

Confronting the Infant Formula Shortage: Successes and Lessons Learned for Future Public Health Crises

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The 2022 national infant formula shortage had multiple causes, including pandemic-related supply chain issues and the closing of an infant formula manufacturing plant due to contamination and subsequent product recall in February of that year [1]. Families with infants—many of whom rely on formula as the sole source of nutrition—faced empty shelves, and policymakers were called to take urgent action.

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) serves approximately half of all families with infants, offering breastfeeding support, infant formula, and other health care and nutrition benefits [2]. WIC played a central role in the response to the infant formula shortage. The strategies that the North Carolina Department of Health and Human Services (NCDHHS) leveraged to confront the infant formula shortage can be applied in other public health crises.

Clearly Defining Our North Star

NCDHHS established two priorities for addressing this crisis: 1) ensuring safe and nutritious feeding options were available to all infants and 2) protecting all children from harm during the crisis. Our infant formula shortage response team was organized into workstreams led by subject matter experts from across the department. We asked for additional support from local partners, such as the North Carolina Pediatric Society. Team members communicated in daily meetings to prioritize, delegate, and coordinate our work and decision-making. Frequent email roundups and executive briefings kept leadership abreast of the team's activities.

Data-driven Decision-making

We built new data assets to track, trend, and predict future infant formula needs. We aimed to solve not for the current situation but for the worst-case scenario. We leveraged multiple data sources to capture the experiences of families, vendors, and infant formula manufacturers. We administered an online survey of all 86 WIC agencies

twice weekly. Follow-up was done with non-responders to maintain a high response rate. We mapped the survey data and used them to prioritize our work.

The WIC data were matched to supply data from infant formula manufacturers and retail partners. Store-level data provided a point-in-time snapshot; distribution center data and pending order data forecasted future availability. Our team met regularly with leadership at North Carolina's WIC infant formula contractor and the largest authorized WIC vendors in North Carolina to review data and address issues.

Proactive, Equitable Outreach and Communication

We built a multi-tiered communication strategy coordinated by a response communication lead. Our top priority was clear guidance for families. We immediately launched an information hub (www.ncdhhs.gov/formula) where all materials continue to be posted and updated. We developed easy-to-use guides for families (e.g., a formula options table that helped families understand alternative formula choices when their usual products were not available) and asked retailers to post the formula options table in stores. We worked closely with and provided guidance to local WIC agencies and health care providers [3], as we directed families to speak with their child's doctor or local WIC office if they had questions during the shortage.

In our equity workstream, we partnered with community leaders (e.g., the LatinX Advocacy Team & Interdisciplinary Network for COVID-19 [LATIN-19]). We made all family-facing materials available in Spanish and key messages were translated into 21 additional languages [4].

Quick Action to Implement All Available Federal Flexibilities to Help Families

Following the February 2022 recalls of Abbott infant formula products [5], we took advantage of waiver opportunities offered by the United States Department of Agriculture (USDA) to help families who use WIC to

get formula [6]. Flexibilities included being able to use WIC benefits for more brands, sizes, and types of infant formula. Concurrent with waiver application review, we worked with the infant formula contractor on contract amendments (e.g., to allow larger can sizes and alternate brands of formula) and the WIC technology vendor to design, test, and implement system changes (e.g., adding Universal Product Codes to the management information system and pushing out to over 1600 North Carolina WIC-authorized vendors). This simultaneous and early engagement provided families with needed flexibility at the point of purchase within two weeks of USDA waiver approval, making North Carolina the first state to implement these flexibilities [7]. We shared our work with national organizations (e.g., USDA, National WIC Association) for others to use or share (e.g., Universal Product Code list compiled for new formulas added under waivers).

Thinking Beyond the Crisis to Improve Whole-Person Supports for Families

The infant formula crisis presented an opportunity to promote policies to help families beyond the shortage. We re-examined how to better support breastfeeding, including working with Medicaid managed care plans to clarify and expand their coverage of breast pumps and lactation consultation [8]. We highlighted best practices for businesses to support breastfeeding employees (e.g., identifying lactation spaces) [9]. We addressed unmet social needs (e.g., offering Medicaid non-emergency medical transportation for families searching for formula in multiple stores).

NCDHHS strengthened its ability to support families and respond to crises in a unified and equitable way. We invested in new relationships and called upon existing partners. We built new data capabilities to drive decision-making. We captured lessons learned to improve future procurements for our WIC program. We prioritized clear and equitable communication, creating easy-to-understand materials for families. Finally, we approached the crisis with both urgency and a lens toward the future—turning the infant formula shortage into an opportunity to promote more whole-person health in North Carolina. **NCMJ**

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