bring their children to community screenings for acute malnutrition or growth monitoring and promotion sessions for timely identification and referral for nutrition services.
- **Health:** LNS may be used to motivate participation in a range of primary health care services, including but not limited to antenatal and postnatal care visits for pregnant and/or breastfeeding women, and growth monitoring and promotion sessions for young children (6–24 months). In this way, programs will support both the health and nutritional status of the intended population.
- **Food Assistance:** Often, ration baskets provided to groups vulnerable to food insecurity, particularly in protracted crises, do not meet the full daily micronutrient needs. Pregnant and breastfeeding women and young children need more micronutrients than the average household ration provides. Programs can meet this additional need by delivering LNS with the household ration.
- **Agriculture:** Activities that support agriculture production (including home gardens), livelihoods recovery (including small livestock), and income generation can also leverage the opportunity to provide LNS because they already reach households with pregnant and breastfeeding women and young children. In this way, programs will strengthen the nutritional status of populations vulnerable to malnutrition through direct and indirect interventions.



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- **WASH:** Clean drinking water, improved sanitation facilities, and good hygiene practices lower episodes of diarrhea and intestinal infections among young children. Both diarrhea and intestinal infections contribute to undernutrition. Programs that improve water, sanitation, and hygiene (WASH) services and practices can deliver LNS with nutrition education to pregnant and breastfeeding women and young children in the communities where they operate for improved nutritional status.
- **Social Protection:** Initiatives that transfer food, cash, or vouchers to poor families may include pregnant and breastfeeding women and young children. These programs also have a well-established delivery system that can be leveraged to provide LNS to eligible participants. This will ensure that direct nutritional needs are met through LNS.
- **Education:** School-feeding programs provide meals to older children in food-insecure areas, but these children may have younger siblings and pregnant and breastfeeding women in their families. These pregnant women and caregivers of young children can be linked to existing health and nutrition-focused support groups or new ones may be created in their absence to implement an LNS program with nutrition education. Early childhood development programs for children 6–24 months of age can also incorporate LNS to simultaneously improve the growth and development of young children.



Resources for Messaging

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USAID Advancing Nutrition. 2020. *SBC Do's and Don'ts: Getting It Right for Multi-Sectoral Nutrition Programming*. Arlington, Virginia: USAID Advancing Nutrition.

UNHCR, UCL, ENN. 2011. *UNHCR Operational Guidance on the Use of Special Nutritional Products to Reduce Micronutrient Deficiencies and Malnutrition in Refugee Populations*. Geneva, Switzerland: UNHCR.

Resources

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USAID ADVANCING NUTRITION

Implemented by:
JSI Research & Training Institute, Inc.
2733 Crystal Drive
4th Floor
Arlington, VA 22202

Phone: 703-528-7474
Email: info@advancingnutrition.org
Web: advancingnutrition.org

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