

Enhancing Food Safety in Family Child Care: Evaluation of a National Toolkit Initiative

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IDENTIFICATION OF THE PROBLEM/CHALLENGE:

Family child care is one of the critical pillars of early childhood education in the United States (US). It is a form of care for small groups of children in a private home, house, or apartment. Parents working nontraditional hours in low-paying jobs usually use this form of child care as it is flexible and affordable (ChildCare, n.d; Congress, 2010; Roberts et al., 2014)Center for American Progress, 2025; First Five Years Fund, 2023). According to the National Association of Family Child Care, 40% of 11 million young children with working mothers spend more time in family child care than other child care facilities (Bromer et al.; National Association for Family Child Care, n.d).

If appropriately educated, family child care providers can positively influence children's food habits by adopting and modeling healthy practices. This is important, as children tend to adopt these habits early in life (Patrick & Nicklas, 2005). Child care providers should take extra care when purchasing, preparing, and serving food to children. In a child care facility, this is particularly important as there is a risk of quick transmission of diseases among multiple children (Centers for Disease Control and Prevention, 2023, 2027; United States Department of Agriculture, 2024c). Teaching food safety practices, such as proper handwashing and excluding sick persons from child care, can help reduce the occurrence of foodborne illness outbreaks (Centers for Disease Control and Prevention, 2024; United States Department of Agriculture, 2024c)

Research from the Center of Excellence for Food Safety Research in Child Nutrition Programs reported concerns for family child care providers' general food safety knowledge (Paez & Alcorn, 2019). While there are various food safety guidelines and resources available for general use, specialized toolkits targeting family child care settings remain limited. Some existing resources, such as the USDA's Food Safety for Child Care and Fight BAC! campaigns, focus on food safety in larger child care centers or schools but may not fully address the unique needs of smaller, home-based child care providers. The *Family Child Care Food Safety Kit* aims to fill this gap by providing tailored tools and guidance specifically designed for family child care environments. The Family Child Care Food Safety Kit was developed by the Institute of Child Nutrition (ICN) which is a federally funded national center dedicated to child nutrition that provides training and education resources, including



food safety, for CACFP audiences. The kit was developed to meet the needs voiced by the CACFP audience who reviewed the ICN's nontraditional Summer Meals Food Safety Kit in 2016. This audience was CACFP State agency employees attending the 2016 USDA/ICN State Agency meeting. Therefore, the objectives of this study were to examine the perceived usefulness and acceptance of the Family Child Care Food Safety Kit developed by the ICN.

ACTIONS TAKEN:

The Items Included in the Final Family Child Care Food Safety Kit

Supplementary figure 1 shows the items included in the final ICN kit. The following is a detailed list of the kit items.

- Appliance thermometers (2)
- Cooking temperatures magnet
- *Feeding Infants Safely in Family Child Care* (informational booklet)
- Food thermometer
- Instruction sheet (not shown in Figure1)
- Insulated tote
- *Keeping Food Safe in Family Child Care* (food safety best practices guide with CACFP recipes)
- Laminated *How to Properly Wash Your Hands* poster
- Pen

The Timeline of the Kit Development

The development of the Family Child Care Food Safety Kit followed a three-phase approach from 2017 to 2019. At the 2016 USDA State Agency Meeting, the ICN presented a prototype of the nontraditional Summer Meals Food Safety Kit, which was met with positive feedback from State agencies. For the 1st prototype survey, we asked "Do you have any other comments/questions/suggestions related to this kit?", 11 out of 36 responses (30.56%) requested kits for CACFP audiences.

To identify the most appropriate items for inclusion, the ICN collected feedback using surveys with end users. Feedback from Phase 1 was collected from 14 family child care providers, and this information helped shape the design of the prototype for Phase 2. In Phase 2, further feedback was collected from 75 participants at the National Child Nutrition Conference (United States Department of Agriculture, 2026). This feedback was used to develop the physical prototype, which included adjustments to the kit's contents and usability based on participant suggestions. For Phase 3, the prototype was distributed to family child care providers, and feedback from 16 respondents was gathered regarding the kit's usefulness, the relevance of the food safety topics, and the practicality of the cookbook recipes. This information was used to finalize the kit's contents, with the inclusion of essential tools like thermometers and food safety guides.

While there were no specific incident reports of foodborne illness that directly triggered the development of this kit, the investment was driven by the recognition of the general risks of foodborne illness in child care

environments (Centers for Disease Control and Prevention, 2025), where young children are particularly vulnerable (Scallan et al., 2011). Supplementary table 1 shows the different surveys and response rates for each phase.

The 2022 Family Child Care Food Safety Kit Feedback Survey

The Family Child Care Food Safety Kit was provided at no cost to recipients, funded by the U.S. Department of Agriculture (USDA) through an agreement with the ICN. The funding aimed to support the enhancement of food safety practices among family child care providers participating in the Child and Adult Care Food Program (CACFP). In 2021 and early 2022, the ICN sent out 17,341 Family Child Care Food Safety Kit to all 7 USDA Food and Nutrition Service regions (Mountain Plains, Midwest, Northeast, Mid-Atlantic, Southeast, Southwest, and Western Regions) across 53 states and territories in the U.S. (United States Department of Agriculture, 2024b). Prior to the distribution of the Family Child Care Food Safety Kit, communication was conducted via email. These emails informed family child care providers about the availability of the kit and provided instructions on how to order it. Additionally, the kit itself included detailed instructions on how to use the provided items to improve food safety practices.

To evaluate the effectiveness of the kit, the ICN developed a digital feedback survey using Qualtrics, a method commonly used for program evaluation (Nulty, 2008). The feedback survey included three sections: demographic data, kit-specific questions, and future resource and training development for family child care providers. The survey was reviewed and approved by three specialists in education and training from ICN. Their expertise includes curriculum development, instructional design, and professional training. The Specialists that reviewed the survey did have previous experience in survey design. Although the specific survey was not piloted, it was adapted from the Summer Meals Food Safety Kit surveys that had already been used three times. Minor adjustments were made based on their suggestions, including adding an "other" option to some of the questions.

The inclusion criteria for this study required participants to be family child care providers who had ordered the Family Child Care Food Safety Kit. However, we received responses from other stakeholders, including sponsoring organizations and state agencies, who also ordered the kit (22.4% of the sample). Sponsors are organizations or agencies responsible for coordinating the distribution of materials and resources, such as the Family Child Care Food Safety Kit, to family child care providers. These stakeholders play a critical role in the distribution and oversight of the kit's use. Their feedback provides valuable insights into the kit's broader acceptance and utility.

On June 17, 2022, the survey was sent to a convenience sample of 1,995 contacts who had ordered one or more kit, as these individuals were identified as the most relevant audience for providing feedback. Reminders to complete the survey were sent on July 19 and August 16, and the survey closed on September 1, 2022. The survey consisted of 19 questions (see Supplementary Material). Only the analyses of questions 1-7 are included in this paper, while the remaining questions will be analyzed and discussed in future publications.

For the demographic data, respondents' state of residence, job title, staff count, and number of children in the respondent's care were collected. For the kit-specific questions, the ICN asked respondents to choose one of five descriptors to reflect what they thought about the usefulness of each kit item. Each option was assigned a Likert scale point value, and then the average of each response was determined (Not at all Useful = 1, Slightly Useful = 2, Moderately Useful = 3, Very Useful = 4, Extremely Useful = 5).

The survey included both quantitative and open-ended questions. The open-ended responses were analyzed using thematic analysis, following the guidelines outlined by Braun and Clarke (2006). A codebook was created to ensure consistency and clarity in the analysis, with definitions and examples for each code. Two researchers with advanced academic training (RA, PhD, and ED, MS), both of whom received academic training in qualitative analyses, independently coded the responses and used the codebook as a reference to identify recurring themes. Discrepancies in coding were resolved through discussion until consensus was reached. Quantitative data were analyzed to assess the perceived usefulness of specific kit items. Descriptive analyses and independent sample *t*-test were performed using IBM SPSS Statistics for Windows, Version 28.0.1.1 (IBM Corp., Armonk, NY). Although no formal hypotheses were specified a priori, *t*-tests were used in an exploratory manner to examine potential differences in usefulness ratings of each kit item between family child care providers and other CACFP stakeholders. These exploratory comparisons offer early insight into subgroup perspectives that may guide future revisions and targeted resource development. The Institutional Review Board (IRB) of the University of Mississippi has reviewed this project and determined it to be exempt, Protocol #Q24-041. Electronic consent was obtained from all participants.

RESULTS OF ACTIONS:

Fifty-three states and territories ordered and received kits. 67.92% of states/territories responded to the survey. The digital feedback survey yielded 370 responses, constituting an 18.5% response rate and capturing feedback from 36 U.S. states and territories. Among these, the vast majority (approximately 78%) were individual family child care providers, while the remaining responses came from stakeholders including CACFP sponsors, state agency personnel, training consultants, and program administrators.

Family child care providers reported caring for varying numbers of children, with many (65.5%) caring for eight or more at a time. According to (ChildCare.gov, n.d), the highest supervision ratio for staff to children ages 4–5 is 1:8, which guided our use of "eight or more" as a meaningful cutoff to reflect the highest number of children typically allowed in a family child care home.

All components of the kit received favorable evaluations. On average, respondents rated the individual kit items between moderately useful and extremely useful. The food thermometer (mean = 4.21) and the insulated tote (mean = 4.29) emerged as the most valued components among family child care providers, reflecting their immediate and tangible utility in day-to-day food preparation and transport. Stakeholders, on the other hand, tended to assign even higher ratings across all items, particularly educational materials such as the handwashing poster and safety guide (Table 1).



Table 1. Archived Images: Main Dish by Meat Source, Appearance, and None Left (All Consumed) After Meal.

Characteristics	Family Childcare Provider		Other CACFP Stakeholders		Total		P-value
	N=287 (77.6%)		N=83 (22.4%)		N=370 (100%)		
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	
Appliance thermometers	4.11	0.96	4.58	0.75	4.24	0.94	<0.01
Cooking temperatures magnet	3.92	1.03	4.52	0.69	4.08	1	<0.01
Feeding Infants Safely booklet	3.45	1.16	4.3	0.81	3.66	1.15	<0.01
Food thermometer	4.21	0.88	4.63	0.62	4.32	0.85	<0.01
Handwashing poster	3.75	1.18	4.4	0.69	3.9	1.11	<0.01
Insulated tote	4.29	0.9	4.53	0.74	4.35	0.87	<0.05
Keeping Children Safe guide	3.86	1.04	4.52	0.58	4.03	0.98	<0.01
Pen	4.07	0.99	3.99	1.08	4.06	1.02	0.56

Note: P-values are based on independent sample t-tests comparing average usefulness ratings

In analyzing the open-ended responses, several usage patterns emerged. Providers reported using the kit to reinforce daily routines, monitoring internal cooking temperatures, ensuring refrigerator and freezer safety, promoting handwashing among children, and transporting fresh foods on field trips or to and from grocery stores. In addition to practical use, Thirty-one participants mentioned that the items helped them explain food safety practices to assistants, parents, and even licensing inspectors (Table 2).

Table 2. Meat Alternate (M/MA) by Appearance* and Percent of Online Menus.

Main Theme	Subtheme	Number of Responses	Example Quotes
General Use	Used daily/ in childcare	66	<i>"I use it daily." #</i> <i>"Used it every day." #</i> <i>"I use it on a daily basis when cooking food for children" #</i> <i>"In our everyday operation" *</i> <i>"I used everything in the kit." #</i> <i>"Yes, I used the kit. All the items came in handy. Thank you for the kit." #</i>
	Used everything	28	<i>"I have been able to use every item in the bag. Loved it!" #</i>
	Used as intended	17	<i>"I used the items as they should be used." #</i> <i>"Applied everything the way it should be used" #</i> <i>"I loved it. Wish I could get more and hand out to parents." #</i>
	Helpful	10	<i>"Very useful tools" #</i> <i>"Sent copies of information to parents." #</i>
Enhanced Food	Training/ Learning/ Resource	26	<i>"Made copies and shared with new moms in my care and with toddlers and preschool parents in my care." #</i> <i>"The kit was used during training sessions with staff and CACFP Program Operators." *</i> <i>"I use it as a training tool for my providers." *</i> <i>"We used them during our food safety trainings." *</i>
	Teach children	15	<i>"Help to teach the children ways to stay safe and healthy." #</i> <i>"Learning unit for the kids." #</i>
	Inspections	4	<i>"I use appliance thermometers in freezer and refrigerator They both are used for food inspections." *</i> <i>"Put the food thermometer in food to test for temp level." *</i>
	Gave to families	21	<i>"I shared info with parents and gave a few things to parents as well." #</i> <i>"I shared the infant eating booklet with a parent..." #</i> <i>"The kits were distributed to parents during our Health Fair" *</i>

Main Theme	Subtheme	Number of Responses	Example Quotes
	Gave away kits/parts of kit	5	<p>"I already had thermometers in my fridge...so I gave them to other providers without thermometers." #</p> <p>"Gave out information that I learned. Thank you so much." #</p> <p>"Give to Day Care Home providers during our annual training" *</p> <p>"Provided to home child care providers upon CACFP Reviews." *</p> <p>"I gave out the kits to the Day Care Home Providers and Head Start Centers, which are under our sponsorship." *</p> <p>"Distributed them to our FCC and Center sites" *</p> <p>"We gave them to providers as an incentive gift" *</p> <p>"Gave to all providers in my region" *</p>

*Other CACFP Stakeholder, #Family child care provider

Twenty-six stakeholders reported using the kit in professional development sessions, staff training workshops, and as onboarding tools for new providers. Themes that emerged from qualitative responses included appreciation for a resource designed specifically for home-based care, recognition of the unique needs of family child care environments, and a sense of increased professionalism. Providers described the materials as practical, attractive, and user-friendly. Some indicated that receiving the kit improved their confidence in handling food safely and reinforced their professional identity.

Importantly, the kit was seen as a form of validation. Eighteen participants expressed that, in an often-overlooked segment of early childhood education, receiving a free, professionally developed kit felt empowering. One respondent noted, *"This was the first time I received something made specifically for providers like me,"* while another said, *"The kit made me feel recognized and supported."*

Some providers reported that the kit facilitated better communication with parents regarding food safety expectations. For instance, posters were displayed in kitchens or entryways as gentle reminders for families, while printed materials were used to explain why certain food handling procedures were followed. Additional figures and tables supporting the analysis are provided in the supplementary file. Supplementary Table 1 outlines the survey phases and response rates during kit development. Supplementary Tables 2–4 expand on the thematic analysis: Table 2 presents how participants reported using specific kit items; Table 3 summarizes general feedback about the kit as a whole; and Table 4 highlights what participants liked about individual kit items.

APPLICATIONS:

Kit items such as the insulated tote and food thermometer were frequently highlighted for their practicality. This emphasized their role in addressing everyday challenges in family child care settings. For example, the insulated tote enabled safe food transport during grocery shopping and field trips, while the food thermometer helped ensure compliance with cooking and storage temperature guidelines. These findings align with research emphasizing the importance of practical resources in mitigating foodborne illnesses in childcare environments (Green et al., 2005; United States Department of Agriculture, 2015, 2017, 2020). For example, providers can use the insulated tote along with ice packs to keep perishable items at safe temperatures below 41°F, as recommended by the CDC and USDA Food Safety Inspection Service. Although research is available on general recommendations for using insulated bags for food safety, formal research on providing insulated food safety tools to family child care providers is limited, public health agencies such as the USDA recommend the use of insulated bags to ensure safe food transport and storage (Centers for Disease Control and Prevention, 2015; United States Department of Agriculture, 2016).

These findings have important implications for practitioners, program designers, and policy makers working in early childhood education and food safety. The fact that family child care providers consistently rated tangible items like thermometers and insulated totes as most useful suggests that hands-on tools can significantly strengthen compliance with food safety regulations, especially in under-resourced settings where access to training and materials is limited. These results support the value of distributing practical, low-cost materials alongside educational guidance to improve safety outcomes in home-based care.

Stakeholders such as CACFP sponsors and state agencies may consider integrating similar toolkits into training, onboarding, or technical assistance efforts. For researchers, this study highlights a need to assess whether tools like these lead to sustained changes in food handling behavior and ultimately reduce risk of foodborne illness. The inclusion of educational materials, such as handwashing posters and food safety guides, provided family child care providers with accessible knowledge to implement safe food practices effectively. Such resources are critical for supporting family child care providers, who often face barriers to accessing formal food safety training (Paez & Alcorn, 2019).

Although stakeholders were not the primary audience for the kit, their input provided valuable insights into its broader applications. Stakeholders, including CACFP sponsors and state agencies, reported using the kit for training sessions and compliance monitoring. This feedback highlights the potential for resources like the kit to support not only family child care providers but also the stakeholders who provide oversight and training (Bromer & Henly, 2009; Paez & Alcorn, 2019). While their role was secondary in this study, stakeholders' engagement shows the importance of considering their perspectives when scaling similar interventions. The kit also addressed a critical gap in resource availability for family child care providers, who often operate with limited resources and feel overlooked compared to larger childcare centers. Family child care providers expressed a sense of acknowledgment and validation upon receiving the kit, which they perceived as specifically designed to meet their unique needs. This sense of recognition aligns with previous research that

highlighted the importance of tailored resources in empowering underrepresented childcare providers (Bromer & Henly, 2009).

The study has some limitations that should be acknowledged. The survey was distributed to individuals who had ordered the kit, primarily through sponsors. These sponsors often act as intermediaries between providers and program resources. As such, not all family child care providers who received the kit may have been reached directly by the survey. However, the ICN's *Family Child Care Food Safety Kit* accomplished its intended purpose of being a useful, informative, and applicable food safety educational tool for the family child care audience.

Next Steps

The food safety kit was an important and valued resource for family child care providers, offering both essential tools—such as thermometers and insulated totes—and professionally developed educational materials. Participants reported that the kit supported their day-to-day food safety practices and contributed to a sense of being recognized and supported. However, due to the cost associated with producing and distributing physical kits on a broad scale, future efforts should explore adapting the kit's educational content into low-cost or freely accessible formats. Potential next steps include developing short training videos or virtual training modules to supplement or replace physical materials. Future research could also investigate the long-term impact of the kit and other educational tools on behavior change and the sustainability of improved food safety practices in family child care settings.

DECLARATIONS

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ABSTRACT

IDENTIFICATION OF THE PROBLEM/CHALLENGE

Food safety within Child and Adult Care Food Program (CACFP) sites requires strict adherence to regulations and guidelines to mitigate the risk of foodborne illness outbreaks. These regulations necessitate protocols such as proper handwashing, temperature control, cleaning, and sanitation to ensure the safety of meals served to vulnerable populations. This study evaluated the acceptance and usage of the Family Child Care Food Safety Kit, developed by the Institute of Child Nutrition (ICN), among family child care providers and other stakeholders, such as state agencies and sponsoring organizations. While family child care providers were the primary audience, stakeholders provided valuable perspectives on the kit's broader utility and application.

ACTIONS TAKEN

After the development and the distribution of the ICN Family Child Care Food Safety Kit, a digital survey in 2021 gathered data on respondent demographics, perceptions of the kit's usefulness, and feedback.

RESULTS OF ACTIONS

A total of 370 respondents from 36 states and territories participated, with 77% being family child care providers. The insulated tote and food thermometer received the highest ratings. Stakeholders rated the toolkit's usefulness higher than family child care providers. The kit was used for daily practices, training, and inspections.

APPLICATIONS/NEXT STEPS

The kit was well received, with items such as the food thermometer and insulated tote frequently rated as most useful. These tools supported food safety compliance by helping providers monitor temperatures and maintain cold food storage during transport—critical functions in reducing foodborne illness risk in home-based settings. For child nutrition sponsors, state agencies, and early care educators, the findings highlight the importance of pairing practical tools with training materials to strengthen food safety capacity in under-resourced environments. More research is needed to assess its effectiveness in improving food safety behaviors before broader adoption. Providing essential equipment, like thermometers and insulated totes, alongside training materials, can address gaps in compliance with food safety standards.

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