

Insight

Food Allergy Among Children Enrolled in Illinois Head Start Programs: Assessing Burden and Advancing Action Through a Community-Academic Partnership

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Keywords: food allergy, Head Start, early childhood, prevention, advocacy, epinephrine, emergency preparedness, chronic disease management, allergy

<https://doi.org/10.70440/001c.164946>

Journal of Health Advocacy

Food allergies (FAs) are an important but underrecognized pediatric public health concern among children from low-income families, who may face barriers to diagnosis, specialty care, and allergen-safe food access. Early childhood programs are critical settings for FA safety because they are places where children eat, learn, and receive care in shared environments where allergic exposures may occur. This insight article describes a collaboration between leadership at Northwestern University's Center for Food Allergy and Asthma Research (CFAAR) and the Illinois Head Start Association (IHSA) to examine FA documentation and preparedness in Illinois Head Start (HS) programs. Using data from the 2025 Illinois Head Start Program Information Report (PIR) to drive leadership discussions, the collaboration reviewed how allergy-related conditions are captured by HS programs and identified opportunities to strengthen FA safety at HS sites. In 2025, Illinois (IL) HS programs enrolled 27,742 children and pregnant women, including 27,023 children across 513 sites. While the Illinois PIR reported 384 cases of "life-threatening allergies," the third most common chronic health condition after asthma and vision problems among Illinois HS participants, the collaborative clarified that this category does not represent overall FA prevalence; and, because it is not food-specific and relies on medical documentation rather than systematic screening or parent-reported concerns, it may underestimate broader FA-related risk among HS participants. To mitigate this burden, promote health outcomes, and advance health equity at HS sites, the review identified vital program-level opportunities to strengthen food safety including standardizing emergency protocols, expanding staff training, refining documentation and clinical referral pathways, improving reliable epinephrine access, and supporting allergy-conscious food environments. These findings highlight the need for coordinated allergy safety systems in early childhood programs like HS to bridge critical gaps between allergy recognition, prevention, and emergency response in early education settings.

INTRODUCTION

Food allergy (FA) is a chronic immune-mediated condition affecting an estimated 10 percent of adults and 7 percent of children in the United States, totaling more than 30 million affected individuals (Warren et al. 2020; Gupta et al. 2018). Clinical reactions range from mild symptoms such as sneezing and hives to life-threatening anaphylaxis requiring immediate epinephrine administration (Abrams 2022). In early childhood, the impact of FA is shaped not only by its prevalence but also by its unpredictability. Exposures can occur suddenly in routine settings such as childcare programs, schools, and public spaces, where young children may not be aware of what is occurring or able to reliably communicate early symptoms (Foster et al. 2015).

Beyond clinical risk, FA imposes substantial emotional and financial strain on families (Yang et al. 2025). Daily management requires careful food label reading, consistent communication, and ongoing vigilance in social and public

environments. Families may face both direct and indirect costs related to specialist care, time away from work, emergency department visits, and higher grocery expenses for allergen-safe food alternatives (Bilaver et al. 2016).

Importantly, FA appears underrecognized among low-income populations. While national estimates suggest FA affects nearly one in 12 children (Gupta et al. 2018), diagnosis rates among Medicaid enrollees have been reported as low as 0.6 percent (Bilaver et al. 2021). Contributing factors likely include limited access to allergy specialists, fragmented care coordination, and inconsistent referral pathways (Bilaver et al. 2021). At the same time, children from lower socioeconomic status backgrounds experience higher rates of emergency department utilization for allergic reactions, suggesting that FA may go unrecognized until acute events occur (Bilaver et al. 2021). Together, such patterns may further exacerbate existing FA-associated health disparities in these populations (Dupuis et al. 2023; Yang et al. 2025).

Advocacy Focus and Impact on Health

How this work impacts health: Head Start serves as a critical setting for supporting children from low-income families who are disproportionately affected by barriers to chronic disease recognition and care. Analysis of Illinois' 2025 Head Start Program Information Report highlights potential disparities in food allergy (FA) identification and management, reflecting broader challenges in access to diagnosis, care coordination, and preventive resources faced by underserved populations.

How this paper addresses advocacy/action: Partnership discussions between Northwestern University's Center for Food Allergy and Asthma Research and the Illinois Head Start Association helped contextualize program data within the broader structural and healthcare-access barriers affecting children with food allergy. Drawing on these discussions, this paper advances a coordinated action framework for strengthening food allergy safety across Head Start programs. The framework centers on three interconnected priorities: emergency preparedness and access to epinephrine; education, recognition, documentation, and connections to appropriate care; and food access, allergen-exposure prevention, and safe meal accommodations. Together, these priorities move food allergy safety beyond isolated practices toward integrated program-level supports that connect prevention, identification, care coordination, and emergency response.

What this work adds to the field: This work highlights both the importance of Head Start and its position as an underexamined setting for FA identification and preparedness among children from low-income households. By pairing state-level data with stakeholder perspectives, the collaborative showed how administrative reporting can reveal gaps between documented severe allergy risk and the needs of children with known or suspected FAs. This work resulted in a practical framework that may apply beyond Head Start to childcare centers, schools, and early learning programs seeking safer environments through epinephrine access, staff education, and stronger food systems.

Next steps/needed action(s): Advancing equitable FA care across communities requires coordinated action across clinical, educational, and food service systems. Priorities include expanding stock epinephrine access, standardizing staff training, strengthening referral pathways, improving allergy and emergency plan documentation, supporting safe meal accommodations, and developing parent-facing resources on infant feeding and early allergen introduction. This work serves as a call to action linking clinical research, public health systems, and community infrastructure to improve FA safety for underserved children.

Thus, understanding how FA risk is identified and managed in early childhood systems is critical. A comprehensive federal government program administered by the U.S. Department of Health and Human Services (HHS), Head Start (HS) provides a particularly important setting for this work. Because HS serves children and families who often face structural barriers to health care access, nutrition security, and stable housing, it is well-positioned to support early identification, prevention, and emergency preparedness ("Head Start Services" 2025). FA safety in this setting depends not only on individual- and family-level knowledge but also on program-level support, including accurate documentation, staff training, emergency protocols, food service practices, and epinephrine access.

HEAD START AS A SETTING FOR FOOD ALLERGY SAFETY

HS is a federally-funded program that provides early childhood education, health, nutrition, and family support services to children under age five and pregnant women ("Head Start Services" 2025). Eligibility for enrollment in HS includes living at or below the federal poverty level, experiencing housing instability, or receiving public assistance, such as Temporary Assistance for Needy Families (TANF), Supplemental Security Income (SSI), or Supplemental Nutrition Assistance Program (SNAP) benefits. Since its inception in 1965, HS has served over 38 million children across the United States ("Head Start History" 2024).

HS programs are administered by local grantees and integrate health services, nutrition support, and family engagement into a broader prevention framework. In Illinois, 513 HS programs are operated by local grantees across the state, and HS grantees are supported by the Illinois Head Start Association (IHSA). Each year, grantees submit standardized program data to the national Office of Head Start,

part of the Administration for Children and Families (ACF) within the HHS, which is then compiled into the Program Information Report (PIR). The annual PIR for Illinois (IL) provides a statewide snapshot of child health conditions and informs safety and prevention priorities (information about access to the IL PIR is provided under Data Availability).

Given the structural barriers to health care access experienced by many HS families, such programs provide a critical setting for improving FA safety. Unlike health conditions addressed through periodic screenings, FA risk is continuous and dependent on daily environmental exposures. Effective FA safety in HS settings, therefore, depends on accurate identification, consistent documentation, clear emergency protocols, and staff preparedness.

METHODS

A COLLABORATIVE REVIEW OF FA BURDEN AND PREPAREDNESS IN ILLINOIS HS PROGRAMS

In January 2026, leadership from Northwestern University's Center for Food Allergy and Asthma Research (CFAAR) and IHSA met to review health data reported in the 2025 Illinois PIR and discuss FA identification, burden, and management within HS programs.

CFAAR, part of the Institute for Public Health and Medicine at Northwestern University Feinberg School of Medicine, conducts epidemiological, clinical, and community-engaged research to improve the lives of community members affected by FA and asthma (Northwestern University Center for Food Allergy and Asthma Research 2024).

This collaboration between CFAAR and IHSA was not designed as a formal epidemiologic study. Instead, it aimed to serve as a descriptive, stakeholder-informed review using

publicly reported and administratively compiled IL HS program data, interpreted through the practical experience of HS leadership and the FA expertise of CFAAR.

The collaborative review was guided by four key objectives:

- Clarify how “life-threatening allergies” are defined, captured, and documented in the annual IHSA IL PIR.
- Compare reported allergy-related counts with expected FA burden based on previously published pediatric prevalence estimates.
- Identify operational factors that influence FA prevention and emergency response in HS settings.
- Develop program-level priorities to strengthen FA documentation, preparedness, training, and resource allocation.

Key themes from the stakeholder discussions were synthesized to identify systems-level opportunities for improving FA safety and equity in Illinois’ HS programs.

RESULTS

PIR DATA AND LEADERSHIP INSIGHTS

The 2025 Illinois PIR detailed 27,742 enrolled children and pregnant women, including 27,023 children across 513 HS programs. Among enrolled families, 6,238 had incomes at or below 100 percent of the federal poverty line, 17,029 received public assistance (TANF, SSI, and SNAP), 2,015 were experiencing homelessness, and 843 were children in foster care ([Table 1](#)).

PIR data show that health insurance coverage increased over the enrollment period. At enrollment, 25,349 children had health insurance, including 23,499 enrolled in Medicaid and/or CHIP. By the end of enrollment, 25,942 children had health insurance, including 24,146 enrolled in Medicaid and/or CHIP. The number of uninsured children decreased from 1,674 at enrollment to 1,081 by the end of enrollment. Such findings highlight the role of HS programs in connecting children and families to health coverage.

Leadership discussions then shifted to FA prevalence, chronic disease documentation, and FA preparedness. The 2025 Illinois PIR reported 384 cases of “life-threatening allergies,” making it the third most common chronic health condition listed. The top nine most common chronic health conditions reported in the 2025 Illinois PIR are summarized in [Table 2](#).

Stakeholder discussions clarified that the PIR category of “life-threatening allergies” does not represent overall FA prevalence; rather, it reflects clinician-documented severe allergies, including FA, medication allergies, insect-sting allergies, and other allergies associated with risk of systemic anaphylaxis. Discussions also clarified that reported cases are based on medical provider documentation from required physical examinations and health records, rather than systematic symptom screening or parent-reported FA concerns. Based on this collective understanding, the 384 reported cases should not be interpreted as the number of children with FA in Illinois HS programs. Instead, this figure likely represents a narrower group of children with documented severe allergy risk. Because the category is not food-specific and depends on clinician documentation, it

Table 1. Enrollment, Site Distribution, and Demographic Characteristics of Illinois Head Start Participants Reported in the 2025 Illinois Program Information Report

Total cumulative Illinois Head Start enrollment (2024-2025)*	# of children and unborn children (Pregnancy + mothers)	# of children
	27,742	27,023
	Number of Illinois Head Start sites	
	513	
	# of children and unborn children (Pregnancy + mothers)	
Annual household income at or below 100% of federal poverty level (FPL) [#]	6,238	
Recipients of public assistance (TANF, SSI, and SNAP)	17,029	
Homeless	2,015	
Children in foster care	843	
	# of children at enrollment	# of children at end of enrollment
Number of all children with health insurance	25,349	25,942
Number enrolled in Medicaid and/or CHIP	23,499	24,146
Number enrolled in state-only funded insurance (for example, medically indigent insurance), private insurance, or other health insurance	1,850	1,826
Number of children with no health insurance	1,674	1,081

*Data included in the 2025 Illinois Head Start Program Information Report (PIR) span from September 2024 to August 2025. Each Illinois Head Start (HS) grantee self-reports program information and submits it through the Head Start Enterprise System (HSES). Grantees use local site systems to collect and manage data and information before uploading it to HSES. This dataset represents 513 center sites across Illinois. Terminology is verbatim from the 2025 Illinois PIR.

[#]Federal Poverty Level (FPL) definition and guidelines can be found at [Federal Poverty Level \(FPL\) - Glossary | HealthCare.gov](#)

“At enrollment” refers to the first day the child is in an HS class or has their first home visit; “end of enrollment” refers to the end of the school year, the last day the child was in an HS class, or the day of their last home visit.

Abbreviations: CHIP, Children’s Health Insurance Program; FPL, federal poverty level; SNAP, Supplemental Nutrition Assistance Program; SSI, Supplemental Security Income; TANF, Temporary Assistance for Needy Families.

Table 2. Chronic Health Condition Prevalence among Children Enrolled in Illinois Head Start Programs: Data from the 2025 Illinois Program Information Report (PIR)^{*}

Chronic Health Condition [^]	Number of Children, n
Asthma	1,097
Vision problems	442
Life-threatening allergies (e.g., food allergies, bee stings, and medication allergies that may result in systemic anaphylaxis)	384
Autism spectrum disorder (ASD)	269
Elevated blood lead levels	165
Seizures	117
Hearing problems	101
Attention deficit hyperactivity disorder (ADHD)	43
Diabetes	13

^{*}Data were collected from reports provided by medical providers from each child's required physical examination for enrollment in an Illinois Head Start (HS) program.

[^]Data were derived from the 2025 Illinois Program Information Report (PIR).

[~]Wording is verbatim from the 2025 IL PIR.

may underestimate the broader burden of FA and FA-related risk among HS participants.

Although physician evaluation is required before HS enrollment, the group concluded that there is no standardized PIR methodology for capturing symptom concerns, allergy severity, or specific triggers. As a result, documentation practices may vary across HS sites. Even with these limitations, both parties agreed that, when compared with national pediatric FA prevalence estimates, the number of documented life-threatening allergies appeared low relative to the size of the Illinois HS population (Gupta et al. 2018). This observation is consistent with prior findings showing lower FA diagnosis rates among Medicaid enrollees (Bilaver et al. 2021). HS leadership also noted that although health insurance coverage is high among HS participants, access to specialty care and timely diagnosis remains inconsistent. Variation in program-level preparedness may further contribute to differences in real-world FA safety across HS sites.

DISCUSSION

FOOD ALLERGY AT THE INTERSECTION OF HEALTH AND INEQUITY

FA management in HS settings requires attention to both clinical safety and social context. For many families served by HS, FA care may be complicated by food insecurity, housing instability, limited access to preventive care, transportation barriers, and difficulty obtaining specialty appointments (Cockerham et al. 2017). Such challenges may delay FA recognition, complicate long-term management, and increase reliance on emergency care for allergic reactions (Bilaver et al. 2016).

Daily FA management can also place a disproportionate financial strain on families with limited resources. Allergen-safe foods and substitutes are often more expensive than their conventional counterparts; and families may have fewer options when relying on food-assistance pro-

grams, shared kitchens, shelters, or childcare-provided meals (Bozen et al. 2020; Anagnostou et al. 2025). For these families, the burden of individual vigilance to ensure safe FA management can be greatly aided by support from the organizations where children eat, learn, and receive care. HS programs are uniquely positioned to provide this support because they operate at the intersection of early childhood education, nutrition, health access, and family services.

Comprehensive FA preparedness requires accurate identification and documentation, individualized emergency action plans, access to epinephrine, trained staff who can recognize and respond to anaphylaxis, and clear communication among families, educators, food service teams, and health care providers (Sicherer and Simons 2017). Within this context, strengthening FA preparedness within HS programs can help to reduce preventable allergic reactions, improve emergency readiness, and support earlier recognition of children who need formal evaluation for FAs.

OPPORTUNITIES FOR PROGRAM-LEVEL INTERVENTIONS IN HEAD START SETTINGS

Takeaways from the Illinois PIR analysis and CFAAR-IHSA partnership discussions point to the need for a coordinated approach to FA preparedness in HS settings. Rather than viewing FA safety as a single intervention, such as epinephrine availability alone, the partners envisioned it as a three-part framework that includes: 1) clinical emergency preparedness, 2) education, documentation, and referral systems, and 3) food access and allergen exposure prevention. Together, these domains can help close the loop and create an integrated FA safety framework that connects recognition, referral, documentation, prevention, and emergency response and can be applied at HS sites.

CLINICAL EMERGENCY PREPAREDNESS: EPINEPHRINE ACCESS AND RESPONSE SYSTEMS

Epinephrine is the first-line and only effective treatment for anaphylaxis, where timely administration is critical and lifesaving (Kemp et al. 2008). IHSA leadership shared that Illinois HS grantees store epinephrine auto-injectors on the premises for children with clinician-provided prescriptions. However, access gaps remain for children who may experience anaphylaxis without a prior FA diagnosis or personal prescription available on site.

Stakeholders agreed that expanding access to stock, undesignated epinephrine could strengthen the program's ability to respond to allergic emergencies, particularly those involving children with previously unidentified FA risk. Emergency preparedness at HS sites could also include standardizing and stipulating procedures for epinephrine storage locations and tracking expiration, developing and practicing clear emergency protocols, and establishing consistent procedures for documentation and follow-up. These steps are especially important in early childhood settings, where children may not be able to recognize or clearly communicate symptoms of anaphylaxis.

EDUCATION, DOCUMENTATION, AND REFERRAL SYSTEMS: STAFF TRAINING AND RESPONSE CONFIDENCE

Epinephrine availability must be paired with staff who are prepared to recognize and respond to allergic reactions and trained to use it. Although it was shared that HS programs conduct annual FA trainings, there is no standardized protocol, so the content depth, and delivery of these trainings may vary across sites. Standardized, high-quality training should include recognition of early and severe anaphylaxis symptoms, timely epinephrine administration, use of emergency action plans, and hands-on practice with epinephrine trainer devices. Epinephrine administration training has been proven to further improve staff confidence and promote more consistent responses during high-pressure situations (Shiraishi et al. 2019).

FOOD ACCESS AND ALLERGEN EXPOSURE PREVENTION: FOOD ENVIRONMENT SUPPORT AND SAFETY

Reducing allergen exposure in HS settings requires coordinated food safety practices across classrooms, cafeterias, and food-service operations. Key strategies that can be implemented at HS sites include clear allergen labeling, cross-contact prevention training, standardized food substitution practices, and consistent communication among families, staff, and food-service teams. Partnerships with food vendors and meal providers may also improve the availability of allergen-safe options for children with FA.

Food environment support is also an equity issue. HS leadership noted that many HS families face financial and logistical barriers to managing FA, particularly because allergen-free foods can cost two to three times more than conventional alternatives (Bajaj et al. 2025). HS sites could leverage their national reach by building partnerships with

both allergen-free food brands and nonprofits. *Securing Safe Food* and *FOODiversity* are examples of organizations expanding access to shelf-stable, gluten-free, and top nine allergen-free foods for individuals facing food insecurity (Securing Safe Food 2020; FOODiversity 2023). Without institutional supports such as affordable substitutions, safe meal accommodations, and consistent food safety practices, families with limited financial resources may bear a disproportionate burden in maintaining allergen-safe diets for their children.

At the same time, HS programs can serve as trusted access points for parent- and patient-facing education on infant feeding and allergy prevention. In addition to supporting children with established FA, HS sites could provide families with resources on current guidance for early introduction of common allergenic foods, beginning around six months of age when developmentally appropriate and aligned with pediatric guidance (Du Toit et al. 2015). This is especially relevant for families with infants enrolled in Early Head Start (EHS) or with younger siblings at home. By pairing safe meal accommodations for children with FA with practical prevention-oriented education for families of infants, HS programs can support both immediate food safety and earlier, more equitable access to allergy prevention information.

FUTURE DIRECTIONS: COORDINATING AND INTEGRATING FOOD ALLERGY SAFETY

This novel collaboration between IHSA and CFAAR, informed by the 2025 Illinois PIR, highlighted the need to move from isolated FA safety practices at HS sites toward coordinated systems that help close the loop between recognition, referral, documentation, prevention, and emergency response practices for children with FA.

HS operates at the intersection of education, nutrition, family support, and health care access for children facing social and structural barriers. Strengthening FA systems in this setting has the potential to reduce preventable harm, improve emergency preparedness, and advance health equity during early childhood. By connecting clinical guidance with daily program practices, HS programs can help ensure that children with known or suspected FA are identified, supported, and protected in the settings where they learn and eat.

Although this insight article focused on IL HS programs and was conducted through a collaboration between IHSA leadership and CFAAR, its implications can be extended more broadly to childcare centers, schools, and other early learning programs. Across the U.S. and globally, educational settings face similar challenges in identifying FA, preventing exposures, supporting families, and responding to allergic emergencies (Santos et al. 2022). Aligning program-level protocols with clinical guidance and public health initiatives can help create safer, more inclusive environments where all children, regardless of socioeconomic status, are protected and supported.

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AUTHOR CONTRIBUTIONS

MY and SV from CFAAR met with LMF and DE from the IHSA to discuss the focus and thematic purpose of the paper, clarify HS program context, and establish a collaboration aimed at advancing FA awareness and support. All members of the study team contributed to the development of the paper design, thematic framework, and interpretation. All authors participated in preparing the initial manuscript and its first revisions. MY and SV critically revised the final version. All authors approved the final version to be submitted for publication and are responsible for the accuracy and integrity of the content.

CONFLICT OF INTEREST DISCLOSURES

R. Gupta reports research support from the NIH (R21 ID AI135705, R01 ID AI130348, U01 ID AI138907), FARE, Rho, Inc., Melchiorre Family Foundation, Sunshine Charitable Foundation, Walder Foundation, UnitedHealth Group, Thermo Fisher Scientific, Genentech, and the National Confectioners Association (NCA); serves as a medical consultant/advisor for Aimmune Therapeutics, Before Brands, AllerGenis LLC, Kaléo, Inc., Novartis, Genentech, DBV Technologies, and FARE; is employed by Ann & Robert H. Lurie Children's Hospital of Chicago; and is professor of pediatrics and medicine at Northwestern University Feinberg School of Medicine. CM Warren reports research support from FARE, National Institute of Allergy and Infectious Diseases, and Genentech, Inc. and is currently employed by Northwestern University and Northwestern University

Feinberg School of Medicine. The rest of the authors declare that they have no relevant conflicts of interest.

DATA AVAILABILITY

The Head Start Program Information Report (PIR) is publicly accessible through the Head Start Enterprise System (HSES) at <https://hses.ohs.acf.hhs.gov/>. Under "All Users: PIR Report," users may request login credentials via the contact information provided on the site to obtain access to annual PIR datasets.

FUNDING

The authors have no funding sources to report.

ABBREVIATIONS

ACF, Administration for Children and Families; CFAAR, Center for Food Allergy and Asthma Research; CHIP, Children's Health Insurance Program; FA, food allergy; FARE, Food Allergy Research & Education; HHS, U.S. Department of Health and Human Services; HS, Head Start; IHSA, Illinois Head Start Association; PIR, Program Information Report; SNAP, Supplemental Nutrition Assistance Program; SSI, Supplemental Security Income; TANF, Federal Temporary Assistance to Need Families

Submitted: May 14, 2025 CDT. Accepted: July 06, 2026 CDT.

Published: August 03, 2026 CDT.



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