



THE FIRST 1,000 DAYS
Nutrition Beyond Breastfeeding:
An Exploration of Existing Infant and Toddler
Nutrition Interventions, Programs, and Resources

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This report was developed by members of NACCHO's Maternal, Child and Adolescent Health team.

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EXECUTIVE SUMMARY

Insights on Infant and Toddler Public Health Nutrition Landscape

During the summer of 2021, NACCHO staff conducted a review of early childhood nutrition articles and environmental scan of existing community programs and resources. This work identified a number of infant and young child nutrition interventions in the literature, including those that address social determinants of health and historically oppressed populations, and an overview of existing public health programs and resources related to infant and young child nutrition at the national, state, and local levels. In total, this review detailed 85 interventions, programs, and resources.

Summary of the Literature Findings

1) **Low intake of fruits and vegetables and early introduction of complementary foods is an issue, especially in communities of color**

As many as one-third of U.S. infants are given complementary foods before four months. Black and Hispanic infants are more likely to be introduced to solid foods before four months and have a higher intake of sugar-sweetened beverages compared to non-Hispanic white infants. Infants and toddlers from low-income families also have higher rates of consuming added sugars compared to their counterparts from higher-income families.



Therefore, culturally responsive infant, and toddler nutrition interventions that specifically aim to address root causes of unhealthy dietary patterns, including screening of social determinants of health and other community nutrition infrastructure are needed.

2) One driver of poor-quality diets and eating patterns is food insecurity.

Implications of food insecurity include earlier cessation of breastfeeding, earlier introduction of complementary foods, and the limiting of healthful food offerings to infants compared to food secure populations. Therefore, interventions aimed at improving food security could in turn improve child nutrition.

3) Beyond WIC and ECE settings, obstetrician, pediatrician, primary care and health center providers, home visiting peers, community health workers, and nurses are key stakeholders

Addressing the infant and toddler nutrition landscape requires a collective effort from multiple partners. Those stakeholders should be engaged in building an infant and toddler nutrition infrastructure and establishing continuity of care. Evidence shows that these providers are effective in supporting families to improve infant and toddler nutrition quality and feeding behaviors. They are also well positioned to screen for food security and other needs and connect with community partners that address social determinants of health.

4) There are limited programs and interventions exploring infant and toddler nutrition telehealth on BIPOC communities

The ongoing First Heroes Randomized Controlled Trial highlights their capacity to target historically oppressed families. It builds on this electronic individualized support by providing BIPOC mother-father-infant triads in Boston, MA with virtual visits that included education by health educators and access to messaging and videos on infant feeding, health behaviors, and social determinants of health. Australian women who received telephone support or SMS support sessions on infant nutrition had significantly higher rates than controls of delaying the introduction of solid foods until their child was six months old.

5) There is a need for programs focused on collective impact and Policy, Systems, and Environment (PSE) Approaches

Policy, Systems, and Environment approaches have the potential to be more sustainable and more effective than approaches that address individual behaviors related to infant nutrition as they promote changes to laws and regulations, organizations and institutions, and social, economic, and physical environments.

6) There is a need for broader education on next stage formula misuse and actions to eliminate aggressive formula marketing

Although “toddler milk” is unnecessary and expensive, it is the fastest-growing category of breast-milk substitutes. There is a need to educate providers and families of the appropriate milk for this age group and the harmful formula marketing techniques. Only one policy initiative was identified: a citizen’s petition was developed to specifically address the harmful marketing practices used by toddler milk companies that mislead parents. Not only was this the only policy initiative identified, but this petition also represents one of only two initiatives geared towards toddler milk marketing identified.

Promising Programs

First 1,000 Days Program

This program is one-of-a-kind PSE multicomponent initiative and presents an opportunity for follow-up and assess replicability. The First 1,000 Days study aims to use a collective impact approach to improve clinical outcomes and adverse health behaviors for low-income mother-partner-infant triads in three Massachusetts communities with largely Black and Hispanic populations. Like the Children’s Healthy Living Program, the First 1,000 Days Collective Impact Approach including staff training, enhanced surveillance of infant overweight, universal screening, universal patient navigation, individual health coaching, and consistent patient and materials was designed for historically oppressed groups using the recommendations from clinicians, public health professionals, and partners who interact with these vulnerable populations during early life.

The Jump IN for Healthy Kids Collective Impact Approach

This approach engaged over 100 partners to promote Healthy Places, Healthy Neighborhoods, and Healthy Communities in Central Indiana. This approach addressed nutrition education, food access, infrastructure related to physical activity, and policy. Encouraging JumpIN for Healthy Kids to add components related to early life nutrition and partners like lactation consultants and dietitians with an early life focus to their approach is an important next step.



The West Las Vegas Promise Neighborhood (WLVPN)

This is an intervention addressing social determinants of health to reduce structural racism amid COVID-19 in historically racial/ethnic marginalized communities in the Southwest US. The WLVPN is implemented by over 50 multi-sector partners in key life domains (health, education, employment, housing, and social justice) coordinated by Nevada Partners, Inc. While WLVPN social intervention is a unique opportunity and platform to address endemic inequities in maternal-child mortality and food insecurity levels, it lacks focus on maternal-child health and nutrition, especially focused on young children aged 0-3 years. Therefore, the research team led by Dr. Buccini at the University

of Nevada Las Vegas (UNLV) partnered with Nevada Partners, Inc. and received a 5-years NIH award to develop the Early Responsive Nurturing Care for Food Security (EARN-FS) project that aims to promote the maternal-child component within WLVPN. The EARN-FS intervention consists of effective food security interventions retrieved from the literature (e.g., universal screening, community referral, monitoring system, and nutrition-focused counseling strategies) to address at least three underlying causes of household food insecurity such as poor health, access to food, and adequate nutrition among pregnant women and children under 3 years of age.

The project takes a community-based participatory approach and uses a racial equity framework to co-create with the community implementation strategies to integrate the EARN-FS intervention within maternal-child health and nutrition services in the WLVPN communities. Implementation strategies may include: (i) training for nutrition and health staff in counseling on infant feeding practices, responsive feeding, early childhood development, (ii) creating nutritional guidelines for pregnant women and children living in persistent food insecurity situations, etc. Currently, the research team at UNLV is building the community referral pathways among existing maternal, infant, and toddler nutrition and health services within the WLVPN as well as identifying leverage points for integration.



Next, a quasi-experimental within-site will be implemented to 1) develop and implement equity-focused system-level implementation strategies to integrate maternal-child health and nutrition and 2) assess the effectiveness of the EARN-FS intervention in decreasing levels of food insecurity and/or improving health outcomes of pregnant women and their young children under the age of 3. This project is designed to inform how best multi-sectoral interventions (maternal-child health and food insecurity interventions) can be integrated to promote transformation on the maternal-child health and nutrition of historically marginalized communities.

Some other unique local-level efforts and resources identified include:

- The Tri-County Health Department in the Denver Metro area of Colorado holds three educational campaigns: the Hidden Sugars Campaign, the Healthy Beverage Partnership, and the Baby Behavior Campaign (for responsive feeding).
- Resource maps connect families with many different resources in one place, such as The Early Childhood Development and Nutrition Landscape in Durham County which provides an interactive map of nutrition-related and other resources all parents of young children may need in the county.



- Farm to ECE and healthy food procurement resources, such as the long-standing North Carolina Growing Minds Farm to Preschool Network that was implemented in 2015 aids ECEs in purchasing healthy foods from farmers and provides guidance for children aged 1 to 2 years old.
- Fatherhood programs, that engage fathers of children under 2 years in both one-on-one support settings, support groups (Discussions with Dads and Barbershop Talks), and text messaging through Text4Dad.

Food security programs, such as My Brother's Keeper/Baby Pantry provides an infant pantry, while Mommies, Babies, Bellies & Daddies incorporates specific nutrition education for toddlers into their Sisters Circle meetings and Food as Medicine program and partnered with both transportation and food pantries to provide a food package with fresh produce to families with young children (delivered at home during the pandemic). Both efforts represent early life directed food security efforts with educational and pantry components that could be expanded to other pantries and food justice groups.



Identified Gaps

While there are a multitude of programs identified, the literature review identified six major gaps in the current infant and toddler nutrition efforts:

- 1) Few family-centered approaches that included father, partner, grandparents, and other caregivers were identified.

- 2) While many home visiting and clinical-based interventions exist, few multicomponent, sustainable policy, systems, and environment (PSE) and collective impact approaches that specifically target infants and toddlers were identified in both the literature review and environmental scan.
- 3) While many studies enrolled low-income communities, few early life nutrition interventions targeted Black communities.
- 4) WIC offered additional efforts aimed to address food security, but few entities outside of WIC (and early childcare education (ECE) setting) are engaged in improving infant and toddler nutrition local infrastructure, from the public health lens.
- 5) There are no current evidence-based nutrition education courses, or many resources based on the 2020-2025 Dietary Guidelines/ Chapter 2 (infant and toddler nutrition), especially ones that are culturally responsive.
- 6) There is a disjointed approach to breastfeeding continuity of care (CoC) and child nutrition programs. There is a unique opportunity to expand and leverage existing continuity of care in breastfeeding support efforts within the first 1,000 days to include CoC activities applied to nutrition, such as:
 - Intentionally building capacity of lactation support providers and other maternal child professionals by providing nutrition training;
 - Integrating nutrition education into lactation support programs;
 - Creating consistent messaging and education among providers that extends beyond breastfeeding to include the 1,000 days nutrition approach;
 - Adopting strategies to improve first foods, and complementary foods nutrition security;
 - Developing culturally relevant nutrition social marketing campaigns;
 - Extending care coordination through the 1,000 days;
 - Enhancing partnerships with local agencies that address social determinants of health (sDOH) and referral systems with care providers; and
 - Developing child nutrition community resource guide, and other CoC strategies that can be leveraged.



Key Recommendations

These gaps represent important topics for future action. To address these gaps and promote and learn from the identified interventions, ten key recommendations for NACCHO's infant and toddler nutrition activities in the upcoming project years include the following:

- **Convene three regional meetings** to further understand local solutions for improving infant and toddler nutrition infrastructure and continuity of care among local health staff, home visitors, lactation support providers, community health workers, parents of young children, and other key stakeholders in states with strong efforts in infant and young child nutrition potentially including **Massachusetts, Colorado, North Carolina, Michigan, Louisiana, Nevada, Florida, or Virginia** to learn more about their program successes, facilitators and barriers, and future directions. Local health staff with an interest in implementing PSE and collective impact approaches into their communities should be invited to learn as well.
- **Convene an Early Life (Infant and Toddler) Nutrition workgroup** with state/national partners working on nutrition policy, systems, and environment approaches like the [Children's Healthy Living Program](#), and the [1,000 days](#) organization and collective impact approaches to engage in conversations about challenges and successes, and to promote expanding programs to include efforts for infants and toddlers.



- **Work with diverse racial/ethnic nutrition experts** serving Black, Indigenous, and other People of Color (BIPOC) communities to develop culturally relevant materials for infant and toddler nutrition based on the dietary guidelines, such as healthy plate illustrations, social marketing campaigns, text messaging and peer education for consistent messaging (also CoC strategies).
- **Follow-up with ongoing studies identified in this literature review** with an emphasis on those aimed at addressing social determinants of health including the [First 1,000 Days: A Collective Impact Approach](#) and the [First Heroes Randomized Trial](#) while assessing how published interventions like the [Starting Early](#) study and the [WIC early child nutrition pilot program](#) could be adopted by local health departments.
- **Encourage the replication of studies** in historically oppressed communities that effectively promoted healthy feeding behaviors and nutritious diets in mostly non-Hispanic white and high-income populations previously.
- **Engage existing fatherhood programs** like [4DadFatherhood](#) and [Reaching Our Brothers Everywhere \(ROBE\)](#) to provide most up to date early life nutrition resources into their programs.
- **Expanding food security efforts within food systems** to better include infants and toddlers, provide training and resources to food banks, such as food procurement services, and community kitchens on proper infant and toddler meals and portion sizes and aim to help replicate the My Brother's Keeper Infant Pantry.
- **Integrating infant and toddler nutrition efforts** into the 1,000 days continuity of care approach and future grant projects. Infant and toddler nutrition activities, such as: identify actions and stakeholders to improve the first 1,000 days nutrition infrastructure landscape, train all the chest/breastfeeding local health system on the 2020-2025 Dietary Guidelines/ Chapter 2 (infant and toddler nutrition), incorporate complementary feeding and toddler nutrition education to families with young children, assist families to access healthy foods in their community, providing fruit and vegetable prescriptions to children, co-location of community gardens and farmer's market/fresh food pantry at settings where families with young children are, and other strategies



to improve food and nutrition security, culturally relevant nutrition social marketing campaigns, provide care coordination, partnerships with local agencies that address sDOH and referral systems with care providers, development resource guide on community resources, and other continuity of care strategies.

- **Developing a train-the-trainer course model** on Chapter 2 of the 2020-2025 U.S. Dietary Guidelines for lactation support providers and maternal child health professionals.
- **Promoting resource mapping** as a tool for local health departments to identify their early life nutrition landscapes and to identify gaps in their resources by modeling after the [Early Childhood Development and Nutrition Landscape in Durham County](#).
- **Engaging the CHOICES community of practice** to assess the feasibility of conducting cost-effectiveness analysis of each of the programs' interventions and types to help local health departments determine which programs may be best to implement in their communities.





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