Food and Nutrition Service

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# WIC Nutrition Assessment and Tailoring Study: Final Report Part 1

U.S. Department of Agriculture | Food and Nutrition Service | Office of Policy Support

# WIC Nutrition Assessment and Tailoring Study: Final Report Part 1

**Submitted to**

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In approving Ohio WIC's participation in this study, the Ohio Department of Health Institutional Review Board requires that publication of research findings include the following disclaimer: "This study includes data provide by the Ohio Department of Health which should not be considered an endorsement of this study or its conclusions."

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# List of Abbreviations

| | |
|---|---|
| BAPT | Breastfeeding Assessment Prediction Tool |
| BFPC | Breastfeeding Peer Counselor |
| CLC | Certified Lactation Counselor |
| CPA | Competent Professional Authority |
| DGA | Dietary Guidelines for Americans |
| DMCP | Developmental Milestone Checklist Program |
| EBT | Electronic Benefits Transfer |
| EPSDT | Early and Periodic Screening, Diagnosis, and Treatment |
| ERS | Economic Research Service |
| FNS | Food and Nutrition Service |
| IBCLC | International Board Certified Lactation Consultant |
| MDS | Minimum Data Set |
| MIS | Management Information System |
| MMA | Maximum Monthly Allowance |
| NATS | Nutrition Assessment and Tailoring Study |
| PC | Participant and Program Characteristics |
| RD | Registered Dietitian |
| RDN | Registered Dietitian Nutritionist |
| RUCA | Rural-Urban Commuting Area |
| SNAP | Supplemental Nutrition Assistance Program |
| TANF | Temporary Assistance for Needy Families |
| USDA | U.S. Department of Agriculture |
| VENA | Value Enhanced Nutrition Assessment |
| WIC | Special Supplemental Nutrition Program for Women, Infants, and Children |

# Executive Summary

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) was established to safeguard the health of low-income pregnant and postpartum women, infants, and children under age 5 who are at nutritional risk by providing supplemental foods, nutrition education, breastfeeding support, and referrals to healthcare and other social services. The program is administered by the U.S. Department of Agriculture (USDA) Food and Nutrition Service (FNS). The WIC Nutrition Assessment and Tailoring Study (WIC NATS) is intended to help FNS better understand how WIC local agencies and WIC clinic sites[1] conduct the nutrition assessment and use the information gathered to tailor benefits they provide to WIC participants. Nutrition assessment, a key part of WIC nutrition services, is the process by which WIC staff gather and synthesize information from participants to determine their nutritional risks.

## Need for the Study

WIC NATS is the first study to provide a comprehensive account of the WIC nutrition assessment and tailoring processes. The nutrition assessment process is critical to the delivery of individualized nutrition services and to meeting WIC's mission. With this study, FNS seeks to better understand the nutrition services process as it is conducted at local WIC clinics and how nutrition risks are identified, assigned, and used to tailor program benefits. Through this research, FNS will learn about and be able to share best practices related to the WIC nutrition assessment and the resulting benefits tailoring. Study findings are intended to inform guidance for WIC staff to enhance service delivery and improve program satisfaction and retention with the goal of improving the nutrition and health of WIC participants.

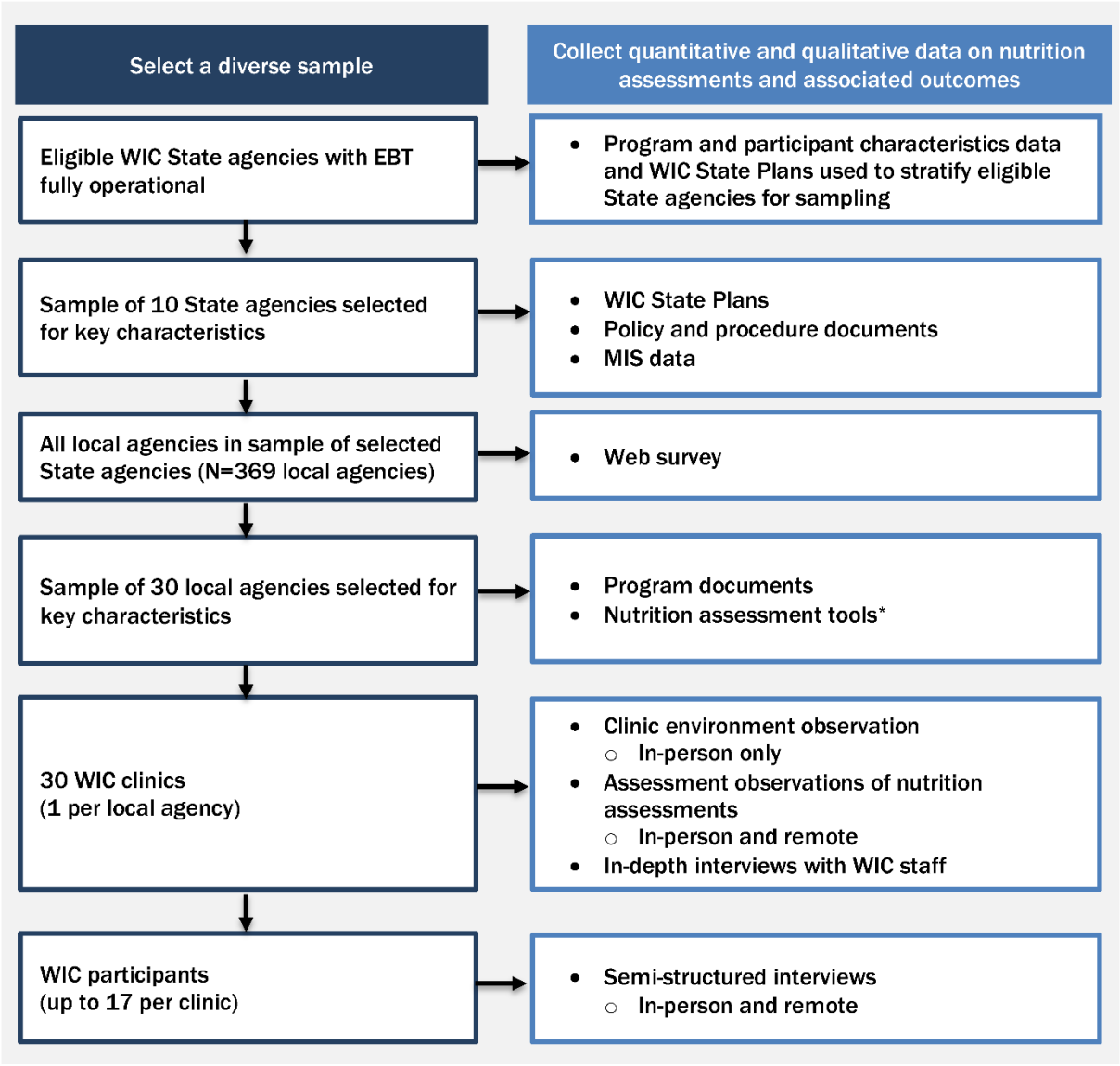
## Approach

WIC NATS uses a tiered study design that has yielded a diverse nonprobability sample of State agencies, local agencies, WIC clinics, and WIC participants. Within this structure (see Figure ES-1), the study collects data at each level allowing the study team to profile the nutrition assessment process and provide insights into staff and participant satisfaction with the assessment process and benefit tailoring. The goal of the purposive sample design was to achieve the maximum variation in nutrition assessment processes; the data presented in this report are not representative of the nation as a whole. The study's Final Report has been divided into two parts. This report (Part 1) examines mainly how the pre-pandemic nutrition assessment and tailoring processes are described at the State agency level, identifies variation in the implementation of

[1] Referred to throughout this report as "clinics."

these processes at the local agency level, and uses State agency management information system (MIS) data to characterize actual WIC program tailoring practices. The Part 2 report will provide comparisons of remote to in-person nutrition assessment processes and benefit tailoring services and include information on the perceptions of and satisfaction with services of both staff and participants.

**Figure ES-1. Overview of sampling and data collection activities**




*Nutrition assessment tools include such items as State or local agency-developed health and nutrition questionnaires and guidance documents on assigning risk codes.

To select a diverse set of 10 State agencies, the study team placed eligible agencies into strata based on participation, tailoring flexibility, and MIS complexity. To maintain geographic diversity, the study team selected one State agency from each FNS region plus a second from each of the three regions with the largest numbers of eligible State agencies.

Table ES-1. Selected State agencies

| Selected State agencies | State agency FNS region |
|---|---|
| Vermont | Northeast |
| West Virginia | Mid-Atlantic |
| Choctaw Nation of Oklahoma* | Southwest |
| Nebraska | Mountain Plains |
| Nevada | Western |
| Louisiana | Southwest |
| Indiana | Midwest |
| North Carolina | Southeast |
| Florida | Southeast |
| Ohio | Midwest |
| Nevada | Western |

* Referred to as Choctaw Nation throughout the report.

Table ES-1 lists the final selection results. From these State agencies, the study team obtained WIC State Plans and associated documents and materials related to nutrition assessment and benefit tailoring services. The study team invited all 369 local agencies within these 10 State agencies to complete a web survey to capture important variation in the implementation of the nutrition assessment at the local agency level. Overall, 87 percent of local agencies completed the survey.

Survey data were analyzed using univariate descriptive methods (e.g., means, proportions) and bivariate methods (e.g., cross-tabulations).

The study team also requested and obtained statewide MIS data from the study State agencies for three time periods: January and February 2020 (the pre-pandemic time period), June and July 2020 (early COVID-19), and January and February 2021 (later COVID-19). The requested data included the WIC Participant and Program Characteristics (PC) Minimum Data Set (MDS)[2] variables and an additional set of variables focused on nutrition education and referrals collected at certification or follow-up appointments. Participant records were included in the data request if they were for a certification appointment or other follow-up appointment during the three time periods.

The goal of the analysis of the MIS data is to characterize WIC program tailoring practices in execution. The approach uses descriptive quantitative analyses as well as bivariate and multivariate analysis. The data analysis provides rates of risk assignment and of benefit tailoring (overall and conditional on the presence of risk) and looks at the associations between tailoring outcomes and the nutritional risks assigned to each case using MIS data combined for all 10 State agencies. (Analyses by State agency can be found in Appendix G.)

[2] WIC PC data summarizes the demographic characteristics of participants in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) nationwide.

## The Nutrition Assessment Process

The WIC Value Enhanced Nutrition Assessment (VENA) Guidance defines the nutrition assessment process as follows:

> The WIC nutrition assessment is the process of collecting and synthesizing nutrition and health information in order to assess an applicant's nutrition and breastfeeding status, strengths, and needs. It is used to determine eligibility, through the identification of nutrition risks, and to personalize WIC nutrition services.[3]

A review and synthesis of State agency documents revealed that State agencies adhere closely to WIC Federal regulations in their policies related to the nutrition assessment. However, procedures for implementing policies can vary. For example, required anthropometric measurements always include length/height and weight, but in one State agency, head circumference is also required for children younger than 24 months of age. All study State agencies have health and nutrition questionnaires that are used in the assessment process. These are generally administered by WIC staff who scroll through the questions listed on screens in the clinic's MIS. However, one State agency uses hard-copy questionnaires to collect this information, and in another, participants or caregivers self-administer some of the questions using the State agency's online portal prior to the assessment visit.

The extent to which Breastfeeding Peer Counselors (BFPCs) assist breastfeeding WIC staff differs by State agency. One State agency provides guidance that identifies the Competent Professional Authority (CPA) as the primary provider of breastfeeding counseling and notes that identified issues are not to be automatically delegated to the Breastfeeding Coordinator or Peer Counselor, but rather addressed by the CPA if possible. Another State agency's guidance describes the CPA and breastfeeding support staff as working in tandem to provide support to participants.

There is also some variation in the list of acceptable nutritional risk codes used by State agencies. Not every State agency uses risk code 501—"possibility of regression." "Inappropriate nutrition practices" can be indicated with general three-digit codes or more specific four-digit codes. One State agency uses five-digit risk codes for all codes, allowing CPAs to be more specific in their documentation of risks. For example, most State agencies use the code 344 for "thyroid disorders." But when five-digit codes are used, the WIC CPA can code 344.01—"hypothyroidism," 344.02—"hyperthyroidism," or 344.03—"other thyroid disorders."

While local agencies may also create policy and procedure protocols for the WIC clinics they oversee, in practice they most often do not. Approximately one in four local agencies that

[3] U.S. Department of Agriculture, Food and Nutrition Service. (2002). *Value Enhanced Nutrition Assessment (VENA) in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) – Updated guidance* (p. 1). Available at: https://wicworks.fns.usda.gov/sites/default/files/media/document/vena-guidance.pdf.

responded to the Local Agency Director Survey (n=321) have created their own policy and procedure documents on nutrition assessments or developed their own processes and protocols for providing nutrition education to high-risk participants (26% in both instances).

The type of staff who conduct nutrition assessments and breastfeeding assessments differs by local agency characteristic. For the majority of surveyed local agencies, registered dietitians (RDs)/registered dietitian nutritionists (RDNs) (76% of surveyed local agencies) or nutritionists (62% of surveyed local agencies) typically conduct the nutrition assessments. However, about one-third of local agencies (36%) use nurses (either registered nurses or licensed practical nurses) to conduct the assessments. Significantly more urban compared to rural local agencies (87% vs. 62%), local agencies with two or more clinics compared to one clinic (85% vs. 61%), and large local agencies compared to medium-sized and small local agencies (94% vs. 80% and 55%, respectively) use RDs/RDNs for nutrition assessments. In contrast, significantly more rural local agencies use nurses to conduct nutrition assessments compared to urban local agencies (46% vs. 27%). Similarly, significantly more small local agencies use nurses compared to medium-sized and large local agencies (57% vs. 30% and 16%, respectively).

A similar pattern exists in the education and credentials of staff who conduct breastfeeding assessments. Most commonly, RDs/RDNs (in 73% of surveyed local agencies), BFPCs[4] (67%), nutritionists (61%), and Certified Lactation Counselors (CLCs) (54%) conduct breastfeeding assessments. However, urban local agencies, those operating two or more clinics, and those with large caseloads are significantly more likely to have RDs/RDNs, nutritionists, CLCs, and International Board Certified Lactation Consultants (IBCLCs) conduct breastfeeding assessments than local agencies that are rural, that operate only one clinic, or that have small caseloads. Rural and small local agencies are more likely to have nurses and clerk/support staff conducting breastfeeding assessments than urban or large local agencies. These differences likely reflect the wider variety of staff expertise available at urban and large-caseload local agencies.

Staff training for those who perform nutrition assessments is extensive. Just over half of local agencies (52%) identified 15 or more topic areas in which assessment staff are trained. Over 80 percent of local agencies offer training on anthropometric data collection techniques, infant nutrition, child nutrition, hematological data collection techniques, documentation of nutrition assessment findings, prenatal nutrition, the nutrition assessment process, assessment of breastfeeding behaviors, counseling and participant-centered services skills, and postnatal nutrition. Training on these various topics most often occurs at least annually.

The WIC program provides services to a culturally diverse population.[5] Over 80 percent of local agencies who responded to the study's survey report serving clients who speak a language

[4] Breastfeeding Peer Counselors give basic breastfeeding information and support and refer to a WIC-Designated Breastfeeding Expert for assistance with problems outside of a peer counselor's scope of practice.

[5] The Third National Survey of WIC Participants (NSWP-III) found that 79.7 percent of WIC participants speak English at home, 15.7 percent speak Spanish at home, and 4.6 percent speak another language at home including such languages as Arabic, French/Creole, Hindi, Farsi, Somali, Hmong, Urdu, Cantonese/Mandarin, Tagalog,

other than English (82%). These local agencies most commonly use a language line service to communicate with non-English speakers, with almost 96 percent of these local agencies using language line services during nutrition assessments with non-English speakers, and 93 percent of these local agencies using language line services when providing nutrition education.

## Participant Nutritional Risk Assignment

The study team conducted an analysis of WIC program MIS nutritional risk assignment data in the pre-pandemic period of January-February 2020.[6] Specific nutritional risk criteria can be grouped into five broad nutritional risk categories as defined by FNS:

- Anthropometric risks include risks such as low weight-for-height/length and inappropriate growth/weight gain pattern.
- Biochemical risks include two nutritional risks: hematocrit or hemoglobin below FNS criteria and other biochemical test results that indicate nutritional abnormality.
- Clinical/health/medical risks include risks such as pregnancy-induced conditions and substance abuse.
- Dietary risks include risks such as failure to meet Dietary Guidelines for Americans (DGA) recommendations and inappropriate nutrition practices.
- Other risks include risks such as regression, transfer, presumptive eligibility, homelessness, and migrancy.

Table ES-2 presents risk assignments by broad risk code categories for participants who completed a certification appointment or other follow-up appointment during the pre-pandemic period in the 10 study State agencies. Across all study State agencies, participants were assigned anthropometric risks at the highest rate (54%), followed by dietary risks (47%). About

Fulani, Swahili, Kirundi, Navajo, and Portuguese. See Table 1a.1 in Appendix G, Program Experiences Survey Tables, available at: https://fns-prod.azureedge.us/sites/default/files/resource-files/NSWP-III-AppendixG.pdf.

[6] A comparison of pre-pandemic data to two periods after the start of the pandemic can be found in discussion of the impact of the COVID-19 pandemic.

one-quarter of participants were assigned clinical/health/medical and other risks (25% and 23%, respectively). Less than 15 percent of participants were assigned biochemical risks. Overall, WIC participants were most commonly assigned just one nutritional risk (42%). Just 3 percent of participants had six or more assigned nutrition risks.

**Table ES-2. Nutritional risk assignments for participants in study State agencies during the pre-pandemic period, by broad risk categories**

| Risk category | Number of participants | Percentage of participants |
|---|---|---|
| Anthropometric | 334,836 | 54.4 |
| Biochemical | 80,288 | 13.0 |
| Clinical/health/medical | 154,162 | 25.1 |
| Dietary | 290,623 | 47.2 |
| Other | 141,923 | 23.1 |
| Not reported | 4,326 | 0.7 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 1a. Reference date: January-February, 2020.

Note: Percentages add to more than 100 because participants may be

The study's analysis of risk codes also examined the assignment of individual risk codes. There are over 80 individual codes on the list of FNS nutritional risk codes. Some are relevant to all participant categories and others are specific to a single participant category. Table ES-3 presents the top five most commonly assigned nutritional risk codes across all participants and for women, infants, and children separately.

**Table ES-3. Top five nutritional risk codes reported during the pre-pandemic period (January-February 2020) by participant type and overall**

| Risk code | Percentage of participants (%) |
|---|---|
| **All participants (n=615,403)** | |
| Inappropriate nutrition practices for children | 27.7 |
| Overweight woman[a] | 15.4 |
| Low hematocrit/hemoglobin | 13.0 |
| Preterm or early delivery | 12.5 |
| Postnatal enrollment[b] | 10.8 |
| **Women (n=169,796)** | |
| Overweight[a] | 55.6 |
| High maternal weight gain | 36.9 |
| Low hematocrit/hemoglobin | 24.4 |
| History of preterm or early term delivery | 18.6 |
| Recent major surgery, trauma, burns | 17.7 |
| **Infants (n=155,781)** | |
| Postnatal enrollment[b] | 44.3 |
| Preterm or early delivery | 31.3 |
| Inappropriate nutrition practices for infants | 22.7 |
| Breastfeeding infant of woman at nutritional risk | 20.9 |
| Short stature or at risk of short stature | 13.4 |

Table ES-3. Top five nutritional risk codes reported during the pre-pandemic period (January-February 2020) by participant type and overall (continued)

| Risk code | Percentage of participants (%) |
|---|---|
| Children (n=289,826) | |
| Inappropriate nutrition practices for children | 58.8 |
| Failure to meet DGA | 15.9 |
| Overweight or at risk of overweight | 14.5 |
| Low hematocrit/hemoglobin | 13.2 |
| Preterm or early delivery | 9.8 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. Ad hoc analysis using data from Appendix F, Tables 2a-6a.

[a] Prepregnancy body mass index (BMI) ≥25.

[b] Infant up to 6 months old of WIC mother, or of a woman who would have been eligible during pregnancy.

Of the top five most common risk codes assigned in the 10 study State agencies, "inappropriate nutrition practices for children" was the most frequently assigned (28% of all assigned codes). Almost 60 percent of WIC-certified children were assigned this risk code and, since children are the largest participant group, it easily topped the list of the most frequently assigned risk codes. "Overweight woman" (i.e., women with a prepregnancy body mass index (BMI) ≥25) was the second most frequently assigned code (15% of all assigned codes). Fifty-six percent of WIC-certified women in the 10 study State agencies were assigned this code. Also among the top five risk codes overall were "low hematocrit/hemoglobin" (13% of assigned risk codes and among the top 5 risk codes for both women and children), "preterm or early term delivery"[7] (13% of assigned risk codes and among the top 5 risk codes for both infants and children), and "infant up to 6 months old of WIC mother, or of a woman who would have been eligible during pregnancy" (referred to as "postnatal enrollment;" 11% of assigned risk codes). Analysis of the top five nutritional risk codes overall found that local agency characteristics, including urbanicity, caseload size, and type of entity, had little impact on the frequency of the most common risk factors.

## Benefit Tailoring

The VENA approach is a participant-centered, health outcome-based approach to WIC nutrition assessment. It incorporates a WIC nutrition assessment process with policies, staff competencies, an MIS, and quality improvement strategies that together enhance the delivery of WIC nutrition services. The WIC nutrition assessment is the starting point for tailoring the WIC nutrition services provided to individual participants. VENA Guidance describes the three activities that make up benefit tailoring as follows:

- Customizing counseling strategies (e.g., nutrition/breastfeeding education, guided goal setting, affirmations) that address a participant's needs and concerns;

[7] Preterm: Delivery of an infant born ≤36 6/7 weeks gestation. Early term: Delivery of an infant born ≥37 0/7 and ≤38 6/7 weeks gestation.

- Tailoring the food package to address nutrition needs and breastfeeding status and preferences, including those based on the participant's culture; and

- Making appropriate referrals.[8]

As with the nutrition assessment process, the study's analysis of benefit tailoring starts with a review and synthesis of documents received from State agencies. The synthesis looked for variations in State agency policies and procedures related to benefit tailoring. The extent to which State agency policies and procedures are being carried out at the local agency/clinic level cannot be known from this analysis.[9] State agency policy and procedure documents adhere closely to Federal regulations in providing guidance on benefit tailoring.

- All study State agencies indicated in their WIC State Plans that they allow individual nutrition tailoring of food packages only in accordance with 246.10(c) of the WIC program regulations. Of the 10 study State agencies, only 1 State agency indicated that they allow local agencies to develop specific individual tailoring guidelines.

- Eight of 10 State agencies indicated in their State Plans that they offer a food package tailored for participants who are homeless, although guidance in 1 State agency noted that residency in a homeless facility does not automatically result in the need for food package changes.

- One State agency noted that it has a kosher milk food package for participants "who self-report a cultural eating pattern."

- CPAs tailor the amount of infant formula prescribed based on an assessment of breastfeeding and formula intake which allows them to determine the appropriate quantity of formula needed to support breastfeeding goals. When an infant's status is "mostly breastfeeding" or "partially breastfeeding," State agency guidance often indicates that WIC staff be instructed not to automatically provide the full maximum monthly allowance (MMA) of infant formula. State agency policies regarding requests for special formula due to religious beliefs vary. One State agency noted that it provides noncontract milk-based formula products that meet halal and kosher requirements as a religious exception. Another State agency indicated that when individuals require a special formula because of religious beliefs, CPAs must contact the State WIC office for specific guidance.

- When a participant asks for a substitution that replaces milk with milk substitutes or requests a food be removed from their food package, some State agencies have policies instructing CPAs to provide counseling/nutrition education to make parents

[8] U.S. Department of Agriculture, Food and Nutrition Service. (2002). *Value Enhanced Nutrition Assessment (VENA) in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) – Updated Guidance* (p. 25). Available at: https://wicworks.fns.usda.gov/sites/default/files/media/document/vena-guidance.pdf.

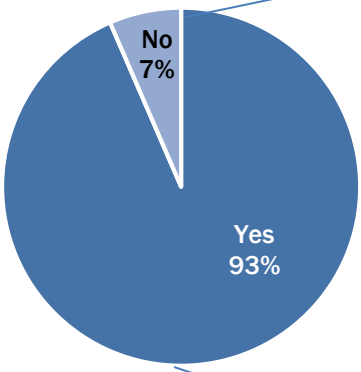
[9] The study's Part 2 report includes analyses of data collected at the clinic level and examines actual nutrition assessment and benefit tailoring practices in WIC clinics.

and caregivers aware that a child's diet may be inadequate when milk is replaced by other foods and to provide participants with information on the nutritional content and health benefits of the food that is being refused.

Results of the Local Agency Director Survey show the extent to which local agencies can tailor food package prescriptions based on the results of the nutrition assessment. Almost all surveyed local agencies report that their WIC staff modify food quantities either because it is medically or nutritionally warranted (92%) or because the participant refuses or cannot use the full benefit (66%). Just 7 percent of surveyed local agencies report that their clinic staff do not modify food quantities for these reasons. WIC staff may also tailor food types and forms to accommodate household and general living conditions. The majority of surveyed local agencies tailor food types and forms to accommodate unsafe water (86%), homeless and transient status (85%), food storage conditions (81%), and equipment for food preparation (59%). Just 4 percent of local agencies report that they cannot tailor food types and forms to accommodate living conditions.

Almost all surveyed local agencies allow WIC staff to make changes or substitutions to food packages to meet participants' nutritional needs and preferences (93%; see Figure ES-2), and this does not differ by any local agency characteristics. Surveyed local agencies that allow changes or substitutions to the food package to meet individual nutritional needs and preferences allow adjustments to the amount of infant formula based on the breastfeeding assessment (98%) as well as food substitutions based on medical diagnoses (98%) or food preferences (86%). There are no differences in the types of allowed adjustments by urbanicity or number of clinics. However, two types of changes differ by local agency size—substitutions based on participants' food preferences and cultural, belief, or religious food substitutions. In these two cases, small and medium-sized local agencies are less likely to make these changes than large local agencies.

Figure ES-2. Percentage of local agencies that allow changes to the food package* based on participants' needs and preferences, and types of changes allowed




| Types of changes to the food package | Percentage of local agencies |
|---|---|
| Adjustment to the amount of infant formula provided based on breastfeeding assessment | 98% |
| Substitutions based on medical diagnoses | 98% |
| Substitutions based on participants' food preferences | 86% |
| Cultural, belief, or religious food substitutions (e.g., vegan, kosher, halal) | 84% |
| Adjustment to the type of infant formula provided based on breastfeeding assessment** | 79% |
| Other*** | ** |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey questions 26 and 27 (n: total=321, local agencies who responded "yes"=300). See Appendix D, Table 17. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

* Not including changes for Food Package III.

**The type of infant formula provided may be discussed during a breastfeeding assessment if the WIC mother is supplementing breastfeeding with infant formula.

***Other changes were related to peanut butter and included removing peanut butter from the package if any member of the household has a peanut allergy.

For the local agencies who completed the Local Agency Director Survey, just 60 percent report that their WIC MIS helps staff tailor program benefits based on the results of the nutrition assessment, while 40 percent say that it does not. This was not significantly different by urbanicity, number of clinics, or local agency size.

## MIS Data Recorded on Benefit Tailoring

The study team examined the frequency of benefit tailoring during the pre-pandemic period using State agency MIS data. Of particular interest is MIS data analysis showing how assignment of risk codes was related to tailoring of the food package, education, and referrals. The study team analyzed the relationships between certain nutritional risks and possible changes in food package contents, provision of nutrition education, and referrals to outside providers or programs that WIC staff might consider in response to those risks.

State agencies have the option to tailor certain benefits for child participants based on anthropometric status (e.g., overweight or underweight). State agencies may prescribe reduced-fat milk for 1-year-old children for whom overweight or obesity is a concern, in lieu of the standard whole milk for this age group, and the MIS data show that, across anthropometric statuses, 1-year-old children with a "high weight for length" status were the most likely to be prescribed reduced-fat milk (20%; see Table ES-4). State agencies also have the option to prescribe reduced-fat (2%) milk to underweight 2- to 4-year-old children in lieu of the standard low-fat (1%) or nonfat milk.[10] MIS data show that underweight and at-risk-of-underweight children were those most likely to be prescribed reduced-fat (2%) milk (48% and 40%, respectively).

State agencies may also provide education in Good Food Choices or physical education to families with children with anthropometric risks. One-year-old children categorized as having high weight for length by measurement are the most likely to receive education related to Good Food Choices (66%) or physical activity (4%). For 2- to 4-year-old children, those categorized as overweight or obese were the most likely to receive education related to physical activity (12%). Between one-half and two-thirds of children in each anthropometric category received education related to Good Food Choices.

[10] For all descriptions of optional benefit tailoring in this section, see 7 C.F.R. 246, Special Supplemental Nutrition Program for Women, Infants, and Children (1985). Retrieved on: June 17, 2022.

Table ES-4. Nutritional risk assignment and benefit tailoring based on anthropometric measurements among children

| Calculated anthropometric status using weight and length/height measurements | Number of children in age group | Percentage of participants | | | | | |
|---|---|---|---|---|---|---|---|
| | | Assigned nutritional risk related to low weight | Assigned nutritional risk related to high weight | Prescribed reduced-fat milk | Prescribed whole milk | Received Good Food Choices education | Received physical activity education |
| **1-year-old children** | | | | | | | |
| Underweight | 593 | 82.3 | – | 12.5 | n/a | 49.6 | 1.5 |
| Risk of underweight | 560 | 77.3 | – | 11.8 | n/a | 60.0 | 2.5 |
| Normal weight | 82,038 | 1.4 | 2.0 | 9.6 | n/a | 63.8 | 2.7 |
| High weight for length | 14,247 | < 0.1 | 71.6 | 20.0 | n/a | 66.4 | 3.9 |
| Height/weight not reported | 1,842 | 4.6 | 23.6 | 22.5 | n/a | 14.7 | 1.0 |
| **2- to 4-year-old children** | | | | | | | |
| Underweight | 6,110 | 87.7 | 4.8 | 48.6 | 10.1 | 53.6 | 2.5 |
| Risk of underweight | 5,090 | 83.1 | 4.2 | 40.9 | 4.8 | 61.2 | 2.8 |
| Normal weight | 114,370 | 3.8 | 7.1 | 5.6 | 1.4 | 66.9 | 4.3 |
| Overweight or obese | 55,440 | 0.1 | 47.5 | 2.5 | 0.6 | 66.5 | 12.1 |
| Height/weight not reported | 2,812 | 11.8 | 18.3 | 1.2 | 0.3 | 17.6 | 2.5 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Tables 18.1a and 18.2a. Reference date: January-February 2020.

Anthropometric status for 1-year-old children was calculated using programming code for pediatric anthropometry developed by the World Health Organization (WHO) and based on WHO Child Growth Standards. Anthropometric status for 2- to 4-year-old children was calculated using programming code for pediatric anthropometry developed by the Centers for Disease Control and Prevention (CDC) and based on current growth charts.

For a small number of children, the assigned nutritional risk was inconsistent with actual weight measurements.

One State agency did not provide education categories for Good Food Choices or physical activity education; another State agency did not provide education categories for physical activity education; a third State agency provided no education data.

As another example, possible changes to the food package prescription for women and children who are assigned risk code 355 ("lactose intolerance") include substituting tofu, soy-based beverages, and/or lactose-reduced/free milk for milk. Table ES-5 presents the percentage of participants who received tailored food packages that included a milk substitute by whether or not they were assigned the "lactose intolerance" nutritional risk code.

**Table ES-5. Food package tailoring for lactose intolerance for women and children**

| Nutritional risk assignment | Number of participants | Percentage of participants | | | | |
|---|---|---|---|---|---|---|
| | | Assigned/ not assigned risk code | Prescribed tofu | Prescribed soy-based beverage | Prescribed lactose-reduced/ free milk | Not prescribed lactose-related substitutions |
| All women | 165,017 | – | 0.5 | 2.7 | 6.4 | 90.6 |
| Assigned lactose intolerance | 3,315 | 2.0 | 1.0 | 10.2 | 65.5 | 24.4 |
| Not assigned lactose intolerance | 161,702 | 98.0 | 0.5 | 2.6 | 5.2 | 91.9 |
| Children | 285,813 | – | 0.4 | 2.8 | 7.9 | 89.0 |
| Assigned lactose intolerance | 7,290 | 2.6 | 0.6 | 13.7 | 67.5 | 18.8 |
| Not assigned lactose intolerance | 278,523 | 97.4 | 0.4 | 2.6 | 6.3 | 90.8 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 20a. Reference date: January-February 2020.

Row percentages do not add to 100 as individuals could have been prescribed more than one milk substitution.

WIC clinic staff ask about lactose intolerance as part of the nutrition assessment and assign participants a "lactose intolerance" nutritional risk code as appropriate. Only small percentages of women and children participants were assigned the "lactose intolerance" nutritional risk—2.0 percent of women and 2.6 percent of children. In all cases, however, those who were assigned the "lactose intolerance" risk code were more likely to be prescribed milk substitutes than women and children without the "lactose intolerance" risk. In particular, lactose-reduced or lactose-free milk was prescribed to the majority of those who were assigned the "lactose intolerance" risk code, but to only small percentages of those without the code. Two-thirds of women and children with an assigned "lactose intolerance" risk code were prescribed lactose-reduced or lactose-free milk. Interestingly, not all participants with a "lactose intolerance" risk code were prescribed a milk substitution.

The "breastfeeding complications" nutritional risk can be assigned to both breastfeeding women (risk code 602) and infants (risk code 603). Table ES-6 presents the percentage of breastfeeding women and infant participants who received a breastfeeding referral or education by whether or not they were assigned the "breastfeeding complications" risk code. Note that the total number of breastfeeding women and infants differs for the two analyses as referral data

were not available for Florida, Indiana, and West Virginia. Education data were not available for Ohio.

**Table ES-6. Percentage of breastfeeding women and infants receiving breastfeeding referral or education**

| Nutritional risk assignment | Number of participants | Percentage of participants | Percentage receiving tailored breastfeeding service |
|---|---|---|---|
| **Receiving breastfeeding referral** | | | |
| Breastfeeding women | 14,365 | 100 | 20.8 |
| Assigned breastfeeding complications | 1,412 | 9.8 | 48.3 |
| Not assigned breastfeeding complications | 12,953 | 90.2 | 17.8 |
| Infants | 40,981 | 100 | 5.6 |
| Assigned breastfeeding complications | 2,199 | 5.4 | 34.3 |
| Not assigned breastfeeding complications | 38,782 | 94.6 | 4.0 |
| **Receiving breastfeeding education** | | | |
| Breastfeeding women | 56,637 | 100 | 46.2 |
| Assigned breastfeeding complications | 3,202 | 5.7 | 44.9 |
| Not assigned breastfeeding complications | 53,435 | 94.3 | 46.3 |
| Infants | 148,725 | 100 | 31.5 |
| Assigned breastfeeding complications | 17,156 | 11.5 | 54.1 |
| Not assigned breastfeeding complications | 131,569 | 88.5 | 28.6 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Tables 24.1a and 24.2a. Reference date: January-February 2020.

Three State agencies did not provide documentation on breastfeeding referral. Another State agency did not provide education data.

Among breastfeeding women assigned the "breastfeeding complications" nutritional risk, 48 percent were given a breastfeeding referral compared to 18 percent of those without breastfeeding complications. For infants, 34 percent of those assigned the "breastfeeding complications" nutrition risk received a breastfeeding referral, while only 4 percent of those without the risk received such a referral.

The pattern does not hold when receiving breastfeeding education. A slightly higher percentage of women who were not assigned the "breastfeeding complications" risk code (46%) received breastfeeding education than the percentage of women with breastfeeding complications (45%). Infants who were assigned the code, however, were almost twice as likely as those without the risk code to receive education related to breastfeeding, with 54 percent of those with the code receiving education compared to only 29 percent of infants without the code.

This analysis of the services associated with specific risk codes provides some evidence of benefit tailoring based on the nutrition assessment. While the relationships between risk code and service provision analyzed were not constant across all participants (e.g., not every participant assigned a "lactose intolerance" risk code received milk substitutes in their food package

prescription), participants with the selected risk codes were almost always more likely to receive the expected services than those not assigned the risk code, suggesting some WIC staff do use the results of the nutrition assessment in their provision of services.

To further investigate the associations between participant characteristics and food package tailoring, the study team used logistic regression to identify whether variations in food package tailoring by State agency, participant category, and nutritional risk were significant when considered in conjunction with important factors such as participant's race or the size or urbanicity of the local agency. The analysis defined food package tailoring as instances in which the participant received less than the MMA of particular food items in their food package prescription (referred to as "MMA food tailoring"). Of particular interest in the study's regression results were findings related to participant race and ethnicity.

Race and ethnicity were a statistically significant predictor of MMA food tailoring for both women and children (model 1) and infants (model 2); however, the predictor occurred in different directions and magnitudes in the two models. Compared to the reference group of non-Hispanic Whites, American Indian and Asian or Pacific Islander women and children had higher odds of MMA food tailoring. Asian or Pacific Islander women and children (odds ratio=3.643) were nearly four times more likely to receive MMA food tailoring than non-Hispanic White women and children. American Indian women and children (odds ratio=1.437) were about 1.5 times more likely to receive MMA food tailoring. Though the estimate for non-Hispanic Black women and children was statistically significant, the odds had a magnitude close to 1, therefore making the results not substantively meaningful. Estimates of MMA food tailoring for Hispanic women and children did not significantly differ from that for non-Hispanic Whites. In contrast, the regression results for infants showed that non-Hispanic White infants were more likely to receive formula-based MMA food tailoring than any other race/ethnicity category, but differences were not as large for infants as for women and children. Odds ratios ranged from 0.627 for Asian or Pacific Islander infants to 0.950 for non-Hispanic Black infants.

## Impact of the COVID-19 Pandemic

Beginning March 2020, WIC State agencies could request and receive FNS waivers that allowed them to continue to serve WIC participants safely during the pandemic. FNS granted all study State agencies physical presence and remote benefit issuance waivers. These waivers allowed WIC offices to conduct nutrition assessments remotely. In practice, this meant that many WIC offices conducted nutrition assessments by phone or curbside where WIC participants would call the WIC office from outside the building.

States made numerous changes to their operating procedures in response to COVID-19. Documents related to COVID-19 policies and procedures were provided to data collectors by local agencies and/or clinics in five study State agencies during remote data collection. State agencies typically issued new policy and procedure documents to local agencies and clinics on

three main topics: technology, physical safety, and requirements. The bulk of COVID-19-related policies and procedures focused on requirements, clarifying what requirements applied during COVID-19 and how these requirements could be met in remote environments. States sent memoranda to clinics explaining which requirements were suspended (including anthropometric measurements), which were modified (including medical documentation), and which remain unchanged but could now be captured remotely (such as nutrition assessments). One State agency issued multiple memos explaining how to complete infant enrollment forms without medical documentation, how to schedule remote appointments, how to provide nutrition education guidance remotely, and other topics. Another issued a Remote Appointment Policy document that detailed procedures for WIC staff to follow in conducting and documenting remote appointments. This document provided direction on everything from noting that staff must verbally verify that they are speaking with the participant, parent/guardian, or caretaker before starting any appointment to issuing an electronic benefits transfer (EBT) card by mail or through a "drive-by."

While flexibilities were introduced in order for WIC staff to conduct service provision remotely, WIC staff were still charged with gathering the information needed to complete a nutrition assessment, assign risk, and complete a care plan. The underlying components of the assessment process remained the same.

Changes in how nutrition services were provided during the COVID-19 pandemic may have resulted in changes to the number and type of nutrition risks assigned to participants. For instance, assignment of risk codes was likely impacted by missing anthropometric and biochemical measurements which were not collected during remote appointments. Changes to the number and type of nutritional risk codes assigned across all 10 study State agencies during the pre-pandemic period (January-February 2020) and compared to June-July 2020 (early COVID-19) and January and February 2021 (later COVID-19) are presented in Table ES-7.

As the table shows, the number of participants assigned just one nutritional risk increased by more than 12 percentage points in June-July 2020 compared to the pre-pandemic period and an additional 5 percentage points in January-February 2021. About 42 percent of all participants across the study's 10 State agencies were assigned just one risk code during the pre-pandemic period. That percentage rose to 59 percent in the January-February 2021 period. The percentage of participants assigned more than one risk code fell for each of the two COVID-19 time periods. The number of participants assigned three to five risk codes fell the most, falling by 8 percentage points in June-July 2020 compared to the pre-pandemic period and an additional 3 percentage points in January-February 2021.

Table ES-7. The number and type of assigned nutritional risks during the pre-pandemic period compared to two pandemic time periods

| Number and type of assigned risks | January-February 2020 | | June-July 2020 | | January-February 2021 | |
|---|---|---|---|---|---|---|
| | N | Percentage | N | Percentage | N | Percentage |
| Total participants | 615,403 | 100 | 589,471 | 100 | 570,119 | 100 |
| Number of assigned nutritional risks | | | | | | |
| 1 | 256,045 | 41.6 | 318,491 | 54.0 | 337,444 | 59.2 |
| 2 | 170,206 | 27.7 | 141,705 | 24.0 | 125,184 | 22.0 |
| 3-5 | 169,951 | 27.6 | 117,680 | 20.0 | 98,782 | 17.3 |
| 6 or more | 18,235 | 3.0 | 10,315 | 1.7 | 7,864 | 1.4 |
| Not reported | 966 | 0.2 | 1,280 | 0.2 | 845 | 0.1 |
| Type of assigned nutritional risks* | | | | | | |
| Anthropometric | 334,836 | 54.4 | 221,169 | 37.5 | 172,401 | 30.2 |
| Biochemical | 80,288 | 13.0 | 29,572 | 5.0 | 6,189 | 1.1 |
| Clinical/health/medical | 154,162 | 25.1 | 139,259 | 23.6 | 138,379 | 24.3 |
| Dietary | 290,623 | 47.2 | 313,137 | 53.1 | 314,592 | 55.2 |
| Other risks | 141,923 | 23.1 | 133,448 | 22.6 | 125,601 | 22.0 |
| Not reported | 4,326 | 0.7 | 8,003 | 1.4 | 8,606 | 1.5 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 1a.

* Percentages add to more than 100 because participants may be assigned up to 10 nutritional risks.

Overall, across all 10 State agencies, anthropometric and biochemical risk assignments decreased by 24 and 12 percentage points, respectively. Dietary risk assignments increased by 8 percentage points over time compared to the pre-pandemic period. Rates of assignment for clinical/health/medical and other risks remained the same over time. Eight of the 10 study State agencies were able to provide sufficient data to be included in reporting on infant breastfeeding initiation and duration at 6 months. Across all eight State agencies, the percentage of infants and children aged 6 to 13 months that initiated breastfeeding declined from the pre-pandemic period to January-February 2021 (74% vs. 69%). This finding was not consistent across all 8 State agencies used in the analysis. Rates of breastfeeding initiation declined over time in four State agencies, while rates increased in three State agencies and remained the same in one State agency.

# 1. Background

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) was established to safeguard the health of low-income pregnant and postpartum women, infants, and children under age 5 who are at nutritional risk by providing supplemental foods, nutrition education, breastfeeding support, and referrals to healthcare and other social services. The program is administered by the U.S. Department of Agriculture (USDA) Food and Nutrition Service (FNS). The WIC Nutrition Assessment and Tailoring Study (WIC NATS; also known as the Process and Use of the Nutrition Risk Assessment Study) is intended to help FNS better understand how WIC local agencies and WIC clinic sites[11] conduct the nutrition assessment and use the information gathered to tailor benefits they provide to WIC participants.

## 1.1 Background on the WIC Nutrition Assessment

As part of the certification and recertification process, WIC staff perform a comprehensive nutrition assessment of WIC participants based on Value Enhanced Nutrition Assessment (VENA) Guidance.[12] This assessment has six steps: (1) set the agenda by explaining the assessment process; (2) collect the participant's relevant information including height and weight, blood iron levels, breastfeeding information, clinical data, dietary information, and environmental and family information; (3) clarify and synthesize the information; (4) use assessment data to guide nutrition services; (5) document the assessment; and (6) conduct the follow-up assessment at the next assessment appointment. Based on the nutrition assessment, WIC staff can tailor the benefits the mother and child receive to meet their nutritional needs. The specifics of the process can vary by WIC State agency and by WIC local agency.

As a part of a complete nutrition assessment, WIC staff identify and document nutritional risks for each participant. WIC regulations define nutritional risk as "(a) Detrimental or abnormal nutritional conditions detectable by biochemical or anthropometric measurements (i.e., measurements of the human body including height/length and weight); (b) Other documented nutritionally related medical conditions; (c) Dietary deficiencies that impair or endanger health; (d) Conditions that directly affect the nutritional health of a person, including alcoholism or drug abuse; or (e) Conditions that predispose persons to inadequate nutritional patterns or nutritionally related medical conditions, including, but not limited to, homelessness and migrancy."[13] To be

[11] Referred to throughout this report as "clinics."

[12] U.S. Department of Agriculture, Food and Nutrition Service. (2002). *Value Enhanced Nutrition Assessment (VENA) in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) – Updated guidance*. 2020. Available at: https://wicworks.fns.usda.gov/sites/default/files/media/document/vena-guidance.pdf.

[13] Definitions, 7 C.F.R. § 246.2.

certified as eligible for the WIC program, participants must be determined to be at nutritional risk.

WIC participants can receive several types of benefits during their appointment: food packages, nutrition education, breastfeeding support, and referrals. WIC staff have the ability to tailor all of these benefits, based on the findings of the nutrition assessment, to meet the needs of individual participants. Food packages are prescriptions for certain nutritious foods intended to supplement participants' diets with specific nutrients; participants use their benefits to purchase these foods at authorized vendors. WIC regulations determine the contents of the food packages, which vary with the individual's participant category, age, breastfeeding status, and whether the participant has documented medical conditions that require a WIC-eligible infant formula, exempt infant formula, or WIC-eligible nutritionals.[14] However, WIC staff can further tailor these packages to accommodate participants' preferences and health needs. For example, staff can reduce the amount of milk included in a food package for women or children to allow those participants to receive cheese, yogurt, soy-based beverage, or tofu instead, and/or to accommodate cultural preferences, vegan diets, lactose intolerance, or allergy. Other types of food package tailoring include prescribing exempt formula for infants or nutritionals for children and women, issuing a cash value benefit (CVB) for fruits and vegetables in lieu of jarred foods for older infants, and prescribing amounts of food or beverages lower than the maximum monthly allowance (MMA). Infant feeding is a primary area for food package tailoring. Most clinics enrolling a newborn will conduct an extensive infant feeding assessment to determine how much breastfeeding and how much formula feeding is happening. The infant's food package is tailored based on the results of this assessment.

Nutrition education, which includes breastfeeding promotion and support, emphasizes the relationship between nutrition, physical activity, and health. It assists WIC participants in achieving positive change and maintaining healthy practices in diet and physical activity.[15] Topics covered in nutrition education may include breastfeeding or formula feeding, introduction of complementary foods, infant or child growth and development, or maintaining a healthy weight. As with food packages, WIC staff tailor nutrition education to meet an individual participant's needs through targeted education topics and the appropriate medium. For example, a new mother struggling with breastfeeding may receive one-on-one support from a Breastfeeding Peer Counselor (BFPC), while a group session may focus on more general infant feeding practices.

At the conclusion of the nutrition assessment, staff may refer participants to other health, welfare, and social service programs to help meet any additional needs. These referrals may range from Government programs, such as Medicaid or Temporary Assistance for Needy

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[14] Supplemental foods, 7 C.F.R. § 246.10.

[15] Cates, S., Capogrossi, K., Sallack, L., Deehy, K., Eicheldinger, C., Karns, S., Bradley, S., Kosa, K., and Brophy, J. (2016, May). *WIC Nutrition Education Study: Phase I Report*. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support.

Families (TANF), to Child Protective Services and domestic violence programs. They may also include community organizations such as food pantries and housing assistance programs. Referrals may also be internal—to other staff within the WIC clinic such as breastfeeding support staff. When appropriate, WIC staff must make referrals for children younger than 24 months without current immunizations or mothers in need of drug and alcohol counseling and treatment.[16] WIC staff tailor referrals to their participants' specific situations and needs.

## 1.2 Need for the Study

WIC NATS is the first study to provide a comprehensive account of WIC nutrition assessment and tailoring processes. The nutrition assessment process is critical to the delivery of individualized nutrition services and to meeting WIC's mission. The goal of this study is to document the nutrition services process as it is conducted at local WIC clinics and how nutrition risks are identified, assigned, and used to tailor program benefits. Through this research, FNS will be able to share best practices related to the WIC nutrition assessment and the resulting benefits tailoring. Study findings are intended to inform guidance for WIC staff to enhance service delivery and improve program satisfaction and retention, with the goal of improving the nutrition and health of WIC participants.

## 1.3 Research Objectives

The primary purpose of this study is to provide a comprehensive, detailed description of the WIC nutrition assessment process in 10 WIC State agencies and explore the ways in which WIC clinics tailor participant benefits to address the results of the assessment. There are six research objectives for the study:

1. Provide in-depth descriptive information on how a large, diverse sample of local WIC agencies perform the WIC nutrition risk assessment. Describe the nutrition risk assessment process as carried out in practice in a variety of WIC clinics. Gather detailed information on staff and client experiences associated with nutrition risk assessment.

2. Provide in-depth information to systematically describe how a national sample of diverse local WIC agencies use the collection of nutrition assessment information to tailor program benefits, including: food packages, nutrition education, breastfeeding promotion and support, and referrals to health and social services.

3. Investigate relationships between WIC nutrition services processes (to include the nutrition risk assessment and the associated tailoring of program benefit delivery),

[16] WIC Policy Memorandum #2001-7 Immunization Screening and Referral in WIC. (2001, August).

and the clinic experience, participant and staff perceptions, and overall clinic flow and efficiency.

4. Analyze study findings to identify specific practices or features of nutrition service processes that facilitate the use of nutrition assessment information for providing tailored program benefits and are associated with participant and staff satisfaction.

5. Describe the nutrition assessment and benefit tailoring processes when conducted remotely and compare these to the same processes as they occur in an in-person setting.

6. Investigate participant and staff perceptions of WIC nutrition services when provided remotely and compare these to perceptions observed during in-person WIC services.

Table 1-1 presents the associated research questions for each objective and an indicator noting which research questions are addressed in this report (i.e., the Part 1 Final Report). Section 1.4 describes the contents of the Part 1 and Part 2 reports.

**Table 1-1. Study objectives and research questions**

| Objective 1. Provide in-depth descriptive information on how a large, diverse sample of local WIC agencies perform the WIC nutrition risk assessment. Describe the nutrition risk assessment process as carried out in practice in a variety of WIC clinics. Gather detailed information on staff and client experiences associated with nutrition risk assessment. | Final Report | |
|---|---|---|
| | Part 1 | Part 2 |
| **Processes, protocols, and staff training** | | |
| 1. What are the local agency nutrition risk assessment protocols? Describe the standard protocols as delineated in documentation and as observed in practice. | ✓ | |
| 2. Which staff members typically perform nutrition risk assessment in local agencies? Does this vary by local agency characteristics? | ✓ | |
| 3. How do staff determine and document applicable nutrition risk criteria? | ✓ | |
| A. Are all allowable nutrition risk criteria considered during the nutrition assessment? | | ✓ |
| B. How do staff ensure a comprehensive assessment is completed? | | ✓ |
| C. During the nutrition assessment, how do staff clarify when relevant information from the participant is not clear? | | ✓ |
| 4. To what extent is referral information from healthcare providers used in determining nutrition risk? What type of referral information is used? | | ✓ |
| 5. What training do staff receive related to carrying out the nutrition assessment, and how often is this training delivered (i.e., are there refresher trainings)? | ✓ | |
| 6. Prior to the certification visit, what forms or information (e.g., nutrition assessment questionnaires, diet histories, etc.) does the participant provide to inform the nutrition assessment? What, if any, information does the site staff access prior to the certification visit? Prior to conducting the certification, if WIC staff provide participants with forms or surveys to complete at home or while in the participant waiting area, how long does it take for the participant and/or staff to complete this pre-visit information? | ✓ | |
| 7. How do local agencies ensure that the nutrition risk assessment is conducted in a culturally appropriate manner (e.g., in the participant's spoken language, etc.)? | ✓ | |

Table 1-1. Study objectives and research questions (continued)

| Objective 1. Provide in-depth descriptive information on how a large, diverse sample of local WIC agencies perform the WIC nutrition risk assessment. Describe the nutrition risk assessment process as carried out in practice in a variety of WIC clinics. Gather detailed information on staff and client experiences associated with nutrition risk assessment. | Final Report | |
|---|---|---|
| | Part 1 | Part 2 |
| **Integration of technology and tools** | | |
| 8. What tools (nutrition/health questionnaire, review of medical information, diet history, etc.) are used when performing the nutrition assessment? (The Contractor shall collect and collate tools that are used.) | ✓ | |
| 9. How does the WIC Management Information System (MIS) facilitate nutrition assessment and record or store related information? To what extent does the MIS retain information about identified nutrition risks for participants over time? In what ways does it support tracking changes in nutrition risk? | | ✓ |
| **Assessments of breastfeeding and high risk** | | |
| 10. How do staff conduct a breastfeeding assessment? Which staff are responsible for conducting a breastfeeding assessment, and what training do they receive? | ✓ | |
| 11. How do State or local agencies determine which nutrition risk criteria are considered high risk? | ✓ | |
| 12. How do site staff determine if a participant is high risk? | | ✓ |
| 13. What are the protocols for providing nutrition education to high risk participants (e.g., do staff provide an individual care plan? Are participants referred to professional staff?)? | ✓ | |
| 14. How is VENA guidance operationalized in the nutrition assessment process observed at local WIC agencies? | | ✓ |
| **Operationalization of VENA** | | |
| 15. In what ways do local agencies differ in their nutrition assessment processes? How does Value Enhanced Nutrition Assessment (VENA) implementation vary between agencies and how does it impact their nutrition assessment processes? | | ✓ |
| 16. Identify and describe aspects of the nutrition assessment process that do not readily align with VENA guidance. | | ✓ |

| Objective 2. Provide in-depth information to systematically describe how a national sample of diverse local WIC agencies use the collection of nutrition assessment information to tailor Program benefits, including: food packages, nutrition education, breastfeeding promotion and support, and referrals to health and social services. | Final Report | |
|---|---|---|
| | Part 1 | Part 2 |
| 17. How do local agencies use the information obtained in the nutrition assessment to tailor *food packages*? How does the specified nutrition risk(s) impact the food packages prescribed to participants? | ✓ | |
| 18. How do local agencies use the information obtained in the nutrition assessment to tailor *nutrition education*? What elements (content, counseling method, delivery medium, etc.) of nutrition education are modified based on findings from the nutrition risk assessment? | ✓ | |
| A. How are nutrition education topics informed by the nutrition assessment for each participant? | ✓ | |
| B. When a participant has multiple nutrition risks, how are nutrition education topics prioritized? | ✓ | |
| C. How many nutrition risks are typically discussed with a participant? | | ✓ |
| D. How often are identified nutrition risks addressed or directly discussed during nutrition education sessions? | | ✓ |

Table 1-1. Study objectives and research questions (continued)

| Objective 2. Provide in-depth information to systematically describe how a national sample of diverse local WIC agencies use the collection of nutrition assessment information to tailor Program benefits, including: food packages, nutrition education, breastfeeding promotion and support, and referrals to health and social services. | Final Report | |
|---|---|---|
| | Part 1 | Part 2 |
| E. How is the nutrition assessment information used to guide participants in establishing nutrition and health goals? | | ✓ |
| F. Are secondary nutrition education contacts tailored to the participant's nutrition risk(s)? If so, how? | ✓ | |
| G. How do local agencies ensure that nutrition education is provided in a culturally appropriate manner (e.g., in the participant's spoken language, etc.)? | ✓ | |
| 19. Describe the frequency and type of referrals to internal (such as peer counselor or WIC Designated Breastfeeding Expert, or WIC Registered Dietitian) and external health or social services prompted by nutrition risk assessments? | ✓ | |
| 20. In what way does the MIS facilitate the tailoring of program benefits using information from the nutrition risk assessment? | ✓ | |
| 21. At appointments following the initial assessment: | | |
| A. Considering the nutrition goals set or referral services made during the initial nutrition assessment, how do staff follow-up on the identified nutrition risks in follow-up appointments? In what situations do staff routinely follow-up on these goals and/or referrals? In what situations do staff not routinely follow-up on them? | | ✓ |
| B. Are WIC program benefits adjusted based on changes noted with respect to identified risks? | ✓ | |
| C. How is the provision of nutrition education or other program benefits adjusted based on nutrition risks (including those that not addressed in prior appointments during the certification period)? | ✓ | |
| 22. How consistent are the tailoring practices within and across sites? Do identified risks consistently result in similarly tailored benefits? If not, what accounts for the variation observed? | | ✓ |
| 23. How long does it take WIC staff to (1) conduct the nutrition assessment, and (2) provide tailored nutrition education and breastfeeding support, (3) food package prescriptions, and (4) referrals, based on the information gathered in the nutrition risk assessment? What is the total time a participant is at the clinic for a WIC visit, and then specifically, the time it takes for the nutrition assessment and providing benefits? In other words, describe the timing of clinic flow of the nutrition services process. | | ✓ |

**Table 1-1. Study objectives and research questions (continued)**

| Objective 3. Investigate relationships between WIC nutrition services processes (to include the nutrition risk assessment and the associated tailoring of program benefit delivery), and the clinic experience, participant and staff perceptions, and overall clinic flow and efficiency. | Final Report | |
|---|---|---|
| | Part 1 | Part 2 |
| **Staff satisfaction and suggestions for improvement** | | |
| 24. How do staff perceive the nutrition assessment process? What are staff suggestions to improve the nutrition assessment process for tailoring program benefits? | | ✓ |
| 25. What resources do staff utilize when conducting a nutrition risk assessment? Are there technical resources/assistance needed for staff to perform a nutrition assessment and tailor benefits beyond what they currently have available? | | ✓ |
| 26. What associations, if any, are identified between nutrition services processes and staff satisfaction? What associations are identified between nutrition services processes and clinic efficiency (as measured by participant time spent directly engaged with staff and participant time spent waiting to engage with staff)? | | ✓ |
| Participant satisfaction | | |
| 27. Are participants satisfied with their nutrition services experience as a whole, and are they satisfied with each of the various components of nutrition services, including but not limited to satisfaction with nutrition risk assessment? | | ✓ |
| 28. How well do participants feel the services they receive reflect their specific needs and/or concerns? | | ✓ |
| 29. In what ways do participants view the nutrition services as valuable? What are their suggestions for improvement? | | ✓ |
| 30. What associations, if any, are identified between how local agencies conduct the nutrition services process and the clinic experience, including clinic flow and participant satisfaction? | | ✓ |
| 31. What practices, when used in the nutrition assessment process, facilitate a timely delivery of tailored Program benefits (including food packages, nutrition education (including breastfeeding promotion and support), referrals, and follow-ups)? | | ✓ |

| Objective 4. Analyze study findings to identify specific practices or features of nutrition service processes that facilitate the use of nutrition assessment information for providing tailored Program benefits and are associated with participant and staff satisfaction. | Final Report | |
|---|---|---|
| | Part 1 | Part 2 |
| 32. What are the benefits of MIS systems in facilitating nutrition assessment? What features of MIS systems are most effective in facilitating a comprehensive assessment and applying the information to tailored benefits? | ✓ | |
| 33. What are promising practices for clinic flow and time savings involved in the nutrition services process? | | ✓ |
| 34. What are staff and participant suggestions to improve clinic flow? | | ✓ |
| 35. What are promising practices for participant experience, satisfaction, and minimizing participant burden involved in the nutrition services process? | | ✓ |
| 36. What are promising practices for staff satisfaction in the nutrition services process? Which of these practices also minimize staff burden? | | ✓ |

Table 1-1. Study objectives and research questions (continued)

| Objective 5. Describe the nutrition assessment and benefit tailoring processes when conducted remotely and compare these to the same processes as they occur in an in-person setting. | Final Report | |
|---|---|---|
| | Part 1 | Part 2 |
| | | ✓ |

| Objective 6. Investigate participant and staff perceptions of WIC nutrition services when provided remotely and compare these to perceptions observed during in-person WIC services. | Final Report | |
|---|---|---|
| | Part 1 | Part 2 |
| | | ✓ |

## 1.4 Dividing the Study into Final Report Parts 1 and 2

WIC NATS has a tiered study design that has yielded a diverse sample of State agencies, local agencies, WIC clinics, and WIC participants. The study analysis includes the review of WIC State Plans, State and local agency policy and procedure documents, and nutrition assessment tools; analysis of Local Agency Director Survey and state management information system (MIS) administrative data; observation of the nutrition assessment and benefit tailoring process; and interviews with WIC staff and participants about their perceptions of the process. The study team collected observation and interview data for both remote and in-person service delivery. Data collection focusing on remote service delivery was completed in March of 2022; data collection focused on in-person service delivery was completed in the summer and fall of 2022.

As a result of delays in data collection caused by the COVID-19 pandemic, the final report was divided into two stand-alone parts:

**Part 1:** Containing the synthesis of materials (e.g., policy and procedure documents for both remote and in-person services) from State and local agencies to describe the nutrition assessment process and tailoring procedures at the State and local agency levels; the Local Agency Director Survey analysis; and the MIS data analysis.

**Part 2:** Containing the remote and in-person analysis of nutrition assessment processes and benefit tailoring procedures between and within clinics, and analysis of participant and staff perceptions of, and satisfaction with, WIC nutrition services when provided remotely compared to in-person service provision.

## 1.5 Organization of the Report

The remainder of this report starts with a discussion of the study methodology in Chapter 2. Reporting on the results of the analysis is divided into three main topic areas: the nutrition assessment process (Chapters 3 and 4), benefit tailoring (Chapters 5 and 6), and the impact of the COVID-19 pandemic on WIC service delivery (Chapter 7). The report ends with a discussion of

the conclusions and a summary of findings drawn from study results in Chapter 6. Appendixes include the data collection instruments (Appendix A), a list of State and local agency documents reviewed (Appendix B), descriptions of the nutrition assessment and tailoring process for each State agency garnered from State policy and procedure documents (Appendix C), the analytic data tables from the Local Agency Director Survey (Appendix D), nutritional risk code descriptions, crosswalks of education and referral codes, and the MIS data logistic regression analysis methodology (Appendix E), the MIS analytic data tables (Appendix F), and the analysis of MIS data by State agency (Appendix G).

# 2. Study Methodology

To address the study objectives and answer the associated research questions, the study team used a tiered study design to identify a diverse sample of State agencies, local agencies, WIC clinics, and WIC participants. By collecting data at each level, the study team can profile the nutrition assessment process and provide insights into staff and participant satisfaction with both the assessment process and benefit tailoring. This chapter of the report describes the study methodology for those aspects of the analyses completed for the Part 1 report, including the sampling strategy, the primary data sources, data collection activities by data source, the analytic approach by data source, and study limitations.

## 2.1 Sampling Strategy

The goal of the sample design was to select a diverse nonprobability sample[17] of WIC clinics within the contiguous United States and within State agencies that have been transitioned to electronic benefits transfer (EBT) at least 6 months prior to data collection. As shown in Figure 2-1, the study team used a progressive sample selection approach, first selecting 10 State agencies, then 30 local agencies, and ultimately clinics to capture the variation at both the State and local agency level. The sampling strategy for selecting State agencies is described below. How local agencies and clinics were sampled for site visit observations and interviews will be described in the Part 2 report which will analyze data from the sampled local agencies and clinics.

The State agency frame included all eligible State agencies with a fully operational EBT system for at least 6 months prior to the study data collection window.[18] States and territories outside the contiguous United States were excluded from the frame due to resource constraints, as were State agencies engaged in overhauling their MIS during the data collection period. Using WIC annual participation and State Plan data, the study team stratified eligible State agencies on four key variables:

- **FNS region.** The study team selected one State agency from each FNS region plus an additional State agency from the three regions with the largest numbers of eligible State agencies.

[17] Note that because the sample of State agencies was purposively selected (i.e., it is a nonprobability sample), it is not nationally representative. Data from the survey of local agencies within the 10 selected State agencies and the MIS data from the 10 selected State agencies are, therefore, not weighted.

[18] U.S. Department of Agriculture, Food and Nutrition Service. (2020, January). *WIC EBT Detail Status Report*. Alexandria, VA: Author. Available at: https://www.fns.usda.gov/wic/wic-ebt-activities

- **State agency participation level (high or low).** The study team defined high and low participation using the most recent annual participation data available from FNS: https://www.fns.usda.gov/pd/wic-program.

- **Flexibility allowed in tailoring of food packages (high or low).** The study team reviewed WIC State Plans to determine whether the State agency allows local agencies to develop specific individual food package tailoring guidelines (State Plan section IIB, question 2d). The study team defined State agencies that do not allow local agencies to develop tailoring guidelines as low-flexibility State agencies; State agencies that do allow this are defined as high-flexibility State agencies.

- **MIS complexity (high or low).** The study team also assigned MIS complexity using State Plan data. Section IIIC of the State Plan includes a checklist of functional requirements for State agency MISs, which State agencies use to indicate the functions their systems currently perform. The study team counted the number of items on the checklist for each eligible State agency, reviewed the distribution of this count to determine a "cutoff" between high and low complexity systems, and designated each State agency as either high or low MIS complexity.

To select a diverse set of 10 State agencies, the study team placed eligible State agencies into one of eight stratum based on participation (high/low), tailoring flexibility (high/low), and MIS complexity (high/low). The eight strata are shown in Table 2-1. State agencies were randomly selected from each stratum. To maintain geographic diversity, the study team removed the remaining State agencies in an FNS region from the sampling process once a region met its "quota" (i.e., one from each region plus a second from the 3 regions with the largest number of eligible State agencies).

Table 2-1. Strata for selecting State agencies

| Strata | Participation | Tailoring flexibility | MIS complexity |
|---|---|---|---|
| 1 | Low | Low | Low |
| 2 | Low | Low | High |
| 3 | Low | High | Low |
| 4 | Low | High | High |
| 5 | High | Low | Low |
| 6 | High | Low | High |
| 7 | High | High | Low |
| 8 | High | High | High |

The final selection results are shown in Table 2-2. Assigning characteristics to State agencies resulted in two strata (numbers 3 and 4) that were not populated. A third strata (number 8) included a single State agency (Oregon) that declined to participate because they were currently working on updating their MIS. Oregon was replaced with Nevada. Note that none of the analyses in this report identify individual State agencies by name with the exception of tables containing information obtained from the WIC State Plans (data self-reported by the State

agencies) and a review of the top five nutritional risk codes by State agency from the MIS data presented in Section 4.3. State-specific analyses of MIS data is included in Appendix G.

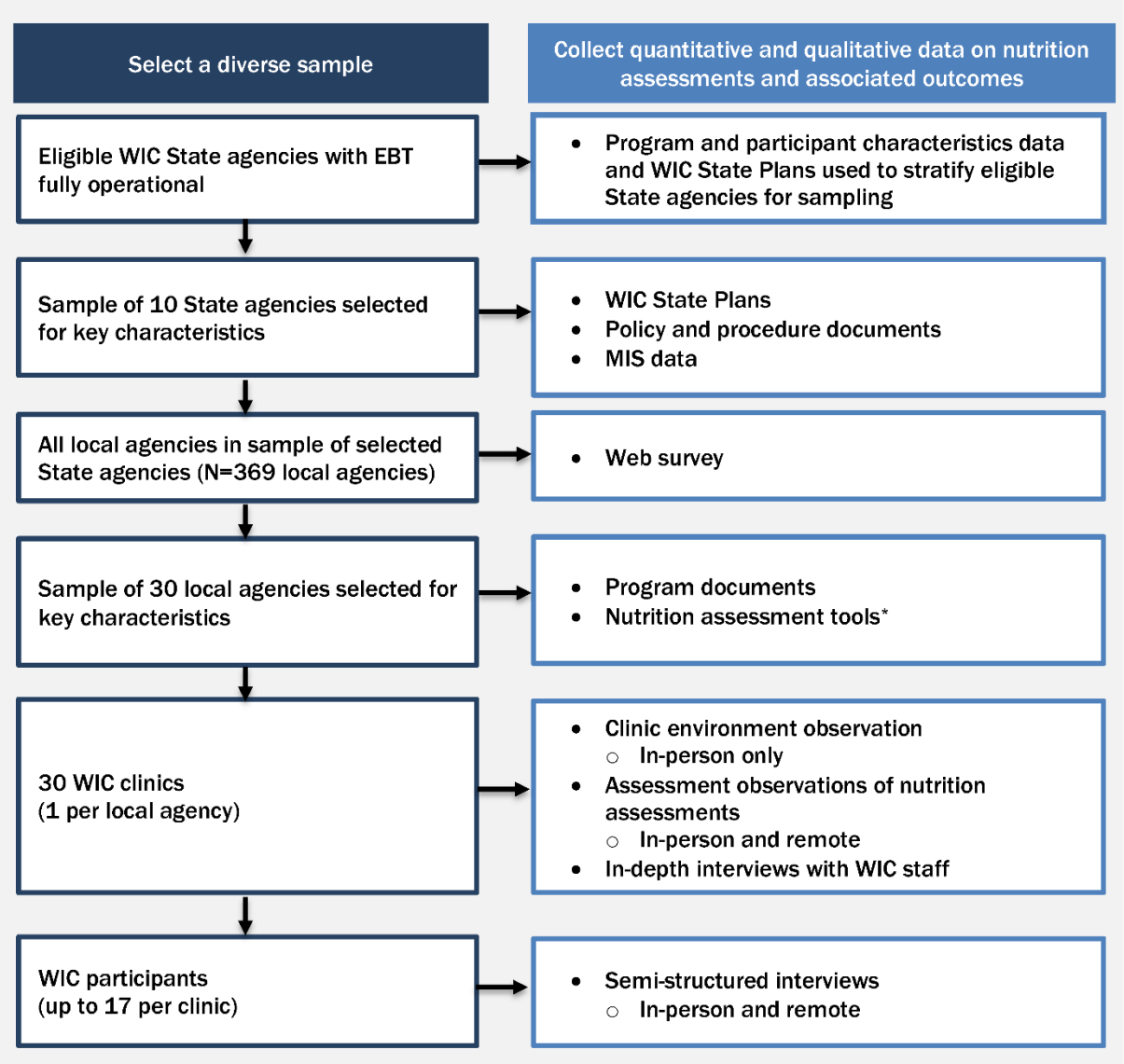
**Table 2-2. Selected State agencies**

| Strata | State agencies selected | State agency region |
|---|---|---|
| 1 | Vermont | Northeast |
| 1 | West Virginia | Mid-Atlantic |
| 2 | Choctaw Nation of Oklahoma* | Southwest |
| 2 | Nebraska | Mountain Plains |
| 2 | Nevada | Western |
| 3 | – | – |
| 4 | – | – |
| 5 | Louisiana | Southwest |
| 6 | Indiana | Midwest |
| 6 | North Carolina | Southeast |
| 6 | Florida | Southeast |
| 7 | Ohio | Midwest |
| 8 | Oregon (replaced by Nevada) | Western |

* Referred to as Choctaw Nation throughout the report.

Figure 2-1 presents an overview of the sampling strategy and the data collection activities associated with each stage of sampling.

Figure 2-1. Overview of sampling and data collection activities




* Nutrition assessment tools include such items as State or local agency-developed health and nutrition questionnaires, and guidance documents on assigning risk codes.

## 2.2 Data Collection

There are three primary data sources for the analysis presented in this Part 1 Final Report: State and local agency policy and procedure documents; the Local Agency Director Survey; and State agency MIS data. This section of the report describes the data collection protocols for each.

### 2.2.1 State and Local Agency Policy Documents

During State and local agency recruitment, the study team obtained WIC State Plans and associated documents and materials that State agencies provide to local agencies as guidance for the nutrition assessment process. The study team obtained State Plan documents from FNS and reviewed State agency websites for posted documents of interest. The study team also requested that State agencies provide any documents they disseminate to their local agencies related to conducting nutrition assessments that were not on their websites. The document request included copies of State agency documents related to the provision of nutrition services, such as their:

- WIC policy and procedure manual;
- State agency training curricula;
- Breastfeeding Promotion and Support Plan;
- MIS user's manual as it relates to participant records and the documenting of nutrition services provided;
- Nutritional risk code list unless they use the standard FNS Nutritional Risk Codes; and
- Additional documentation disseminated to WIC local agencies and clinics related to conducting nutrition assessments and benefits tailoring.

Local agencies were also asked to provide any local agency program documents such as questionnaires completed by applicants and participants, protocols and tools provided to clinics to guide nutrition assessments (including the breastfeeding assessment), and procedures for determination of high risk and benefit tailoring. The study team also asked for any policy or procedure documents provided to clinics for conducting WIC nutrition services remotely under the COVID-19 public health emergency.

### 2.2.2 The Local Agency Director Survey

The Local Agency Director Survey (see Appendix A for a copy of the survey instrument) was fielded in June 2021. The study team invited all 369 local agencies within the 10 recruited State agencies to complete a web survey to capture important variation in the implementation of the nutrition assessment at the local agency level. Overall, 87 percent of local agencies completed the survey, providing information on the following topics addressed by the survey questionnaire:

- Protocols and processes for nutrition assessment;
- The types of staff that perform nutrition assessments;

- Training requirements and procedures;
- Policies on cultural considerations;
- Use of WIC MIS;
- Policies on food package tailoring;
- Identification and treatment of high-risk participants;
- Policies on delivery of nutrition education (customization, modes);
- Type and frequency of referrals made based on the nutrition assessment; and
- Selected local agency characteristics.

Local agency directors were encouraged to share the survey link with other staff at their agencies as needed. However, they were asked to approve and submit the completed survey for their agency. To encourage participation, State agencies sent an email to their local agencies describing the study and asking them to complete the survey. Two reminder emails were sent during the survey period and, in the last week of survey administration, the study team shared a list of local agencies that had not yet responded to the survey with State agencies who agreed to contact their local agencies again and remind them to complete the survey.

The web-based survey included primarily closed-ended questions and took approximately 30 minutes to complete. Skip patterns were programmed into the survey so that respondents were not presented with irrelevant questions. Soft edits within the survey served to remind respondents to answer all questions before moving to the next page or to add specifying text when "Other" was chosen as a response option. The survey contained no hard edits that required the respondent to answer any particular question, as survey participation was voluntary.

Since most local agencies had moved to remote service delivery by the time the survey was administered, the study team provided the following instructions to ensure respondents answered survey questions based on clinic operations prior to the pandemic:

> We understand that changes may have occurred in your processes for conducting nutrition assessments during the COVID-19 pandemic. Please answer these questions based on how your local agency and clinics operated before the pandemic (generally before March 2020), unless otherwise specified.

Table 2-3 presents the Local Agency Director Survey response rate overall and by State agency. As noted above, 87 percent of local agencies completed the survey—ranging from 100 percent in Choctaw Nation, Nebraska, Vermont, and West Virginia to 67 percent in Louisiana. These data include three surveys that were partially complete, in which the respondents answered

at least 32 of the survey's 46 questions. Partially complete responses with less than 32 questions answered were considered incomplete and not included in the analysis dataset.

**Table 2-3. Survey response rate overall and by State agency**

| State agency name | Number of local agencies receiving surveys | Number completed | Percentage completed (%) |
|---|---|---|---|
| Choctaw Nation | 1 | 1 | 100.0 |
| Florida | 44 | 41 | 93.2 |
| Indiana | 39 | 38 | 97.4 |
| Louisiana | 78 | 52 | 66.7 |
| Nebraska | 13 | 13 | 100.0 |
| Nevada | 16 | 12 | 75.0 |
| North Carolina | 84 | 77 | 91.7 |
| Ohio | 74 | 67 | 90.5 |
| Vermont | 12 | 12 | 100.0 |
| West Virginia | 8 | 8 | 100.0 |
| TOTALS | 369 | 321 | 87.0 |

#### Small Cell Sizes

To protect the identities of local agencies whose data are provided in this report, all tables that show survey results have small cell sizes ($n \leq 3$) suppressed. To prevent the suppressed information from being derived from other information, if the table includes row totals, the study team also suppressed the next smallest value. Suppressed cells are noted with a double asterisk.

### 2.2.3 MIS Data

The study team requested and obtained statewide MIS data from State agencies selected for the study to address research questions related to the relationship between nutrition risks and prescribed WIC benefits and the consistency of tailoring practices within and across State agencies. The data request was emailed to State agencies in July 2021 with anticipated initial and final data file due dates of September and November 2021. Data quality review and submission of revised files continued through March 2022.

The study's 10 selected State agencies were asked to provide administrative data for three time periods: January and February 2020 (the pre-pandemic time period), June and July 2020 (early COVID-19), and January and February 2021 (later COVID-19). The requested data included WIC Participant and Program Characteristics (PC) Minimum Data Set (MDS) [19] variables and an additional set of variables focused on nutrition education and referrals collected

[19] WIC PC data summarizes the demographic characteristics of participants in the Special Supplemental Nutrition Program for Women, Infants, and Children nationwide.

at certification or follow-up appointments (see Appendix A for the MIS request instructions and a list of requested variables). The universe included records for participants who participated in a certification appointment or other follow-up appointment at any time during the three time periods. In the data submissions, State agencies included the latest appointment if a participant had more than one appointment in a particular time period (e.g., if a woman came in for appointments in both January and February 2020, data for this participant would reflect any new information collected at the February 2020 appointment).

State agencies operate different MIS platforms, and it was not possible to know in advance whether a consistent set of data elements would be available from all study State agencies. However, there was enough commonality across MIS that one data request specification sufficed. While all the study State agencies had prior experience submitting MDS data for the biennial WIC PC data collection, State agencies' abilities to supply the requested data, particularly the education and referral data, varied. Collaboration with the State agencies ensured uniform data to the greatest extent possible. See Appendix G, Table 1 for the primary ways in which data used in the tailoring analysis differed by State agency.

## 2.3 Analytic Approach

The Part 1 report presents results from a set of analyses that use a combination of both qualitative and quantitative research methods. This section describes the analytic approach by data source.

### 2.3.1 Document Synthesis

The document synthesis is the first step in the study's description of the nutrition assessment process. The synthesis uses data from the latest available[20] WIC State Plans and State agency policy and procedure manuals and related documents to establish a foundational understanding of the nutrition assessment process. The study team used a simple template to capture the following assessment activities from our review of State agency documents:

- Pre-assessment activity to include forms completed by participants and information accessed by staff;
- Assessment introduction;
- Taking anthropometric measurements;

[20] All but one of the WIC State Plans are from 2020; the other was from 2019. The policy and procedure manuals provided by the State agencies are the latest available. Not all documents were dated, but those that were included dates between 2019 and 2021.

- Taking biochemical measurements;
- Referring to medical information/referral information from healthcare providers;
- Completing a health questionnaire/answering health questions;
- Completing a nutrition questionnaire/answering diet questions;
- Breastfeeding assessment (if needed);
- Determining risk(s);
- Engaging the participant in dialogue about identified risk(s); and
- Developing an individual care plan.

In the same manner, the document synthesis characterizes the tailoring of WIC benefits according to the state guidance.

Documents were collected from all study State agencies, although some State agencies had more documents available than others. The documents are listed in Appendix B which includes for each document an assigned document number, the document source, the document title, the document's purpose (i.e., program manual, risk factors), and a brief description of each document's contents. These documents were used to complete the template described above for each State agency. Appendix C contains the completed templates.[21] This analysis focuses on documents that describe policies and procedures before changes to WIC service provision resulting from the COVID-19 pandemic. While some local agency documents were provided to us during the study's remote data collection, almost all had their source as the State agency (these were included in the document synthesis) or were related to COVID-19 procedures (these were not included in the document synthesis). A discussion of how the pandemic changed WIC service provision as described in these documents related to COVID-19 procedures is included in Chapter 6.

### 2.3.2 Local Agency Director Survey Data Analysis

The survey data were examined using univariate descriptive methods (e.g., means, proportions) and bivariate methods (e.g., cross-tabulations). Several survey questions had an "Other (specify)" response option where respondents could write in their response if they did not

[21] Full information was not available from Indiana or Ohio which resulted in less complete templates for these two State agencies.

see a response option that applied to them. Write-in responses were reviewed and either coded into existing response options or used to create new response categories.[22]

Table 2-4 presents the characteristics of survey respondents used in the bivariate analyses as crossing variables—local agency size, number of clinics, and urbanicity. For the local agency size analyses, the study team categorized local agencies by the average monthly caseload: "small-sized" local agencies have an average monthly caseload less than 1,000 participants, "medium-sized" local agencies have caseloads between 1,000 and 4,999 participants, and "large-sized" local agencies have caseloads of at least 5,000 participants. Number of clinics in the local agency divides local agencies into two categories—one clinic and two or more clinics—based on answers to survey question 43 ("How many clinic sites does your local agency operate?"). The team assigned clinics to urban and rural locations using the Economic Research Service's (ERS's) 2010 secondary rural-urban commuting area (RUCA) codes for the ZIP code of the local agency office address. The study team aggregated these codes into two groups (urban vs. rural) using Categorization C from the University of Washington Rural Health Research Center's guidance on how to use the RUCA codes.[23] Differences between categories for each crossing variable were tested for statistical significance at $p \leq 0.05$ using t-tests.

**Table 2-4. Survey analysis crossing variables**

| Crossing variables | Local agencies | |
|---|---|---|
| | Number (n=321) | Percentage (%) |
| **Local agency size** | | |
| Small | 89 | 27.7 |
| Medium | 178 | 55.5 |
| Large | 53 | 16.5 |
| Missing | 1 | 0.3 |
| **Number of clinics** | | |
| 1 clinic | 124 | 38.6 |
| 2 or more clinics | 193 | 60.1 |
| Missing | 4 | 1.2 |
| **Urbanicity** | | |
| Urban | 174 | 54.2 |
| Rural | 147 | 45.8 |
| Missing | 0 | 0.0 |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Percentages may not add to 100 due to rounding.

[22] Data from write-in survey responses should be interpreted with caution, because they were not provided to all local agencies as response options; the counts provided likely underrepresent the number of possible local agency responses.

[23] See the web page https://depts.washington.edu/uwruca/ruca-uses.php. Retrieved on: May 5, 2022.

### 2.3.3 MIS Data Analysis

The study team used MIS data to characterize WIC program tailoring as operationalized by WIC program staff. The study team used descriptive analysis to assess rates of risk assignment and of benefit tailoring (overall and conditional on the presence of risk) using MIS data across all 10 study State agencies and for each of the 10 State agencies individually. The study team used bivariate analysis to examine 1) associations between tailoring outcome variables and nutrition risk(s) assigned to each case; 2) the most frequently assigned risks by local agency characteristics including local agency size, urbanicity, and local agency type (e.g., local Government health department, health clinic); and 3) food package, education, and referral benefits for participant categories conditional on the presence of specific risks (e.g., the percentage of women offered Good Food Choices education who were assigned underweight vs. overweight nutrition risks). Tests for statistical significance were not conducted as the data represent the universe for the 10 selected State agencies.

The study team used multivariate analyses to estimate logistic regression models of the relationship between nutrition risks and benefit tailoring. Specifically, the study team explored two separate simple logistic regression models to estimate the probability of food package tailoring and referral tailoring as a function of the presence of risk.[24]

The study team created the following types of outcome variables for the MIS data analysis:

**Tailored food package indicators:** The study team compiled four indicators of food package tailoring for women and children:

- **Food Package III assignment:** Those with Food Package III.[25] Some participants have special dietary needs that prohibit the use of standard food packages. With medical documentation, these participants are prescribed Food Package III.

- **Milk type:** Those with milk substitutions (e.g., tofu or lactose-free milk) or a milk type assignment not normally assigned to a child of a certain age group (e.g., 1-year-old child prescribed reduced-fat milk or a 2-to-4-year-old child prescribed whole milk).

- **Homeless population substitutions:** Shelf-stable foods such as juice boxes and dry milk meant for those without access to a kitchen or refrigeration.

[24] A one-way analysis of variance (ANOVA) or t-test can also determine whether there is a relationship between risks and tailoring; however, the logistic regression identifies whether there is a statistical relationship and also provides an estimate of the probability of tailoring given the identification of risk.

[25] Food Package III is reserved for women, infant, and child participants who have a documented, qualifying medical condition that requires the use of a WIC-eligible infant formula, exempt infant formula, or WIC-eligible nutritionals because the use of conventional foods is precluded, restricted, or inadequate to address their special nutritional needs. Medical documentation as defined in the regulations is required for Food Package III.

- **MMA:** Those with quantities of items below the standard food package type amounts.[26] The study team divided MMA tailoring into two subcategories:
  - Milk-specific MMA tailoring (more than 75% of women and children had documented milk MMA tailoring); and
  - MMA tailoring for all other food categories, excluding milk (e.g., if the standard food package includes 36 ounces of breakfast cereal for a postpartum, mostly breastfeeding woman, the food package is considered tailored if it includes less than the standard amount of breakfast cereal).

**Nutrition education indicators:** Each State agency provided unique nutrition education codes and available documentation describing those codes.[27] The study team grouped education codes into eight standardized categories plus a "no education" category. (The crosswalk of State agency education codes to standardized education categories is presented in Appendix E.) Dichotomous education indicators were created for each of the education categories defined in Table 2-5.

**Referral indicators:** As with education codes, State agencies provided unique referral codes which the study team grouped into standardized categories. (The crosswalk of State agency referral codes to the standardized referral categories is also presented in Appendix E). Yes/no referral indicators were created for each of the referral categories defined in Table 2-5.

Table 2-5. Education and referral category definitions

| Category | Definition |
|---|---|
| **Education categories** | |
| Breastfeeding | Any education that involved breastfeeding support, concerns, complications, or issues. |
| Good Food Choices | Education that described the benefits and uses of specific WIC foods (e.g., whole grains, juice, yogurt). |
| Physical activity | Education that described any physical activity and/or exercise. |
| Meal planning and prep | Education that mentioned food safety, preparation, labels, shopping, or planning. |
| Medical | Education with any medical implications including smoking, mental health, dental, and other medical language. |
| Feeding children/infants | Education that involved feeding practices such as weaning, using a cup, or picky eating. |
| WIC procedures | Education specific to WIC procedure and practices, such as EBT card use or using the fruit and vegetable cash value benefit. |
| Other education | Any education that did not fit into the above categories. |

[26] See https://www.fns.usda.gov/wic/food-packages-maximum-monthly-allowances. Retrieved on: January 21, 2023.

[27] Nutrition education data elements in the MIS referred to education as "training." This report uses the term "education," but the MIS data tables in Appendix F use the term "training."

Table 2-5. Education and referral category definitions (continued)

| Category | Definition |
|---|---|
| **Education categories** | |
| Any education | The participant was assigned any of the above education types. |
| No education | Specific codes for participants that were not assigned education, such as "no show" or "no education." |
| Missing | Records with no assigned education or no assignment of "no education." |
| **Referral categories** | |
| Breastfeeding | Breastfeeding Peer Counselor (BFPC), International Board Certified Lactation Consultant (IBCLC), or other breastfeeding support staff. |
| Medical | External medical staff such as pediatricians, nurses, or dietitians. |
| Other benefit programs | Supplemental Nutrition Assistance Program, TANF, Medicaid, or other assistance programs that provide financial assistance. |
| Behavioral health | Behavioral health referrals include smoking, substance abuse, or mental health assistance. |
| Other social services | Social services that provide a service (rather than providing financial assistance) such as daycare, transportation, or education. |
| Other | Any referrals that did not fit into the above categories. |
| Any referral | The participant received any of the above referral types. |
| No referral | Specific codes for participants that did not receive a referral, such as "no referral" or "none." |
| Missing | Records with no assigned referral or no assignment of "no referral." |

Source: USDA. FNS, WIC NATS, MIS data request.

## 2.4 Challenges and Steps to Address Them

Successful execution of the study's required tasks to fully meet the research objectives have posed some challenges. However, the study team took steps to address these challenges, resulting in the successful completion of study tasks. The primary challenges encountered to date and our steps to address them are presented in Table 2-6.

Table 2-6. Study challenges and solutions

| Challenge | Solution |
|---|---|
| Minimizing burden on State and local agencies and clinic sites | Excluded State agencies where EBT transition not completed |
| | Included only State agencies that had been fully operational under their current EBT system for at least 6 months |
| | Used PC data and State Plans as sources of study information when possible |
| Ensuring respondents to the Local Agency Director Survey answer the survey questions in terms of operations prior to the pandemic | Revised survey instructions directing respondents to report on operations prior to the COVID-19 pandemic by including the following at the start of each survey section: "Please think back to your local agency's nutrition assessment process and protocols before the COVID-19 pandemic to answer these questions." |
| Encourage survey responses from as many local agencies as possible | Asked State agency directors to follow up with local agencies and encourage survey completion |
| | Provided prompt responses to inquires about the survey from State or local agency staff |
| Support State agencies in the MIS data submission process | Extended timeline for submission/resubmission (i.e., from November 2021 through March 2022) |
| | Provided additional guidance to State agencies to help understand the request and provide the appropriate data |
| Obtaining state institutional review board (IRB) approval when needed | Submitted IRB applications early; approval received in all states prior to receiving Office of Management and Budget (OMB) approval for the WIC NATS in-person data collection |
| | Submitted amendments quickly |
| | Enlisted the help of the WIC State agency when needed |

## 2.5 Limitations

The study design relies on the selection of a nonprobability sample. The goal of the study design is to ensure the selection of a diverse set of State and local agencies in order to capture as much variation in the nutrition assessment and benefits tailoring process as possible. Due to the nonprobability nature of the sample, the study findings are not nationally representative (data are not weighted) and apply only to participating State agencies, local agencies, and WIC clinics. Still, the findings provide valuable insight into the diversity of policies and procedures surrounding WIC nutrition assessment and benefit tailoring.

Data related to education and referral services are not a standard part of the biennial WIC PC data collection. As such, State agencies had some difficulty in providing these data. Education and referral codes differed for each State agency, and based on the amount of missing data, WIC clinics in several State agencies may not routinely enter these data into the MIS. However, large amounts of education and referral data were collected and reviewed. Education and referral codes were categorized into meaningful groupings to allow for uniform analysis across State agencies. The results of these analyses may be considered more exploratory in nature than the nutritional risk and food package tailoring analysis results.

# 3. The Nutrition Assessment Process

**Key Findings**

- The 10 study State agencies adhere closely to WIC Federal regulations in their nutrition assessment policy and procedure documents. However, some variation in policies and procedures does exist. An example is the extent to which Breastfeeding Peer Counselors are included in breastfeeding assessment and support. One State agency's guidance notes that Competent Professional Authorities (CPAs) should conduct breastfeeding counseling and any issues identified should be resolved to the extent possible by the CPA. Another State agency's guidance, however, describes the CPA and breastfeeding support staff working in tandem to provide support to participants.
- While State agencies provide policy and procedure documents for conducting nutrition assessments to their local agencies, local agencies may also create policy and procedure protocols for the WIC clinics they oversee. Approximately one in four surveyed local agencies (26%) created policy and procedure documents on nutrition assessments for their WIC clinics.
- For the majority of surveyed local agencies, RDs/RDNs or nutritionists typically conduct the nutrition assessments, while approximately one-third have nurses conduct the assessments. Significantly more urban compared to rural local agencies, local agencies with two or more clinics compared to one clinic, and large local agencies compared to small and medium local agencies use RDs/RDNs or nutritionists for nutrition assessments.
- The same significant differences were observed in the type of WIC staff conducting breastfeeding assessments by local agency characteristic. Urban local agencies, local agencies operating two or more clinics, and local agencies with a large caseload were significantly more likely to have RDs/RDNs, nutritionists, CLCs, and IBCLCs conduct breastfeeding assessments compared to local agencies in rural areas, those that operate only one clinic, and those that have small caseloads. Rural and small local agencies were more likely to have nurses and clerk/support staff conducting breastfeeding assessments than urban or large local agencies.
- Breastfeeding assessments often result in referrals to Breastfeeding Peer Counselors or WIC breastfeeding experts on staff. Fifty-seven percent of surveyed local agencies reported offering internal referrals to Breastfeeding Peer Counselors to all WIC participants, while 32 percent of agencies indicated they provide Breastfeeding Peer Counselor referrals to WIC participants if needed based on the results of the nutrition assessment. Ten percent of surveyed local agencies noted that Breastfeeding Peer Counselors are not available in their clinics.
- Over 80 percent of local agencies who completed the survey serve participants who speak a language other than English (82%). Spanish is by far the most common non-English language spoken by WIC participants in the surveyed local agencies. The other languages most frequently reported were Arabic, Chinese, Haitian, and Vietnamese. While almost all surveyed local agencies reported using a language line service to communicate with non-English-speaking participants, 47 percent of local agencies also indicated they have bilingual staff on-site.
- Staff training for those who perform nutrition assessments is extensive. Just over half of local agencies (52%) that answered the survey question about training identified 15 or more topical areas included in staff trainings for those who conduct nutrition assessments.
- The FNS Breastfeeding Curriculum "Using Loving Support to Grow and Glow in WIC" is almost universally used for breastfeeding assessment training by surveyed local agencies. Ninety-three percent of surveyed local agencies use the curriculum to train staff that conduct breastfeeding assessments. When asked what additional topics not covered by the curriculum agencies include in their breastfeeding assessment training, 74 percent of local agencies said "none." Of those that did specify additional topics, the topics most frequently reported included breast pump policies and issues and use of social media and apps.

In the VENA Guidance, the WIC nutrition assessment process is defined as follows:

> …the process of collecting and synthesizing nutrition and health information in order to assess an applicant's nutrition and breastfeeding status, strengths, and needs. It is used to determine eligibility, through the identification of nutrition risks, and to personalize WIC nutrition services.[28]

This chapter of the report describes the nutrition assessment process using information from the State and local agency policy and procedure documents and the Local Agency Director Survey.

## 3.1 General Description of the Nutrition Assessment Process

In the review and synthesis of State agency documents, the study team is addressing those research questions related to describing standard nutrition assessment protocols in general and policies and procedures for specific components of the assessment process in particular, such as which staff conduct a breastfeeding assessment (see the research questions listed in Table 1-1). The 10 study State agencies adhere closely to WIC Federal regulations in their policy and procedure documents. The following section provides a general description of assessment activities synthesized from study State agency documents and any variations in State agency guidance revealed by the synthesis. The discussion is divided into eight assessment components:

- Appointment scheduling and pre-assessment activity;
- Assessment introduction;
- Taking anthropometric and biochemical measurements;
- Use of referral information from healthcare providers;
- Gathering health and nutrition information;
- Breastfeeding assessments;
- Determining risks and engaging the participant in a dialogue about identified risk(s); and
- Developing an individual care plan.

[28] U.S. Department of Agriculture, Food and Nutrition Service. (2020). *Value Enhanced Nutrition Assessment (VENA) in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) – Updated guidance* (p. 1). Available at: https://wicworks.fns.usda.gov/sites/default/files/media/document/vena-guidance.pdf.

Note that State agencies often cite VENA Guidance in their policies and protocols. The study team has not tried to recreate that guidance from State agency documents, but it should be understood that VENA Guidance informs all aspects of the nutrition assessment process.

### Appointment Scheduling and Pre-assessment Activity

Appointment scheduling is done with input from the participant and taking into consideration transportation needs, work and school hours, and coordination with other appointments. In accommodating working parents/caregivers, some WIC clinics may provide appointments during the lunch hour, early mornings, evenings, and/or on weekends. Members of the same family are scheduled to attend the WIC clinic at the same appointment time. Some State agencies emphasize offering all applicants and participants same-day appointments and accommodating walk-ins whenever possible.

Prior to the assessment, applicants and participants must submit proof of residency, identity, and income eligibility. Applicants who are currently eligible for Medicaid, the Supplemental Nutrition Assistance Program (SNAP), and/or TANF are adjunctively income eligible for WIC because their incomes have already been screened by these programs. They can submit their Medicaid enrollment card or award letters from these programs instead of income documentation. One State agency's documents indicated that their WIC staff are able to check if an applicant or participant is adjunctively income eligible for WIC by accessing a state database to see if the applicant or participant is currently enrolled in Medicaid, SNAP, and/or TANF. This can be done directly through the WIC program's MIS.

Applicants and participants are usually instructed to bring documentation with them to their first appointment, but in some State agencies they can upload the documentation through an online portal or WIC app. For instance, in one State agency, an online portal allows participants to update health history information, submit electronically signed forms, and upload documents required by WIC staff for certifications before arriving at the WIC clinic. The web application syncs with the State agency's MIS so entered information is transferred automatically to the participant's WIC record.

In another State agency, if an applicant meets the eligibility criteria for WIC, they are asked to fill out a WIC Developmental Milestone Checklist Program (DMCP) checklist(s). The checklists cover infants and children up to age 4 and help engage parents in monitoring their children's development.

Rights and responsibilities may be read by/to an applicant during pre-assessment activities, although this is done at the end of the appointment in some State agencies. WIC staff also provide an explanation of the purpose and scope of the WIC program and of the certification process, which can help minimize misunderstandings about the nature of the program and the benefits it provides. At least one State agency indicated that WIC staff must complete follow-up on participant progress from previous assessments before beginning each nutrition assessment.

### Assessment Introduction

Very little guidance was provided in the reviewed State agency documents about how WIC staff introduce the assessment process to participants. The guidance that was provided came from two State agencies and indicated that a Competent Professional Authority (CPA) should open the session with an engaging greeting, using their name and title. In setting the agenda, they should inform the participant of the length of the appointment and describe what will ensue during the visit. They may involve the participant in agenda setting.

### Taking Anthropometric and Biochemical Measurements

The WIC program uses anthropometric and biochemical measurements in two ways: to screen women, infants, and children for nutritional risks that will make them eligible for program participation and to assess their progress over time. Anthropometric measurements are required to be taken at every certification and at mid-certification for extended certification periods (i.e., 1-year certification periods). One State agency also provided guidance to indicate that in addition to measuring weight and height/length at every certification, infants should have height and weight measured at 6 months of age and pregnant women should be weighed each trimester. Height and weight are measured using the procedures specified in local agency training. Anthropometric measurements can generally be performed by health support staff as well as professional staff. Measurement of head circumference is required by one State agency, but otherwise, when mentioned, it is allowed but not part of the minimum required assessment and is not a Federal requirement. Anthropometric data used for certification must not be more than 60 days old at the time of certification. Measurements taken by a healthcare provider, within 60 days of the appointment, may be used to determine medical and nutrition eligibility.

Hemoglobin or hematocrit tests are completed to screen for iron deficiency anemia. While some State agencies require that blood tests be taken for each certification visit for all participants except infants under 9 months, others allow less frequent blood testing if the previous test was normal. As with anthropometric measurements, blood tests can be performed by both health support and professional staff. Test results may also be obtained from a medical provider, but must not be older than 90 days at the time of certification. When a participant has a low hemoglobin value, State agencies often require WIC staff to make a medical referral.

One State agency emphasized preventing the duplication of the hemoglobin tests for children participating in both WIC and the Head Start or EPSDT (Early and Periodic Screening, Diagnosis, and Treatment) program by indicating that the WIC program should obtain referrals from these programs. A specifically designed referral form is available for this purpose, allowing partners to report hemoglobin or hematocrit readings and the date tests were performed.

Additional assessments (i.e., serum lead level which is not a WIC allowable cost) may be performed and documented to determine nutrition risk but are not part of the minimum required assessment. WIC local agencies must inquire during the nutrition assessment if a child has had a

blood lead screening test. If the child has had a blood lead screening test, the test results are documented. If the child has not had a blood lead screening test, the child is referred to programs where a blood lead screening test can be obtained.

### Use of Referral Information from Healthcare Providers

WIC programs require medical information from a healthcare provider in two instances: 1) applicants who may be harmed by having the hemoglobin test performed can be exempt from testing with medical documentation from a healthcare provider, and 2) participants can receive a Food Package III assignment to receive a WIC formula (infant formula, exempt infant formula, or WIC-eligible nutritionals) when medical documentation from a healthcare provider specifies a qualifying medical condition. Referral data may also be used, but are not required, for anthropometric measurements and blood work if they meet date requirements and for providing additional information related to WIC nutritional risks. Referral information can be obtained by having applicants bring the documented data with them, signed and dated by their healthcare provider, or WIC staff may contact the provider if the applicant agrees to the release of information. One State agency mentioned obtaining medical documentation through an online medical portal. Another has a WIC Program Exchange of Information form which is used to facilitate the exchange of information necessary for WIC certification between a healthcare provider and the local WIC agency. The WIC program staff completes the appropriate parts of the form and has the participant sign it to authorize the exchange of information. WIC staff then forward it to the participant's healthcare provider for completion.

### Gathering Health and Nutrition Information

Gathering information through health and nutrition questionnaires is an important part of the nutrition assessment process for all participants and is completed at each certification visit. Questions are asked appropriate to each participant category, and answers are used to assign risk codes. These questionnaires are generally administered by WIC staff who interview the participant/caregiver by scrolling through a set of screens in the clinic's MIS. However, in one State agency, WIC staff use hard-copy questionnaires to collect this information. In another State agency, participants or caregivers self-administer at least part of the questionnaires using the State's online portal prior to the assessment. The questionnaire is completed by WIC staff during the assessment, who review entered information and ask the remaining questions.

Health questions for pregnant and postpartum women include pregnancy-related conditions, history of pregnancies and birth outcomes, presence of medical conditions, use of substances (tobacco, alcohol, drugs), use of medications (e.g., prescription, over-the-counter, herbal supplements), oral health status, and depression. For infants and children, the health questions include presence of medical conditions, use of medications (e.g., prescription, over-the-counter, herbal supplements), immunization status, oral health status, frequency of physical activity, and

amount of television time. In some states, WIC staff can check the immunization status of children using an electronic interface between the WIC MIS and a state immunization registry. Nutrition questionnaires assess behaviors such as usual eating or feeding pattern, fruit and vegetable consumption, and type of milk/beverages consumed. Additional questions include household information such as household composition, food security, working appliances for food preparation, source of drinking water, homelessness, and migrancy status.

One State agency has an Alcohol Screening and Brief Intervention initiative that screens pregnant WIC participants for alcohol use, provides brief interventions to all who screen positive, follows those receiving brief interventions during pregnancy, and refers them to treatment services.

### Breastfeeding Assessments

WIC State Plans indicate that all 10 study State agencies have established minimum protocols for conducting breastfeeding assessments, for food package prescription and tailoring based on breastfeeding and nutrition assessments, breastfeeding referral criteria, and peer counseling. Breastfeeding assessments are conducted for pregnant women, breastfeeding women, and breastfed infants. For pregnant women, a breastfeeding assessment includes an assessment of the participant's knowledge, concerns, and attitudes related to breastfeeding and their support systems for breastfeeding. Prenatal education is provided based on this assessment. For breastfeeding women, breastfeeding assessment and support includes assessment of the participant's knowledge and experiences as soon as possible after delivery, counseling and education to promote exclusive breastfeeding until appropriate timing for addition of solid foods, and support for returning to work or school.

The extent to which BFPCs are included in breastfeeding assessment and support can differ by State agency. One State agency provides guidance that notes, "Breastfeeding counseling shall be performed by the CPA prenatally and in all postpartum visits in which breastfeeding is ongoing. Issues identified shall be resolved to the extent possible by the CPA and shall not automatically be delegated to the Breastfeeding Coordinator or Peer Counselor." Another State agency's guidance describes the CPA and breastfeeding support staff working in tandem to provide support to participants, noting, "Before assessment and counseling, the BFPC or other breastfeeding staff is to review the Medical and Nutrition History screen sections, nutrition risk reasons, and CPA's notes. If the BFPC or other breastfeeding staff sees the participant first, the CPA needs to read the information documented by the breastfeeding staff. Any significant health concerns, food package considerations, or any discrepancy in information is to be discussed between the CPA and the BFPC or other breastfeeding staff."

In one State agency, breastfeeding assessments include the Breastfeeding Assessment Prediction Tool (BAPT) which is completed at the initial WIC prenatal certification visit for all women intending to breastfeed or who are undecided. Women are given the hard-copy survey to

complete after the nutrition interview. The tool helps WIC staff assess a participant's breastfeeding knowledge, support, and confidence.

### Determining Risks and Engaging the Participant in a Dialogue about Identified Risk(s)

When conducting a nutrition assessment, WIC staff must identify and assign all nutritional risks for which an applicant/participant qualifies. FNS produces a master list of approved risk codes that State agencies can use.[29] Once weight and height/length, hemoglobin or hematocrit, and responses to the health and nutrition interview questions are entered, the MIS will auto-assign any risk codes based upon these data.[30] Auto-assigned risk codes are reviewed for accuracy, and the WIC CPA manually assigns any additional risk codes that apply. For some State agencies, the MIS will automatically designate a participant as high risk if a code designated as high risk, per State agency policy, is assigned to the participant. CPAs may also identify any participant as high risk when professional judgment deems it necessary, based upon a combination of low-risk factors or other special circumstances.

To help CPAs assign risk codes, State agencies in this study provided risk code sheets that list the risk codes deemed acceptable by the State agency. Generally, each participant category has its own risk code sheet. The sheet provides a description of the code and, when needed, lists the criteria for assigning the code. The risk code sheet also indicates the criteria for labeling a risk code as high risk. There is some variation in the risk code lists provided by State agencies, including:

- Whether or not the State agency includes code 501—possibility of regression—on its list of acceptable risk codes; and
- Whether nutritional risks are indicated with general three-digit codes or more specific four-digit or five-digit codes. For example, most states use the code 344 for thyroid disorders. With five-digit codes, CPAs can code thyroid disorders as 344.01—hypothyroidism, 344.02—hyperthyroidism, and 344.03—other thyroid disorders.

One State agency has an Excel spreadsheet that lists risks codes with the following information: participant category, a text description of the code, whether or not the code is auto-assigned by the State agency's MIS, whether the code is an indicator of high risk, the priority level associated with the code (1-6), a "nutrition explanation" or definition for each code, whether the system requires a comment when the risk code is selected, and whether the system requires a referral when the risk code is selected. Of the 285 risk codes used by the State agency

[29] See WIC Policy Memorandum 2011-5. Available at: https://www.fns.usda.gov/wic/nutrition-risk-criteria.

[30] State Plan data indicate that all State agencies except Ohio have MIS systems with automated functionality that includes assigning six or more risk codes for each participant. Data obtained from State Plan Section III (Management Information System), Part C – WIC Systems Functional Requirements Checklist.

across all participant categories, 185 are auto-assigned by the MIS and 100 are assigned by the WIC CPA. A comment must be entered with 117 of the risk codes, and 92 require a referral be made (of these, 67 are to a high-risk nutritionist;[31] the remaining are referrals to health providers, the Breastfeeding Coordinator or Peer Counselor, and child welfare).

WIC staff use a participant-centered approach to engage participants in dialogue about their identified risks. This participant-centered approach emphasizes face-to-face interaction to build rapport, encourages probing to clarify information, and allows comments and reactions to flow smoothly between WIC staff and participants/caregivers. One State agency has revised its MIS assessment questions to assist WIC staff in asking probing questions. For example, the question "What questions or concerns do you have about your health, weight, diet, or breastfeeding?" was replaced with the question "What is one nutrition or health topic or question that you want to make sure we discuss today?" These changes were designed to lower the number of participants who respond "none" to assessment questions. WIC staff must use their communication skills to foster openness and rapport with participants/caregivers. They must be careful to avoid "labeling" participants; one State agency's guidance suggests avoiding the use of the term "high risk" when talking to participants/caregivers and speaking to them about the need for follow-up instead.

### Developing an Individual Care Plan

Individual care plans, often referred to as nutrition care plans, may be required for all participants or for high-risk participants only. When not required, individual care plans are provided to selected participants based on nutritional risk, priority level, CPA discretion, and/or participant request (see Table 3-1). Two State agencies indicated in their WIC State Plans that a healthcare provider's prescription could also result in an individual care plan being provided to a participant.

WIC State Plans document the components that may or must be part of individual care plans developed by WIC staff. State agencies most often mandate that individual care plans include "a plan for follow-up" and demonstrate "a practical relationship to a participant's nutritional needs, household situations, and cultural preferences" (8 State agencies each; see Table 3-1). Seven State agencies also require WIC staff to include "identification of nutrition-related problems" and "nutrition education and breastfeeding support" in their individual care plans. Half or fewer of State agencies require "documentation of completing the care plan" (5 agencies), "an individualized food package" (4 agencies), "referrals" (3 agencies), and "timeframes for completing the care plan" (1 agency). Two State agencies specified goals as another required component of an individual care plan.

[31] The five most common risk codes in the cited State agency that require a referral to a high-risk nutritionist are "underweight (infant)," "gastrointestinal disorders," "diabetes mellitus," "genetic and congenital disorders," and "slow/faltering growth pattern."

Table 3-1. Characteristics of individual care plans

| | Choctaw Nation | Florida | Indiana | Louisiana | Nebraska | Nevada | North Carolina | Ohio | Vermont | West Virginia |
|---|---|---|---|---|---|---|---|---|---|---|
| **A 3e. An individual care plan is provided based on:** | | | | | | | | | | |
| Nutritional risk | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ |
| Priority level | ✓ | ✓ | ✓ | | | ✓ | | | | |
| Healthcare provider's prescription | | ✓ | | ✓ | | | | | | |
| Competent Professional Authority (CPA) discretion | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | | ✓ |
| Participant request | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | | ✓ |
| Other, specify | | | | | ✓, Required for all participants | | ✓, Required for all participants | | | |
| **A 3f. Individual care plans developed either *may* or *must* include the following components:** | | | | | | | | | | |
| Individualized food package | May | May | Must | May | May | May | Must | Must | May | Must |
| Identification of nutrition-related problems | May | May | Must | Must | May | Must | Must | Must | Must | Must |
| Nutrition education and breastfeeding support | May | Must | Must | Must | May | Must | Must | Must | May | Must |
| A plan for follow-up | May | Must | Must | May | Must | Must | Must | Must | Must | Must |
| Referrals | May | May | Must | May | Must | May | May | May | May | Must |
| Timeframes for completing care plan | May | May | May | May | | Must | May | May | May | May |
| Documentation of completing care plan | May | Must | Must | May | | Must | May | Must | May | Must |
| A practical relationship to a participant's nutritional needs, household situations, and cultural preferences | May | Must | Must | Must | Must | May | Must | Must | Must | Must |

Table 3-1. Characteristics of individual care plans (continued)

| | Choctaw Nation | Florida | Indiana | Louisiana | Nebraska | Nevada | North Carolina | Ohio | Vermont | West Virginia |
|---|---|---|---|---|---|---|---|---|---|---|
| Other, specify | | May, Documentation of medical diagnosis or what action will be taken to obtain documentation of medical diagnosis | | | | Must, One nutrition-related goal | Must, Goals | | | |

Source: 2020 WIC State Plans, Section II (Nutrition Services), Q A 3e and 3f for all study State agencies except Louisiana whose State Plan is dated 2019.

### The Provision of Culturally Competent Services

The study team also examined policies and procedures for information related to the provision of culturally competent services, and discovered that State agencies generally do not include specific policies and procedures in this area beyond requirements for service provision in non-English languages when needed by a significant proportion of the population served and the provision of clinic forms and program information in languages used by WIC participants. These types of requirements were found in 6 of the study's 10 State agencies' program manuals, although complete program manuals were not available for all study State agencies. The Local Agency Director Survey results provide additional information on the provision of culturally competent services.

## 3.2 Nutrition Assessment Process Details at the Local Agency and Clinic Level

The Local Agency Director Survey, which was sent to all local agencies within the study's 10 State agencies, included questions related to the nutrition assessment process in five areas:

- Protocols created by local agencies for the WIC clinics they oversee (research questions 2, 4, 6, 7, and 8 in Table 1-1);
- Nutrition assessments for high-risk participants (research questions 11 and 13 in Table 1-1);
- Breastfeeding assessments (research question 10 in Table 1-1);
- Cultural competency of service provision (research question 7 in Table 1-1); and
- Staff training (research questions 5 and 10 in Table 1-1).

Survey results by question are presented in Appendix D. The appendix tables show differences by urbanicity, number of clinics associated with the local agency, and local agency size. Statistically significant differences between subgroups of interest were assessed using t-tests. The report presents results significant at $p \leq 0.05$. Note that as discussed in Chapter 2, the study's sample is a nonprobability sample and is not nationally representative. The results reflect the nutrition assessment process in our 10 selected State agencies only.

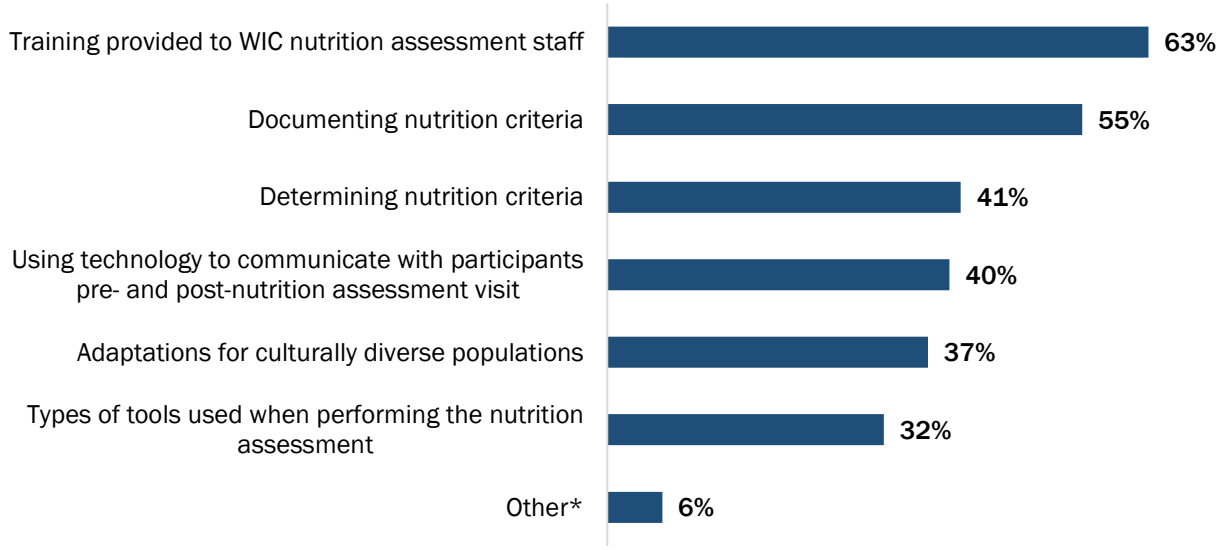
### 3.2.1 Process and Protocols at the Local Agency and Clinic Level

While State agencies provide policy and procedure documents for conducting nutrition assessments to their local agencies, local agencies may also create policy and procedure protocols for the WIC clinics they oversee. Approximately one in four surveyed local agencies created policy and procedure documents on nutrition assessments for their WIC clinics in

addition to those they received from the State agency (26%; see Appendix D, Table 1). This did not vary by urbanicity, number of clinics, or local agency size.

Among the local agencies that created policy and procedure documents for nutrition assessments, most report they created protocols related to training provided to WIC nutrition assessment staff (see Figure 3-1). Fifty-five percent of local agencies created protocols for *documenting* nutritional risk criteria, while approximately two in five created protocols for *determining* nutritional risk criteria or using technology to communicate with participants about the nutrition assessment pre- and post-visit.

**Figure 3-1. Topics covered by local agencies' nutrition assessment protocols, among those who have created policy and procedure documents on nutrition assessments**




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 2 (n=78). See Appendix D, Table 1. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Due to a survey skip pattern, n represents only those local agencies who reported creating nutrition assessment protocols; these respondents selected all that apply.

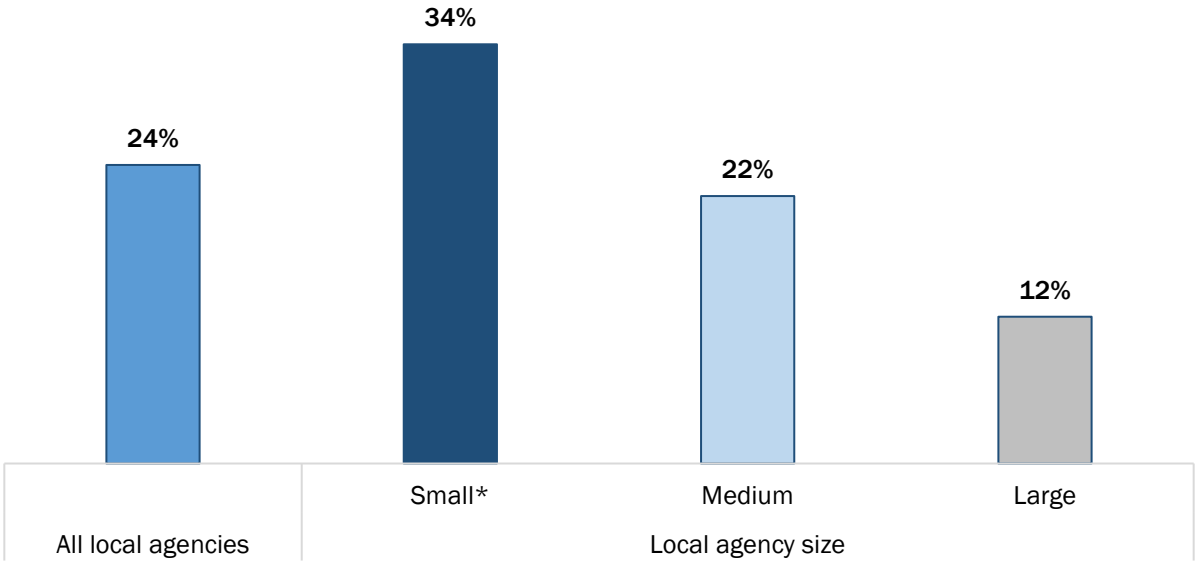
* Examples of "other" include blood work protocols and high-risk follow-up procedures.

Significantly more urban than rural local agencies created policy and procedure documents for their WIC clinics related to determining nutritional risk criteria (51% vs. 27%; see Appendix D, Table 1). No other significant differences in the types of protocols local agencies create were observed by urbanicity, by number of clinics, or by local agency size.

WIC staff collect nutrition and health information for the nutrition assessment process. This is done in a variety of ways, one of which is to ask participants to complete forms prior to their appointment. About one in four surveyed local agencies ask participants to complete forms prior to a nutrition assessment appointment (24%). Significantly more small local agencies ask

participants to complete forms prior to the assessment appointment compared to medium and large local agencies (see Figure 3-2).

**Figure 3-2. Percentage of local agencies that ask participants to complete forms prior to nutrition assessment appointments, overall and by local agency size**



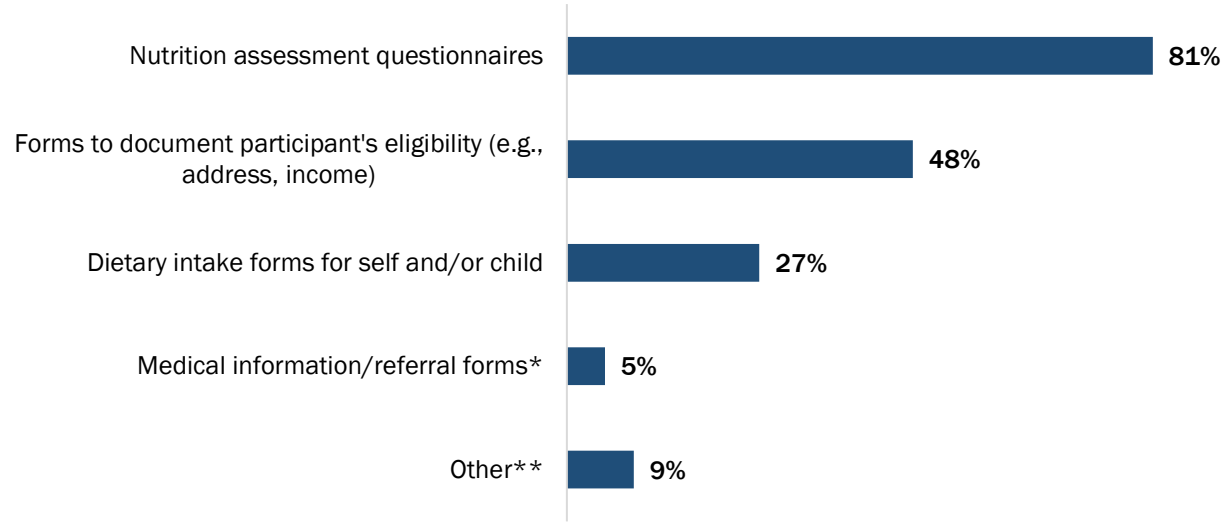

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 3. n: all local agencies=318, small=89, medium=177, large=51. See Appendix D, Tables 2 and 71. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

* Differences between small and medium local agencies and between small and large local agencies are significant at $p \leq 0.05$.

Of the local agencies that ask participants to complete forms prior to their nutrition assessment (n=75), most ask for the participants to complete a nutrition assessment questionnaire (see Figure 3-3). Approximately half of the local agencies ask participants to complete forms documenting their program eligibility (e.g., address, income), while 27 percent ask participants to complete dietary intake forms.

**Figure 3-3. Percentage of local agencies that ask participants to complete each type of form prior to nutrition assessment appointments, among those that ask participants to complete any forms prior to the appointment**




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 4 (n=75). See Appendix D, Table 2. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Due to a survey skip pattern, n represents only those local agencies who reported asking participants to complete forms prior to the appointment; these respondents selected all that apply.

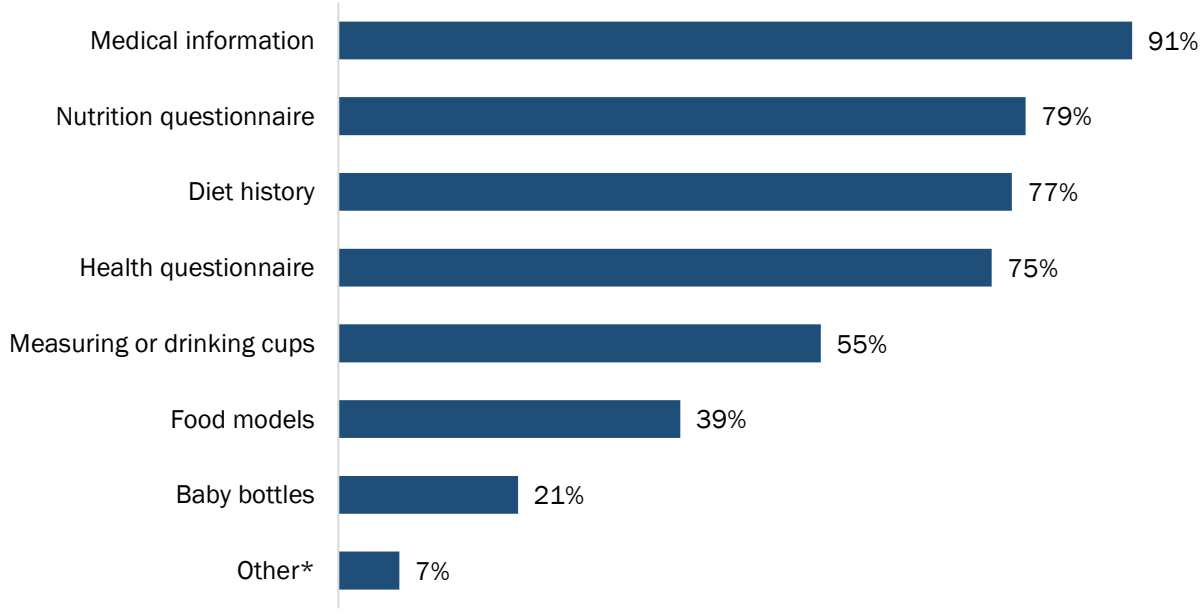
*Created based on write-in responses to "Other (please specify)."

**Examples of other include a milestone checklist and voter registration forms.

Significantly more small (53%) than large (17%) local agencies ask WIC participants to complete forms to document their eligibility prior to their nutrition assessment appointment. No differences emerged in the types of forms participants were asked to complete by urbanicity or number of clinics.

When asked what types of tools staff utilize to conduct the nutrition assessment, most of the surveyed local agencies indicated that their staff use medical information, nutrition questionnaires, diet histories, and health questionnaires to conduct nutrition assessments (see Figure 3-4). Slightly over half of local agencies use measuring or drinking cups as tools during nutrition assessments. Food models and baby bottles are used less frequently.

**Figure 3-4. Tools local agencies report using to conduct the nutrition assessment**




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 5 (n=311). See Appendix D, Table 3. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

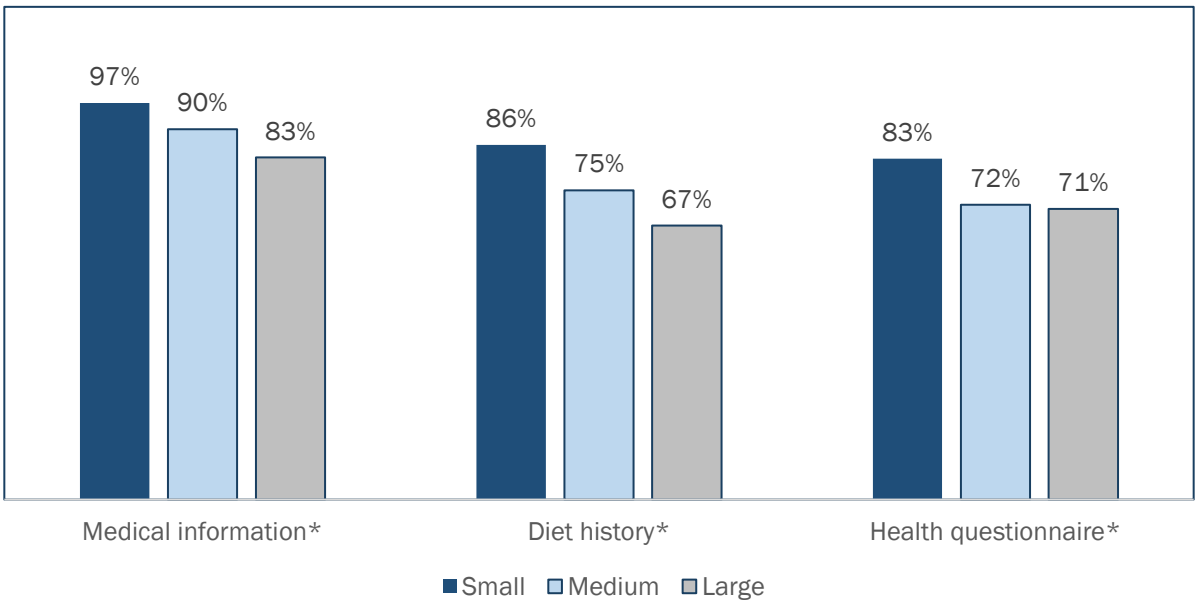
Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

* Examples of other responses include posters, handouts, educational websites, breastfeeding questionnaire/models, belly balls, and tooth decay models.

Significantly more small local agencies use medical information and diet history to conduct nutrition assessments compared to medium and large local agencies (see Figure 3-5). Similarly, significantly more small local agencies use health questionnaires than medium local agencies. There were no significant differences in the types of tools used by urbanicity or number of clinics.

**Figure 3-5. The use of medical information, diet history, and health questionnaires to conduct nutrition assessments, by local agency size**




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 5 (n: small=88, medium=174, large=48). See Appendix D, Table 72. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

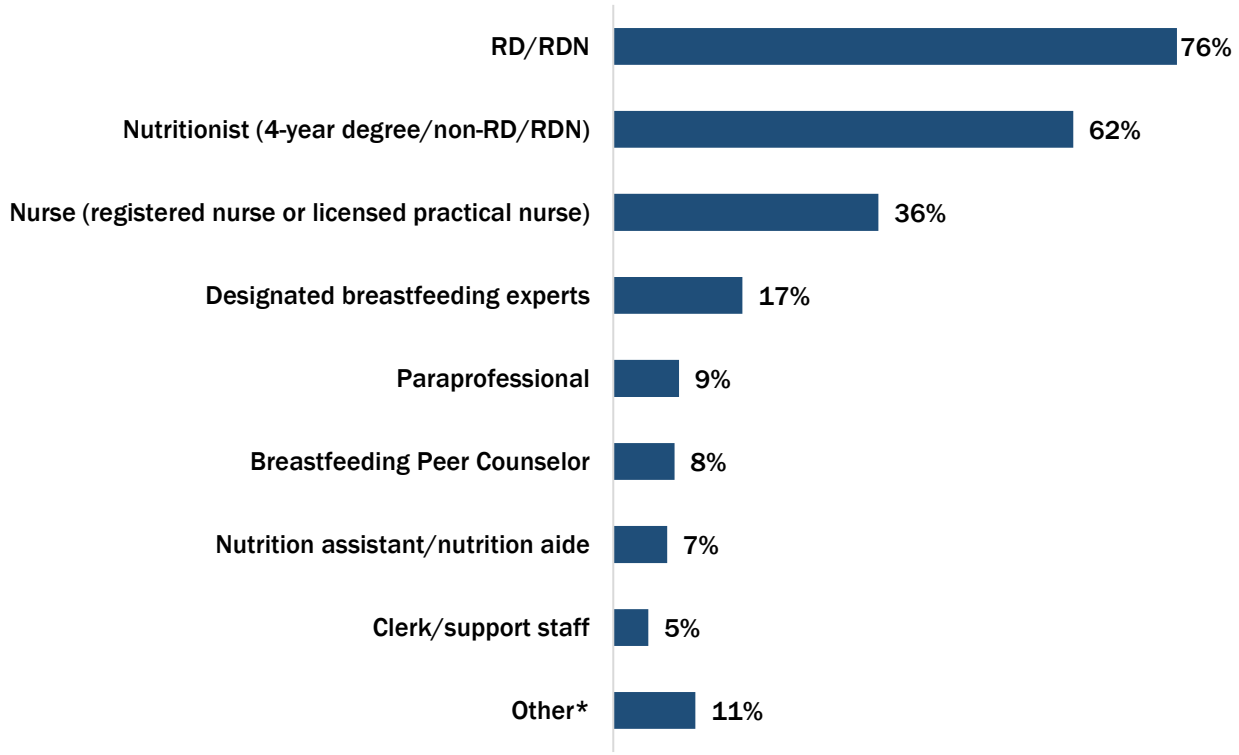
Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

* Differences between small and medium local agencies for use of medical information, diet history, and health questionnaires are significant at p≤0.05; differences between small and large local agencies are significant at p≤0.05 for use of medical information and diet history.

For the majority of surveyed local agencies, registered dietitians (RDs)/registered dietitian nutritionists (RDNs) (76% of surveyed local agencies) or nutritionists (62% of surveyed local agencies) typically conduct the nutrition assessments, while approximately one-third have nurses (either registered nurses or licensed practical nurses) conduct the assessments (see Figure 3-6). A small percentage of local agencies indicated that paraprofessionals, nutrition assistants/aides, or clerk/support staff perform nutrition assessments. These local agencies likely use these staff to perform some part of the nutrition assessment, not the service as a whole.

Figure 3-6. Percentage of local agencies reporting which WIC staff perform nutrition assessments




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 6 (n=318). See Appendix D, Table 4. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

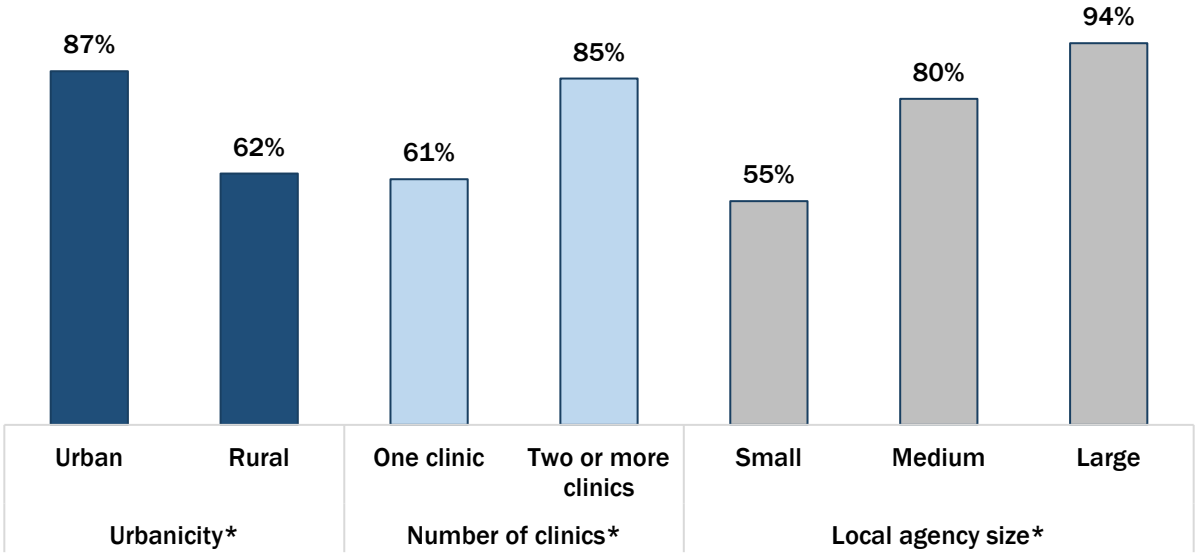
Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

* Examples of "other" responses include registered dietetic technician and health educators.

Significantly more urban compared to rural local agencies, local agencies with two or more clinics compared to one clinic, and large local agencies compared to small and medium local agencies use RDs/RDNs or nutritionists for nutrition assessments (see Figure 3-7).

Figure 3-7. Percentage of local agencies who use RDs or RDNs to conduct nutrition assessments, by urbanicity, number of clinics, and size of local agency




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 6 (n: urban=171, rural=147, one clinic=124, two or more clinics=190, small=89, medium=178, large=50). See Appendix D, Tables 4, 39, and 73. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

* All differences shown in this figure are significant at p≤0.05.

In contrast, significantly more rural local agencies use nurses to conduct nutrition assessments compared to urban local agencies (46% vs. 27%). Similarly, significantly more small local agencies use nurses compared to medium and large local agencies (57% vs. 30% and 16%, respectively). The difference between the percentage of medium-sized local agencies using nurses compared to large local agencies was also significant (see Appendix D, Tables 4 and 73).

Surveyed local agencies were also asked whether (and under what circumstances) staff can modify WIC program benefits (e.g., food packages, nutrition education) between certification appointments and how staff prioritize nutrition education topics for participants with multiple nutritional risks. Almost all (98%) local agencies allow modifications to WIC program benefits based on changes to participants' risks between certification appointments. These modifications are allowed when a participant brings a new risk to staff's attention (93% of local agencies), if staff note changes to the risks identified during the initial assessment (85%), or when a nutritional risk was previously identified but not addressed in prior appointments (72%).

While almost all surveyed local agencies allow staff to modify benefits between certification appointments based on new risks regardless of local agency size, significantly more large than small local agencies allow staff to modify benefits between certification appointments based on changes to risks that staff identified in the initial assessment (93% vs. 80%) or based on risks that

were previously identified but not addressed in prior appointments (81% vs. 65%) (see Table 3-2).

**Table 3-2. Whether local agencies allow WIC staff to modify WIC program benefits without a new nutrition assessment, by local agency size**

| Without a new nutrition risk assessment, can staff modify WIC program benefits based on changes to participants' risks between certification appointments? | Percentage of local agencies | | |
|---|---|---|---|
| | Small (n=89) | Medium (n=177) | Large (n=53) |
| Yes, staff may modify benefits based on new risks that a participant brings to their attention | 89.9 | 93.2 | 94.3 |
| Yes, staff may modify benefits if they note changes to the risks identified in the initial assessment | 79.8* | 84.7 | 92.5 |
| Yes, staff may modify benefits to address nutrition risks that were previously identified but not addressed in prior appointments | 65.2* | 71.8 | 81.1 |
| No, staff may not modify benefits until the participant is recertified | 3.4 | 1.1 | 1.9 |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 33 (n: small=89, medium=177, large=53). See Appendix D, Table 92. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

* Differences between small and large local agencies are significant at p≤0.05.

Compared to rural local agencies, significantly more urban local agencies allow staff to modify WIC benefits between certification appointments to address risks that were previously identified but not addressed in prior appointments (64% vs. 78%). No differences emerged by number of clinics operated by the local agency (see Appendix D, Tables 23 and 58).

If a participant has multiple nutritional risks, over 90 percent of surveyed local agencies report that staff use their professional judgment to prioritize the nutrition education topics they cover with participants (92%) or prioritize topics based on the participant's expressed needs and concerns (91%). Fewer than one in four have a protocol for prioritizing nutrition education topics when participants have multiple risks (23%). A small percentage of local agencies indicated their staff use a State agency protocol to prioritize topics for nutrition education (2%) (see Table 3-3).

Significantly more local agencies that operate two or more clinics compared to those with just one clinic prioritize nutrition education topics based on the participant's expressed needs and concerns (94% vs. 86%; see Table 3-3). Similarly, significantly more large local agencies have their staff prioritize nutrition education topics based on the participant's expressed needs and concerns compared to small local agencies (96% vs. 87%; see Appendix D, Table 89). No differences emerged by urbanicity.

Table 3-3. Staff prioritization of nutrition education topics based on participants' expressed needs and concerns

| How do staff prioritize nutrition education topics for participants with multiple risks? | All local agencies (%) (n=321) | Local agencies with one clinic (%) (n=124) | Local agencies with two or more clinics (%) (n=193) |
|---|---|---|---|
| Professional judgment of nutrition assessment staff | 91.9 | 91.9 | 91.7 |
| Participant's expressed needs and concerns | 90.7 | 85.5* | 93.8 |
| Local agency protocol | 23.1 | 22.6 | 23.3 |
| State agency protocol# | 1.9 | ** | 2.6 |
| Other | 1.6 | 0.0* | 2.6 |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 30. See Appendix D, Tables 20 and 55. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

* Differences between one clinic and two or more clinics are significant at p≤0.05.

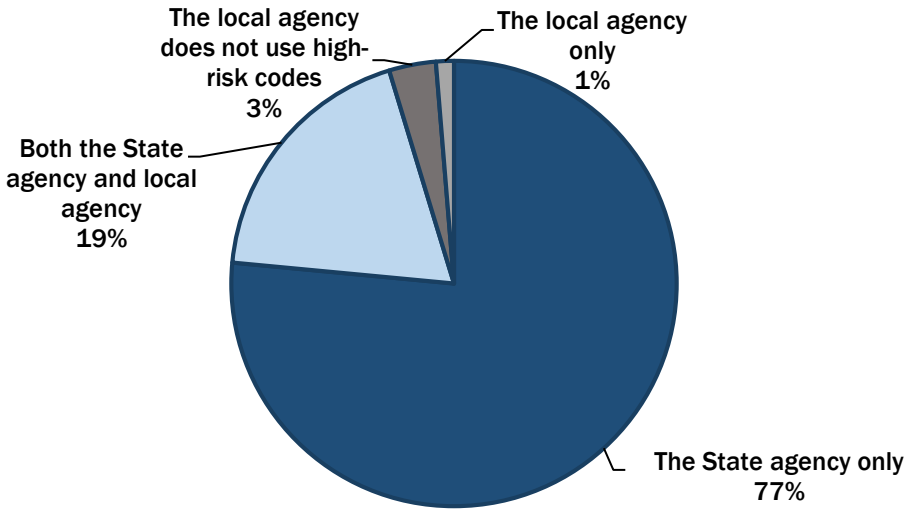
# Created based on write-in responses to "Other (please specify)."

**Data are not reported due to small cell size.

### 3.2.2 Nutrition Assessments of High-Risk Participants

State agencies often give special consideration to high-risk participants in providing WIC nutrition services in terms of the qualifications of the staff who can serve them and the number and type of nutrition education contacts they are offered. Which nutritional risk criteria are considered high risk can differ across local agencies. Most surveyed local agencies (77%) reported that their State agency determines which nutritional risk criteria are high risk (see Figure 3-8). In approximately one out of five local agencies (19%), both the State agency and the local agency have input into which nutritional risk criteria are considered high risk. Only a very small percentage of local agencies (1%) determine by themselves which nutritional risk criteria are considered high risk. Another 3 percent do not use high-risk codes, possibly because they do not have staff with the required qualifications to serve this group; a State agency director noted this was the case in her state.

Figure 3-8. Percentage of local agencies reporting whether the State agency or the local agency is responsible for determining which nutritional risk criteria are high risk




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 11 (n=319). See Appendix D, Table 8. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Percentage totals may not add to 100 due to rounding.

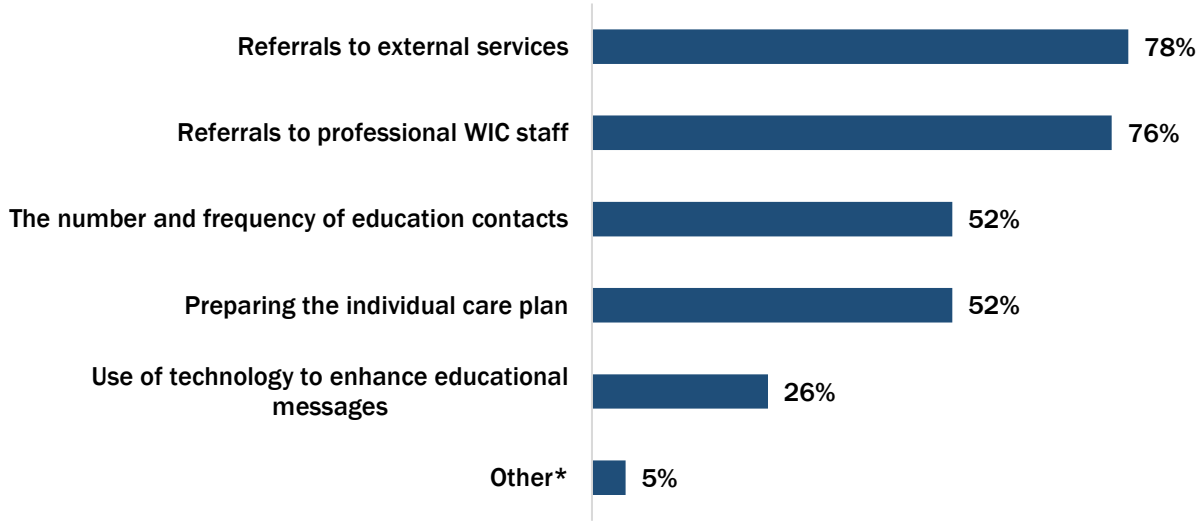
Survey responses varied significantly only by local agency size. Ninety percent of large local agencies indicated that their State agency determines which nutritional risk criteria are considered high risk (see Appendix D, Table 77). The remaining 10 percent of large local agencies said this responsibility was shared by the State and local agencies. No large agencies indicated they make this determination on their own or do not use high-risk codes. Medium-sized local agencies differed significantly from both small and large agencies in how they answered this question. They were less likely to report that only the State agency determines which nutritional risk criteria are considered high risk and more likely to report that both State and local agencies determine this.

Approximately one-quarter of surveyed local agencies (26%; see Appendix D, Table 9) develop processes and protocols for providing nutrition education to high-risk participants that are in addition to those described in their state policy and procedure manual. No significant differences were found in the results for this question by urbanicity, number of clinics, or local agency size.

Among local agencies that created protocols for high-risk participants, approximately three in four created protocols around referrals to external services (78%) or referrals to professional WIC staff (76%), while slightly over half of the local agencies (52%) created protocols for

preparing individual care plans for high-risk participants and the number and frequency of education contacts (see Figure 3-9).

**Figure 3-9. Local agency processes and protocols for providing nutrition education to high-risk participants, among those that have created these processes and protocols**




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 13 (n=82). See Appendix D, Table 9. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Due to a survey skip pattern, n represents only those local agencies who reported creating processes and protocols for providing nutrition education; these respondents selected all that apply.

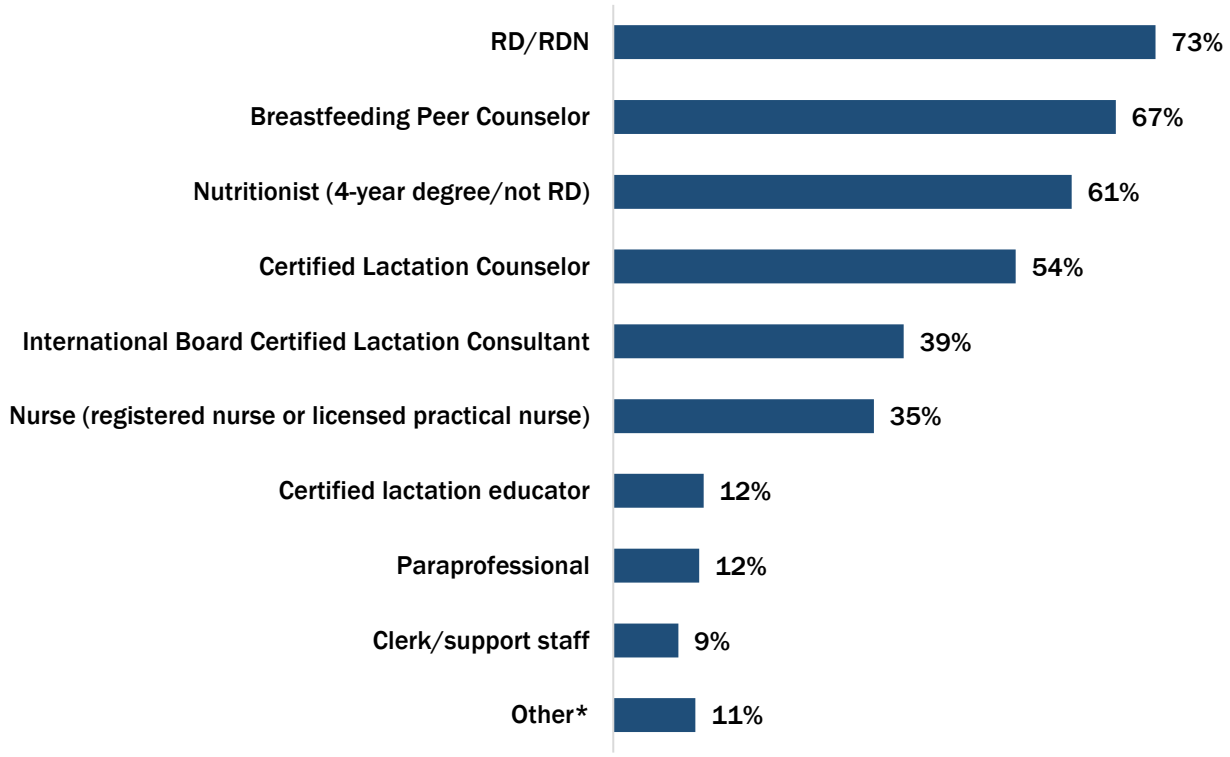
* Examples of "other" responses include timelines for educational contacts, monitoring of high-risk services, and cross-departmental care planning.

### 3.2.3 Breastfeeding Assessments

Breastfeeding assessments are expected to be done at certification for pregnant women, breastfeeding women, and breastfed infants. Most commonly, RDs/RDNs (in 73% of surveyed local agencies), BFPCs[32] (67%), nutritionists (61%), and Certified Lactation Counselors (CLCs) (54%) conduct breastfeeding assessments (see Figure 3-10). As with the nutrition assessment, small percentages of local agencies indicated that paraprofessionals and clerk/support staff perform breastfeeding assessments. Most likely, local agencies use these staff to perform some part of the breastfeeding assessment such as gathering initial information, but not the assessment as a whole.

[32] Breastfeeding Peer Counselors give basic breastfeeding information and support and refer to a WIC-Designated Breastfeeding Expert for assistance with problems outside of the peer counselor's scope of practice.

Figure 3-10. Percentage of local agencies reporting which WIC staff perform breastfeeding assessments




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 14 (n=321). See Appendix D, Table 10. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

* Examples of "other" responses include Certified Lactation Specialist, dietetic technician, and nutrition/health educator.

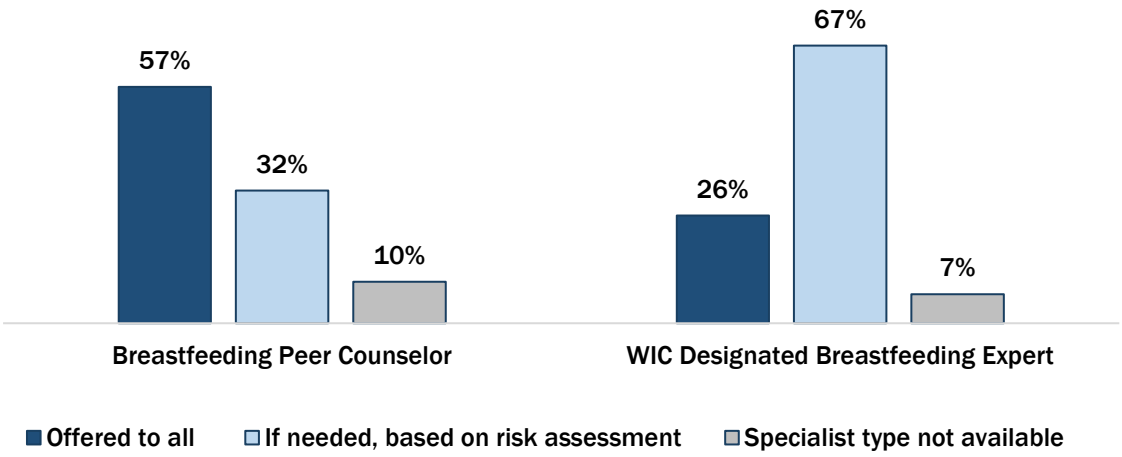
Significant differences were observed in the type of WIC staff conducting breastfeeding assessments by local agency characteristic. For instance, urban local agencies, local agencies operating two or more clinics, and local agencies with a large caseload were significantly more likely to have RDs/RDNs, nutritionists, CLCs, and IBCLCs conduct breastfeeding assessments compared to local agencies in rural areas, those that operate only one clinic, and those that have small caseloads. Rural and small local agencies were more likely to have nurses and clerk/support staff conducting breastfeeding assessments than urban or large local agencies. These differences most likely reflect the wider variety of staff expertise available at urban and large-caseload local agencies.

While surveyed local agencies were not asked specifically about tools used during breastfeeding assessments, eight agencies reported using breastfeeding-related tools when asked generally about the tools used by staff during nutrition assessments. These included visual aids for the amount of breast milk produced and needed by infants, posters on nutrients available in

breast milk, a breast-milk-to-formula comparison model, breastfeeding demonstration figures, and breastfeeding questionnaires.

Breastfeeding assessments often result in referrals to BFPCs or WIC breastfeeding experts on staff. Fifty-seven percent of surveyed local agencies reported offering internal referrals to BFPCs to all WIC participants, while 32 percent of agencies indicated they provide BFPC referrals to WIC participants if needed based on the results of the nutrition assessment (see Figure 3-11). Ten percent of surveyed local agencies noted that BFPCs are not available in their clinics. A smaller percentage of local agencies refer all participants to a WIC-Designated Breastfeeding Expert; only 26 percent of local agencies offer this referral to all participants. Sixty-seven percent of local agencies offer internal referrals only if needed based on the results of the nutrition assessment. Seven percent of local agencies do not have a WIC-Designated Breastfeeding Expert available in their clinics. There are no significant differences in how these internal referrals are offered by urbanicity, number of clinics, or local agency size.

**Figure 3-11. Percentage of local agencies who offer internal referrals to Breastfeeding Peer Counselors and WIC-Designated Breastfeeding Experts**




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 31 (n=321 for Breastfeeding Peer Counselors, n= 320 for WIC-Designated Breastfeeding Experts). See Appendix D, Table 21. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Totals may not add to 100 due to rounding.

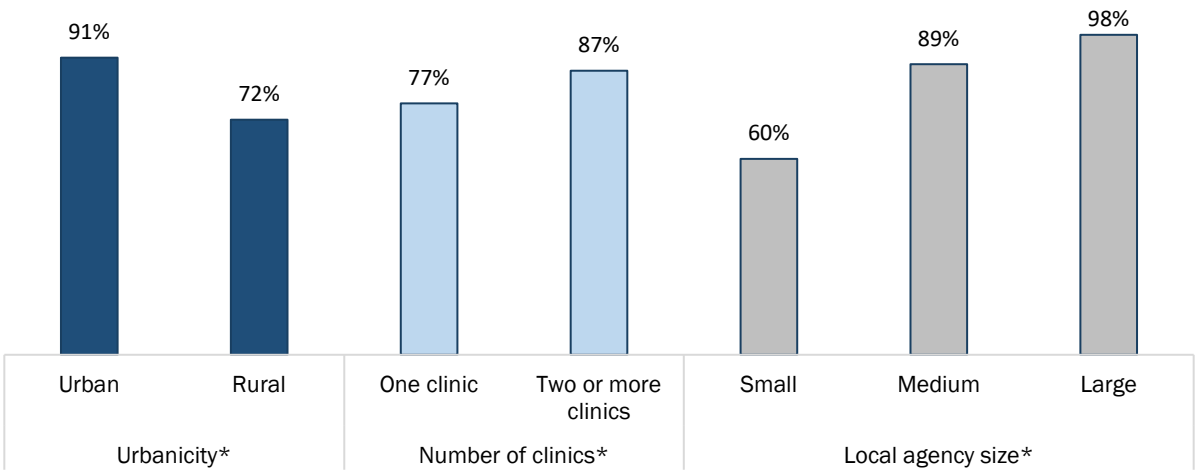
Although less commonly reported, WIC staff in surveyed local agencies also offered referrals to external breastfeeding support groups, with approximately 46 percent of local agencies offering these referrals if needed based on the nutrition assessment and 40 percent offering them to all WIC participants (see Appendix D, Table 22). Fourteen percent of local agencies reported this referral was not available in their clinics. Provision of this external referral differs

significantly by local agency characteristics in two instances—small local agencies were less likely than medium-sized agencies to offer external breastfeeding support group referrals to all WIC participants (34% vs. 42%) and urban agencies were more likely than rural agencies to offer this referral to everyone (42% vs. 38%). There were no significant differences by number of clinics (see Appendix D, Tables 22, 57, and 91).

### 3.2.4 Culturally Competent Services

Over 80 percent of local agencies who completed the survey serve participants who speak a language other than English (82%), although non-English-language participants were more common in urban local agencies (91%) than rural local agencies (72%) and among local agencies with two or more clinics (87%) than one clinic (77%) (see Figure 3-12). The percentage of local agencies serving participants whose primary language is other than English rises with local agency size. Sixty percent of small local agencies serve participants whose primary language is not English, compared to 89 percent of medium-sized local agencies and almost all (98%) large local agencies.

**Figure 3-12. Percentage of local agencies serving participants whose primary language is other than English**




**Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 45 (n: all local agencies=318, urban=173, rural=145, one clinic=124, two or more clinics=193, small=89, medium=176, large=52). See Appendix D, Tables 35, 69, and 104. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.**

**Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.**

*** All differences in this figure are significant at p≤0.05.**

As shown in Table 3-4, Spanish is by far the most common non-English language spoken by WIC participants in the surveyed local agencies, with just under 100 percent of local agencies who serve non-English speakers serving Spanish speakers. Among local agencies who serve Spanish speakers, about 18 percent of their participants speak Spanish as their primary language

on average. No other language is seen in more than 16 percent of the surveyed local agencies serving non-English speakers, and no other language represents more than 5 percent of a local agency's caseload on average. The other languages most frequently reported were Arabic, Chinese, Haitian, and Vietnamese.

**Table 3-4. Prevalence of non-English languages spoken by participants as their primary language***

| Top 5 languages local agencies report being used by their participants | Percentage of local agencies serving participants who use one or more of the top 5 languages (n=262) | The average percentage of local agency participants who speak each language** |
|---|---|---|
| Spanish | 99.6 | 18.4 |
| Arabic | 15.6 | 3.4 |
| Chinese | 12.2 | 2.0 |
| Haitian | 7.6 | 3.8 |
| Vietnamese | 6.9 | 3.1 |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 46. See Appendix D, Table 35. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Due to a survey skip pattern, n represents only those local agencies who reported serving non-English-speaking participants.

*A participant's primary language is defined as the language spoken at home.

**Among the local agencies whose participants speak this language.

Local agencies communicate with non-English-speaking participants/caregivers in a number of ways (see Table 3-5). Most commonly, surveyed local agencies use a language line service (96% for nutrition assessments and 93% for nutrition education).

Use of a language line for nutrition assessments differs significantly by local agency size, but not by urbanicity or number of clinics. Large local agencies are more likely to use a language line for nutrition assessments than small or medium-sized agencies (100% vs. 91% and 97%, respectively; see Appendix D, Table 97). Use of a language line when providing nutrition education differs significantly by all local agency characteristics. Urban local agencies are more likely than rural ones to use a language line for education (97% vs. 88%; see Appendix D, Table 29); local agencies with two or more clinics are more likely to use a language line for education than agencies with only one clinic (96% vs. 90%; see Appendix D, Table 64); and large local agencies are more likely to use a language line for education than small or medium-sized agencies (100% vs. 85% and 95%, respectively; see Appendix D, Table 98).

Table 3-5. Percentage of local agencies reporting how they communicate with non-English speakers during nutrition assessments and nutrition education

| How local agencies communicate with participants who speak a language other than English | All local agencies (%) (n=319) |
|---|---|
| **When conducting nutrition assessments** | |
| Use a language line service | 95.6 |
| Have bilingual staff on-site | 47.3 |
| Use on-site interpreters (individuals who provide interpreter services only) | 29.5 |
| Participant brings a family member or friend to act as interpreter* | 4.4 |
| Access to a sign language interpreter* | 1.9 |
| Use online resources* | 1.6 |
| Other | 1.6 |
| Does not apply | 0.9 |
| **When providing nutrition education** | |
| Use a language line service | 93.1 |
| We offer printed educational materials in other languages | 76.2 |
| Have bilingual staff on-site | 46.7 |
| Use on-site interpreters (individuals who provide interpreter services only) | 28.5 |
| Participant brings a family member or friend to act as interpreter* | 2.8 |
| Other | 3.4 |
| Does not apply | 0.9 |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey questions 38 and 39. See Appendix D, Tables 28 and 29. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

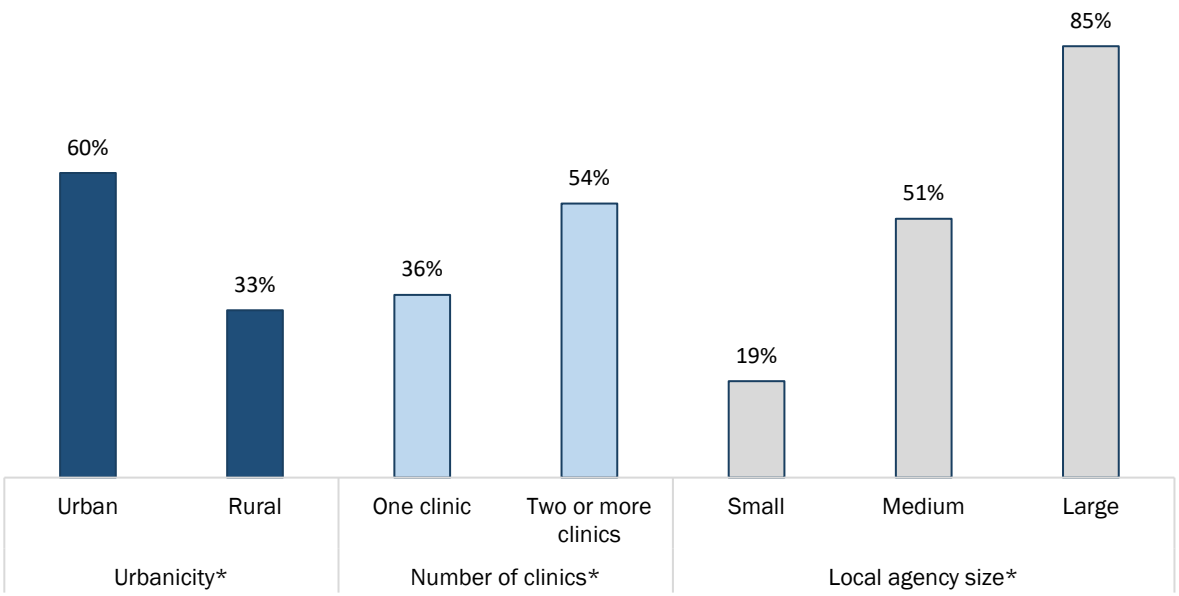
Respondents selected all that apply.

*Created based on write-in responses to "Other (please specify)."

**Data are not reported due to small cell size.

For surveyed local agencies, having on-site bilingual staff who conduct nutrition assessments was reported more frequently than having on-site interpreters for this task (see Table 3-5). This was also true for providing nutrition education. Figure 3-13 presents differences in having bilingual staff on-site by local agency characteristics. Urban agencies are more likely to have bilingual staff who perform this task (60%) than rural agencies (33%). Agencies with two or more clinics are more likely to have bilingual staff on-site for this task (54%) than agencies with one clinic only (36%). Large local agencies are more likely to have bilingual staff on-site to perform nutrition assessments (85%) than small (19%) or medium-sized (51%) agencies.

**Figure 3-13. Percentage of local agencies with bilingual staff for nutrition assessments, by urbanicity, number of clinics, and local agency size**




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 38 (n: urban=173, rural=146, one clinic=124, two or more clinics=193, small=89, medium=177, large=52). See Appendix D, Tables 28, 63, and 97. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

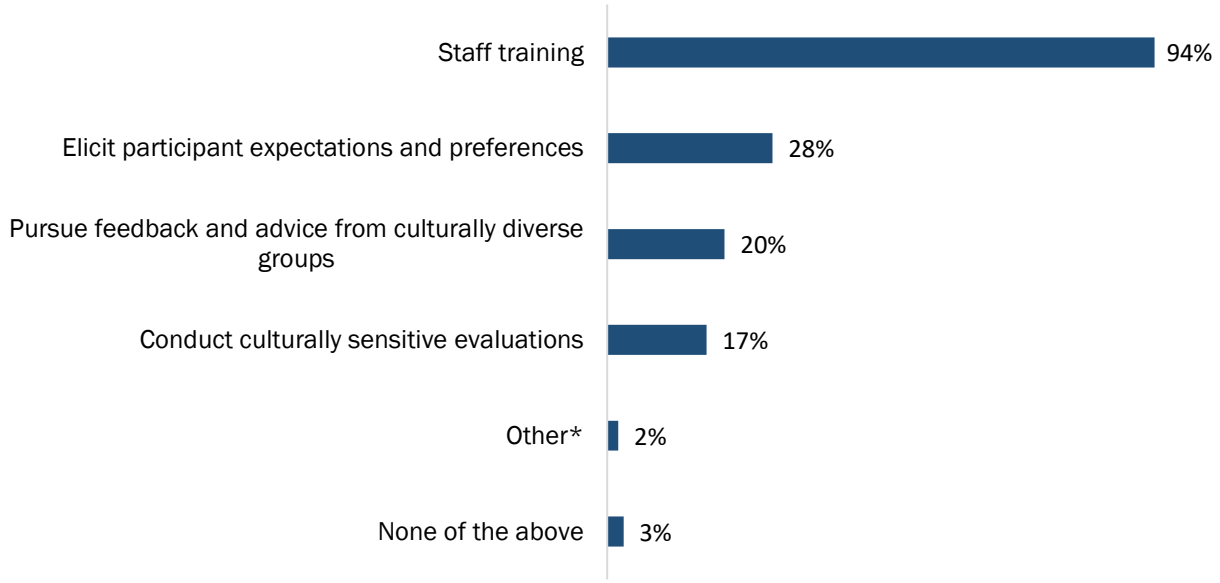
* Differences between urban and rural local agencies, between local agencies with one clinic and two or more clinics, between small and large local agencies, and between medium and large local agencies are significant at p≤0.05.

This pattern of significant differences is the same for nutrition education, although the percentages using each type of communication method tend to be slightly smaller in each case (see Appendix D, Tables 29, 64, and 98). For nutrition education, it is also common for staff to offer printed educational materials in other languages as part of nutrition education (76% of surveyed local agencies). This method of communication does not significantly differ by urbanicity or number of clinics, but it does differ by local agency size. Large agencies are more likely to use printed educational materials in non-English languages (90%) than either small local agencies (65%) or medium-sized agencies (77%) (see Appendix D, Table 98).

Cultural competency is about more than language fluency; it also encompasses an understanding of cultural norms and practices that may influence participants' willingness to seek help with WIC, eat the food provided by WIC, and follow educational guidance given by WIC staff. Local agencies try to ensure cultural competency in multiple ways. Almost 94 percent of the 321 surveyed local agencies provide staff training in cultural competency (see Figure 3-14). Some local agencies also ensure cultural competency by eliciting participant expectations and preferences (28%), pursuing feedback and advice from culturally diverse groups (20%), and conducting culturally sensitive evaluations (17%). Surveyed local agencies do not differ in their methods of ensuring cultural competency by urbanicity or number of clinics. However, large

agencies are more likely to elicit participant expectations and preferences (42%) than either small agencies (24%) or medium-sized agencies (27%) (see Appendix D, Table 99).

**Figure 3-14. Percentage of local agencies reporting how they ensure the cultural competency of their services**




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 40 (n=317). See Appendix D, Table 30. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

* Examples of "other" include creating a welcoming culturally diverse environment, adding a minority health staff position, and making provisions when feedback is received.

Clinic assessment staff can act on participants' cultural preferences by making allowable changes or substitutions to prescribed food packages. Sixty percent of surveyed local agencies report that staff always make these allowable changes or substitutions to participant food packages, 30 percent make these changes or substitutions sometimes, and 10 percent of local agencies reported not making such changes or substitutions (see Table 3-6). Several significant differences appear in these data by local agency characteristics. Urban local agencies are less likely to report not making these changes than rural agencies (6% vs. 15%). Local agencies with two or more clinics are less likely to report "yes, always" and more likely to report "yes, sometimes" compared to agencies with one clinic only (53% vs. 71% and 35% vs. 23%, respectively). Large agencies are more likely to report "yes, sometimes" than small agencies and less likely to report they do not make these changes than both small and medium-sized agencies.

Table 3-6. Percentage of local agencies reporting how often assessment staff make allowable changes or substitutions to food packages to meet participants' cultural food preferences for all local agencies and by local agency characteristics

| Do clinic staff make allowable changes or substitutions to participants' food packages to meet cultural food preferences? | Percentage of local agencies | | |
|---|---|---|---|
| | Yes, always | Yes, sometimes | No |
| All local agencies (n=318) | 60.1 | 30.2 | 9.7 |
| Urbanicity | | | |
| Urban (n=173) | 60.1 | 34.1 | 5.8* |
| Rural (n=145) | 60.0 | 25.5 | 14.5 |
| Number of clinics | | | |
| One clinic (n=124) | 71.0* | 22.6* | 6.5 |
| Two or more clinics (n=193 | 52.8 | 35.2 | 11.9 |
| Local agency size | | | |
| Small (n=89) | 62.9 | 23.6* | 13.5* |
| Medium (n=176) | 59.7 | 30.1 | 10.2* |
| Large (n=52) | 55.8 | ** | ** |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 41. See Appendix D, Tables 31, 66, and 100. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

* Difference between urban and rural local agencies reporting "no," between local agencies with one clinic and two or more clinics reporting "yes, always" and "yes, sometimes," between small and large local agencies reporting "yes, sometimes" and "no," and between medium and large local agencies reporting "no" are significant at $p \leq 0.05$.

**Data not shown due to small cell size.

### 3.2.5 Staff Training

Staff training for those who perform nutrition assessments is extensive. Just over half of local agencies (52%) that answered this survey question identified 15 or more topical areas included in staff trainings for those who conduct nutrition assessments (see Appendix D, Table 15). Over 80 percent of local agencies offer training on anthropometric data collection techniques, infant nutrition, child nutrition, hematological data collection techniques, documentation of nutrition assessment findings, prenatal nutrition, the nutrition assessment process, assessment of breastfeeding behaviors, counseling and participant-centered services skills, and postnatal nutrition (see Table 3-7). Over 50 percent of local agencies also offer training on motivational interviewing, multicultural awareness, weight issues, use of interpreter services, dietary assessment, and critical thinking. The least common topic of training for nutritional assessment staff was on physical signs and symptoms of nutrition-related conditions, with 38 percent of surveyed local agencies offering this topic in training for staff who perform nutrition assessments. There were very few significant differences in topics covered by urbanicity or by number of clinics (see Appendix D, Tables 5 and 40). Large local agencies, however, were more likely to offer training on counseling and participant-centered services skills than either small or

medium-sized agencies (92% vs. 80% and 82%, respectively), while small agencies were more likely to offer training on the physical signs and symptoms of nutrition-related conditions than either medium-sized or large agencies (48% vs. 37% and 22%, respectively).

**Table 3-7. Topics included in trainings provided to WIC staff who conduct nutrition assessments, by local agency size**

| Which topics are included in the trainings provided to the WIC staff conducting nutrition assessments? | Percentage of local agencies | | | |
|---|---|---|---|---|
| | All local agencies (n=319) | Small (n=89) | Medium (n=178) | Large (n=51) |
| Anthropometric data collection techniques (e.g., how to properly obtain heights, lengths, and weights) | 92.2 | 95.5 | 90.4 | 92.2 |
| Infant nutrition | 88.7 | 92.1 | 86.5 | 90.2 |
| Child nutrition | 87.5 | 93.3[a] | 84.3 | 88.2 |
| Hematological data collection techniques (e.g., how to collect blood specimens for measuring hemoglobin levels) | 85.6 | 86.5 | 83.7 | 90.2 |
| Documentation of nutrition assessment findings | 85.6 | 88.8 | 84.3 | 84.3 |
| Prenatal nutrition | 85.0 | 86.5 | 82.6 | 90.2 |
| The nutrition assessment process | 84.6 | 88.8 | 82.0 | 86.3 |
| Assessment of breastfeeding behaviors | 83.4 | 87.6 | 80.9 | 84.3 |
| Counseling and participant-centered services skills | 83.1 | 79.8[b] | 82.0[c] | 92.2 |
| Postnatal nutrition (including nutrition for breastfeeding mothers) | 82.4 | 80.9 | 81.5 | 88.2 |
| Motivational interviewing | 79.9 | 82.0 | 76.4[c] | 88.2 |
| Multicultural awareness | 74.6 | 74.2 | 73.0 | 80.4 |
| Weight issues (e.g., obesity, prenatal weight gain) | 73.7 | 74.2 | 71.3 | 80.4 |
| Use of interpreter services | 73.0 | 70.8 | 71.3 | 82.4 |
| Dietary assessment (e.g., 24-hour recalls, food frequency questionnaires) | 58.0 | 65.2[a] | 52.2 | 64.7 |
| Critical thinking | 54.2 | 64.0[a] | 46.1[c] | 64.7 |
| Therapeutic formula | 48.0 | 50.6 | 42.7[c] | 60.8 |
| Physical signs and symptoms of nutrition-related conditions (e.g., nutrition-focused physical exams) | 37.9 | 48.3[b] | 37.1[c] | 21.6 |
| Other | 6.3 | 3.4[b] | 5.6 | 13.7 |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 7. See Appendix D, Tables 5 and 74. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

[a] Differences between small and medium local agencies are significant at p≤0.05.

[b] Differences between small and large local agencies are significant at p≤0.05.

[c] Differences between medium and large local agencies are significant at p≤0.05.

The most common frequency of training reported by surveyed local agencies is annually for all training topics (see Appendix D, Table 6a). The training topics for which local agencies train assessment staff most frequently are hematological data collection, multicultural awareness, assessment of breastfeeding behaviors, and anthropometric data collection. The percentage of local agencies that train their assessment staff at hire or just once across all these training topics ranges from 3 percent for multicultural awareness and breastfeeding behaviors training to 13 percent for use of interpreter services training (see Table 3-8). Other training frequencies reported by local agencies include once every 2 years, at hire and when needed, at hire and when updated information is available, and when offered by the State agency or other organization.

**Table 3-8. Frequency of trainings offered and the use of refresher trainings**

| Training topic | Percentage of local agencies whose assessment staff receive training (n=319) | | Local agencies offering refresher training | |
|---|---|---|---|---|
| | Annually or twice a year | At hire/once | Percentage (%) | Unweighted N |
| Hematological data collection techniques training | 76.1 | 6.3 | 73.3 | 273 |
| Multicultural awareness training | 74.0 | 2.6 | 73.3 | 236 |
| Training to assess breastfeeding behaviors | 70.9 | 2.6 | 69.1 | 265 |
| Anthropometric data collection techniques training | 65.9 | 8.9 | 65.5 | 293 |
| Interpreter services training | 56.7 | 12.6 | 61.0 | 231 |
| Counseling and participant-centered services training | 50.6 | 6.1 | 59.4 | 261 |
| Physical signs and symptoms of nutrition-related conditions training | 50.4 | 7.4 | 48.3 | 120 |
| Infant nutrition training | 49.6 | 4.3 | 47.2 | 282 |
| Documenting nutrition assessment findings training | 48.2 | 4.8 | 57.5 | 268 |
| Dietary assessment training | 47.3 | 8.7 | 48.4 | 182 |
| Child nutrition training | 46.8 | 4.3 | 46.0 | 276 |
| Nutrition assessment process training | 46.8 | 7.9 | 55.8 | 267 |
| Prenatal nutrition training | 45.5 | 6.7 | 42.5 | 268 |
| Postnatal nutrition training | 45.2 | 6.1 | 43.5 | 260 |
| Motivational interviewing techniques training | 44.1 | 7.9 | 53.2 | 252 |
| Critical thinking skills training | 42.4 | 6.5 | 50.9 | 171 |
| Therapeutic formulas training | 42.3 | 4.0 | 54.0 | 150 |
| Weight issues training | 34.2 | 6.1 | 40.7 | 231 |

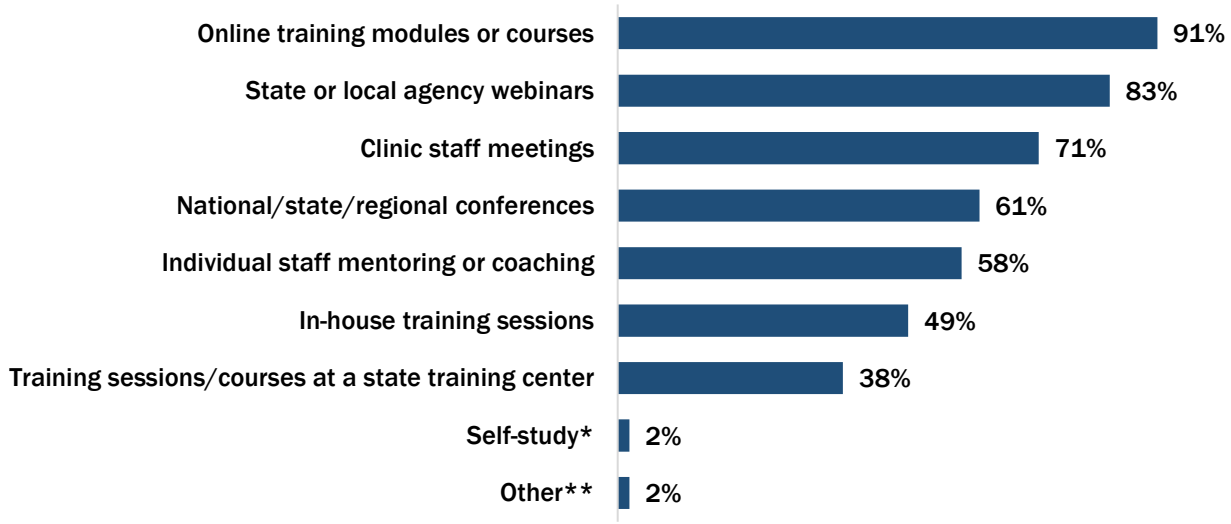
Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey questions 8 and 9. See Appendix D, Tables 6a-6r.Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Refresher trainings are also frequently offered by surveyed local agencies who offer training in these topics. Over 50 percent of local agencies offer refresher training for 11 of the 18 training topics listed in Table 3-8. Refresher trainings are most commonly available for hematological data collection techniques and multicultural awareness trainings (73% of local agencies offer refresher trainings for both).

Trainings are conducted in multiple modalities. Over 90 percent of surveyed local agencies have staff that participate in at least some trainings online through modules or courses. Other common modalities include State or local agency webinars (83% of local agencies); clinic staff meetings (71%); conferences at the national, state, or regional level (61%); individual staff mentoring or coaching (58%); and in-house training sessions (49%). Participation in training sessions or courses at state training centers is less common (38% of local agencies). Only 2 percent of local agencies reported staff self-study as an "other" training modality (see Figure 3-15). Large local agencies are more likely to have staff participate in training via individual staff mentoring or coaching (80%) and in-house training sessions (69%) than medium-sized (55% and 49%, respectively) or small agencies (52% and 39%, respectively), likely due to their larger staff sizes (see Appendix D, Table 76).

**Figure 3-15. Training modalities staff participate in by local agencies**




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 10 (n=318). See Appendix D, Table 7. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

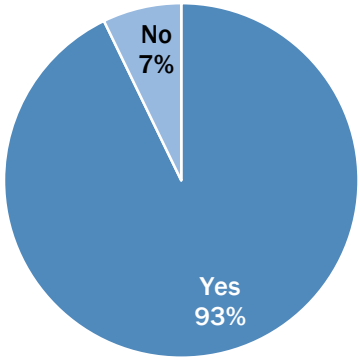
Respondents selected all that apply.

* Created based on write-in responses to "Other (please specify)."

** Examples of "other" include continuing education courses for Certified Lactation Consultants (CLCs), intern presentations, and NetLearning courses.

The FNS Breastfeeding Curriculum "Using Loving Support to Grow and Glow in WIC" is almost universally used for breastfeeding assessment training by surveyed local agencies.[33] Ninety-three percent of surveyed local agencies use the FNS Breastfeeding Curriculum to train staff that conduct breastfeeding assessments (see Figure 3-16). Of those surveyed, all large local agencies use the FNS curriculum. While medium-sized and small agencies are less likely than large agencies to use the FNS curriculum, it is still used by over 90 percent of these agencies (see Appendix D, Table 80). When asked what additional topics not covered by the FNS Breastfeeding Curriculum agencies include in their breastfeeding assessment training, 74 percent of local agencies said "none" (see Appendix D, Table 11). Of those that did specify additional topics, the topics most frequently reported included breast pump policies and issues and use of social media and apps.

**Figure 3-16. Percentage of local agencies using the FNS Breastfeeding Curriculum "Using Loving Support to Grow and Glow in WIC" for breastfeeding assessment training**




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 15. See Appendix D, Table 11. Tabulations are not weighted. Sample is a diverse nonprobability sample. Unweighted n=321.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

For agencies that use the FNS Breastfeeding Curriculum, the most common frequency of the training is annual (46% of agencies) followed by a big assortment of "other" training frequencies (28%) and at hire/once (16%) (see Table 3-8). Examples of other training frequencies include as needed, monthly, quarterly, every 5 years, when offered by State agency, and at hire and as needed. Over half of local agencies (55%) using the FNS Breastfeeding Curriculum also offer it for refresher trainings (see Table 3-9).

Breastfeeding assessment trainings are conducted using a number of modalities. Over half of all surveyed agencies have staff that participate in trainings via online modules or courses (65%) and State or local agency webinars (57%). Staff also participate in in-house training sessions and training via individual staff mentoring or coaching in over 40 percent of local agencies. Rural agencies are more dependent on training sessions and courses given at state training centers than urban agencies (43% vs. 29%; see Appendix D, Table 11). Local agencies with two or more clinics are more likely than those with a single clinic to have staff who participate in in-house

[33] There was a transition period from "Using Loving Support to Grow and Glow in WIC" to the FNS WIC Breastfeeding Curriculum (launched in March 2021).

training sessions (50% vs. 38%) or trainings via staff meetings (46% vs. 28%) (see Appendix D, Table 46). As with nutrition assessment trainings, staff at large local agencies are more likely to participate in training via individual staff mentoring or coaching (64%) and in-house training sessions (70%) than medium-sized (43% and 37%, respectively) or small agencies (35% for both modalities), most likely reflecting the larger staff sizes of these agencies (see Appendix D, Table 80).

**Table 3-9. How the FNS Breastfeeding Curriculum† for training breastfeeding assessment staff is used**

| For local agencies that use the FNS Breastfeeding Curriculum for training staff that conduct breastfeeding assessments | Percentage of local agencies |
|---|---|
| **Frequency of trainings on conducting breastfeeding assessments that use the curriculum (n=296)** | |
| Twice a year | 4.1 |
| Annually | 45.9 |
| Once every 2 years | 6.4 |
| At hire/once | 15.5 |
| Other# | 28.0 |
| **Refresher trainings offered on conducting breastfeeding assessments that use the curriculum (n=295)** | |
| Yes | 54.6 |
| No | 45.4 |
| **Format of trainings on conducting breastfeeding assessments that use the curriculum (n=295)** | |
| Online training modules or courses | 65.4 |
| State or local agency webinars | 56.9 |
| In-house training sessions | 45.1 |
| Individual staff mentoring or coaching | 41.0 |
| Clinic staff meetings | 38.6 |
| National/state/regional conferences | 36.3 |
| Training sessions/courses at a state training center | 34.9 |
| Other* | 1.4 |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey questions 16-18. See Appendix D, Table 11. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Percentage totals may not add to 100 due to rounding. For how trainings are conducted, respondents selected all that apply.

† WIC Breastfeeding Curriculum or "Using Loving Support to Grow and Glow in WIC."

# Examples of other training frequencies include as needed, monthly, quarterly, every 5 years, when offered by State agency, and at hire and as needed.

*Examples of other training formats include consultants and video meetings.

Table 3-10 presents the topics covered by breastfeeding assessment training for the 23 local agencies that do not use the FNS Breastfeeding Curriculum (7% of all surveyed local agencies). All of these local agencies include assessing potential breastfeeding problems, breastfeeding techniques, and baby hunger cues in their breastfeeding training, and 91 percent include assessing mother's milk production/mother and baby's dietary intake. Assessing the mother's

personal beliefs and attitudes toward breastfeeding and assessing participant breastfeeding goals were each covered by 83 percent of these local agencies. Sixty-one percent also cover infant nutrition and counseling and participant-centered services skills.

**Table 3-10. Training topics used by local agencies that do not use the FNS Breastfeeding Curriculum**

| Topics are included in the breastfeeding assessment trainings for WIC staff | Percentage of local agencies (n=23) |
|---|---|
| Assessing potential breastfeeding problems, breastfeeding techniques, and baby hunger cues | 100.0 |
| Assessing mother's milk production/mother and baby's dietary intake | 91.3 |
| Assessing mother's personal beliefs and attitudes toward breastfeeding | 82.6 |
| Assessing participant breastfeeding goals | 82.6 |
| Infant nutrition | 60.9 |
| Counseling and participant-centered services skills | 60.9 |
| Other | 0.0 |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 20. See Appendix D, Table 12. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Due to a survey skip pattern, n represents only those local agencies that reported NOT using the FNS Breastfeeding Curriculum; these respondents selected all that apply.

# 4. Pre-pandemic Recorded Nutritional Risks

**Key Findings**

- Participants in the study State agencies were very similar to those in the WIC program as a whole. Among the largest differences in the two groups were that children were a smaller proportion of all participants for the 10 study State agencies than for the WIC program as a whole (47% vs. 53%).
- Across all study State agencies during the pre-pandemic period, participants were assigned anthropometric risks at the highest rate (54%) followed by dietary risks (47%). About one-quarter of participants were assigned clinical/health/medical risks and other risks (25% and 23%), and 13 percent of participants were assigned biochemical risks.
- Women were assigned anthropometric and biochemical risks more often than infants or children. At least half of women in all categories (pregnant, postpartum, and breastfeeding) were assigned the anthropometric risk of "overweight" (54% to 57%). Between 10 and 35 percent of women in each participant category were assigned the biochemical risk "low hematocrit/hemoglobin."
- Dietary risks were assigned for children more often than infants or women. Most commonly, children were assigned the dietary risk "inappropriate nutrition practices for children" (59%) followed by "failure to meet DGA recommendations" (16%).
- Other risks were assigned for infants more often than children or women. Almost half of infants were assigned the other risk "infant up to 6 months old of WIC mother, or of a WIC woman who would have been eligible during pregnancy" (also referred to as "postnatal enrollment;" 44%); 20 percent of infants were assigned the risk "breastfeeding infant of a woman at nutritional risk," and 11 percent of infants were assigned the risk "breastfeeding complications.
- Of the top five most common risk codes assigned in the 10 study State agencies, "inappropriate nutrition practices for children" was the most frequently assigned (28% of all assigned codes). Almost 60 percent of WIC-certified children were assigned this risk code and, since children are the largest WIC participant category, it easily topped the list of the most frequently assigned risk codes.
- "Overweight woman" (i.e., women with a prepregnancy body mass index ≥ 25) was the second most frequently assigned code (15% of all assigned codes). Fifty-six percent of WIC-certified women in the 10 study State agencies were assigned this code.
- Also among the top five risk codes overall were "low hematocrit/hemoglobin" (13% of assigned risk codes and among the top 5 risk codes for both women and children), "preterm or early term delivery" (13% of assigned risk codes and among the top 5 risk codes for both infants and children), and "infant up to 6 months old of a WIC mother, or of a woman who would have been eligible during pregnancy" (referred to as "postnatal enrollment;" 11% of assigned risk codes).
- The top five risk codes varied somewhat by State agency, but in general, the most common risk codes persisted across State agencies. Across all 10 study State agencies, just 13 different codes were among the top five most frequently assigned codes.

During the nutrition assessment process, WIC staff collect anthropometric, biochemical, breastfeeding, medical history, and dietary information from applicants and participants to determine whether they have at least one qualifying nutritional risk for WIC eligibility. This analysis of the prevalence of recorded nutritional risks informs how staff determine and document nutritional risk criteria (research question 3 in Table 1-1). Specific nutritional risk

criteria can be grouped into five broad nutritional risk categories as defined by FNS (see Appendix E, Table 1 for examples of nutritional risks in each broad category):

- Anthropometric risks include risks such as low weight-for-height/length and inappropriate growth/weight gain pattern;
- Biochemical risks include two nutritional risks: hematocrit or hemoglobin below FNS criteria and other biochemical test results that indicate nutritional abnormality;
- Clinical/health/medical risks include risks such as pregnancy-induced conditions and substance abuse;
- Dietary risks include risks such as failure to meet Dietary Guidelines for Americans (DGA) recommendations and inappropriate nutrition practices; and
- Other risks include risks such as regression, transfer, presumptive eligibility, homelessness, and migrancy.

This section of the report presents results from an analysis of MIS participant and nutritional risk data in the pre-pandemic period (January-February 2020) for the study's 10 State agencies. The section begins with a discussion of participant characteristics. This provides background for the nutritional risk analysis and shows how the study sample differs from the WIC population as a whole. See Section 7.3 for an analysis of changes to MIS data across the study's three data collection periods.

## 4.1 Participant Characteristics

Table 4-1 compares the characteristics of the participant population in the study's 10 selected State agencies as determined by the MIS data during the pre-pandemic period (January-February 2020) to the WIC participant population as a whole as reported in *WIC Participant and Program Characteristics 2020* (referred to as the WIC PC 2020 report).

Table 4-1. Comparison of participant characteristics in study State agencies vs. all WIC State agencies

| WIC participant characteristics | Percentage of WIC participants | |
|---|---|---|
| | Study State agencies, January-February 2020 (n=615,403) | All WIC State agencies, 2020 (n=7,036,902) |
| **Participant category** | | |
| Pregnant women | 9.8 | 7.8 |
| Breastfeeding women | 9.7 | 8.8 |
| Postpartum women | 8.1 | 6.2 |
| Total women | 27.6 | 22.8 |
| Infants | 25.3 | 24.0 |
| Children | 47.1 | 53.2 |
| **Race** | | |
| American Indian | 1.4 | 6.8 |
| Asian | 1.8 | 3.6 |
| Black | 29.4 | 22.3 |
| Pacific Islander | 0.3 | 0.8 |
| White | 60.0 | 59.5 |
| Two or more races | 6.1 | 6.1 |
| Race not reported | 1.0 | 0.8 |
| **Ethnicity** | | |
| Hispanic/Latino | 32.4 | 40.7 |
| Non-Hispanic/Latino | 66.6 | 59.2 |
| Ethnicity not reported | 1.0 | <0.1 |
| **Percentage participating in other benefit programs[a]** | | |
| SNAP | 29.4 | 28.0 |
| TANF | 1.5 | 3.8 |
| Medicaid | 77.1 | 74.2 |
| No other programs | 18.8 | 20.5 |
| Not reported | 2.3 | 2.3 |
| **Income at or below 100% of Federal Poverty Guidelines[b]** | | |
| 0 to 100% of Federal Poverty Guidelines | 69.4 | 64.3 |
| **Household size** | | |
| 1-2 | 10.8 | 13.6 |
| 3 | 23.2 | 24.3 |
| 4 | 27.6 | 26.2 |
| 5+ | 37.1 | 35.1 |
| Not reported | 1.3 | 0.7 |

Table 4-1. Comparison of participant characteristics in study State agencies vs. all WIC State agencies (continued)

| WIC participant characteristics | Percentage of WIC participants | |
|---|---|---|
| | Study State agencies, January-February 2020 (n=615,403) | All WIC State agencies, 2020 (n=7,036,902) |
| **Number of assigned nutritional risks** | | |
| 1 | 41.6 | 48.2 |
| 2 | 27.7 | 27.3 |
| 3-5 | 27.6 | 13.7 |
| 6 or more | 3.0 | 9.6 |
| Not reported | 0.2 | 1.2 |

Source:

1) For study State agencies: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 1a.

2) For all WIC State agencies: Kline, N., Zvavitch, P., Wroblewska, K., Worden, M., Mwombela, B., and Thorn, B. (2022). *WIC Participant and Program Characteristics 2020*. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service.

Percentages may not add to 100 because of rounding.

[a] Participation in other benefit programs is often underreported for the WIC population; caution should be used in analyzing these data. Percentages add to more than 100 because WIC participants may participate in more than one benefit program.

[b] Poverty guideline calculations were based on computed annualized income and size of family or economic unit, as compared with the Federal Poverty Guidelines issued by U.S. Department of Health and Human Services (HHS) for fiscal year (FY) 2020.

Participants in the study State agencies were very similar to those in the WIC program as a whole. Among the largest differences in the two groups were that children were a smaller proportion of all participants for the 10 study State agencies than for the WIC program as a whole (47% vs. 53%). The 10 study State agencies also had a higher percentage of participants with reported race of Black (29% vs. 22%) and a lower percentage of participants with reported Hispanic/Latino ethnicity (32% vs. 41%). Finally, participants in the 10 study State agencies were generally assigned more nutritional risks than all WIC participants.

During the pre-pandemic period, about half of all participants in the 10 study State agencies were children (47%), one-quarter were infants (25%), and about another quarter were women (28%). Women participants are divided into three categories: pregnant women (10% of total participants), breastfeeding women (10% of total participants), and postpartum women (8% of total participants). The distribution of participant categories for individual State agencies was similar with some exceptions (see Appendix G).

Though there are many additional participant characteristics to consider, Table 4-1 highlights race, ethnicity, participation in other benefit programs, income, household size, and number of assigned risks.

**Race.** Overall, the MIS data show that WIC participants in the 10 study State agencies were most commonly reported as White (60%), followed by Black (29%); only 1 percent of participants were reported as American Indian.[34]

**Ethnicity.** During the pre-pandemic period, the majority of study WIC participants most commonly reported their ethnicity as non-Hispanic/Latino (67%).

**Participation in other benefit programs.** Overall, more than three-quarters of study WIC participants participated in Medicaid (77%), and 29 percent participated in SNAP; only 2 percent of all WIC participants participated in TANF. These rates are similar to national reporting for WIC PC 2020. About 2 percent of WIC participants were missing data on participation in other benefit programs.

**Income.** Overall, 69 percent of WIC participants in the 10 study State agencies had income at or below 100 percent of the Federal Poverty Guidelines; comparatively, 64 percent of all WIC participants had income at the same level as reported from the WIC PC 2020 data.[35]

**Number in household.** Overall, WIC participants most commonly lived in households with five or more people (37%). The overall distribution of the number of people in households was similar in the WIC PC 2020 data.

**Number of assigned nutritional risks.** WIC study participants were most commonly assigned one nutritional risk (42%) which was similar to all WIC participants (48% with 1 nutritional risk) as reported from the WIC PC 2020 data. Only a small percentage of study participants (3%) were assigned six or more nutritional risks. For the WIC population as a whole, however, almost 10 percent were assigned six or more nutritional risks.

## 4.2 Prevalence of Recorded Nutritional Risks in the Pre-pandemic Period

Across all study State agencies during the pre-pandemic period, participants were assigned anthropometric risks at the highest rate (54%) followed by dietary risks (47%; see Table 4-2). About one-quarter of participants were assigned clinical/health/medical risks and other risks (25% and 23%), and 13 percent of participants were assigned biochemical risks.

[34] WIC participants are asked to self-identify race and ethnicity. If a participant does not report race or ethnicity, WIC staff are instructed to record the information on behalf of the participant. However, the data do not designate if/when this occurred. Caution should be used in the analysis of the race of WIC participants.

[35] U.S. Department of Health and Human Services, Office of the Assistance Secretary for Planning and Evaluation. (2020). *2020 poverty guidelines.* Available at: https://aspe.hhs.gov/2020-poverty-guidelines

Table 4-2. Nutritional risks assignments by broad categories

| Broad risk category | Participants assigned code in category | |
|---|---|---|
| | Number | Percentage |
| Anthropometric | 334,836 | 54.4 |
| Biochemical | 80,288 | 13.0 |
| Clinical/health/medical | 154,162 | 25.1 |
| Dietary | 290,623 | 47.2 |
| Other | 141,923 | 23.1 |
| Not reported | 4,326 | 0.7 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 1a. Reference date: January-February, 2020.

Note: Percentages add to more than 100 because participants may be assigned up to 10 nutritional risks.

### 4.2.1 Specific Nutritional Risks

The FNS list of individual nutritional risk codes includes over 80 individual codes. Some of these individual codes are used much more frequently than others (see Appendix E for a full list of FNS nutritional risk codes). This analysis looks at the most commonly assigned individual codes by broad code category. See Appendix G for an analysis by State agency.

#### Anthropometric Risks[36]

Women were assigned anthropometric risks more often than infants or children. At least half of women in all categories were assigned the anthropometric risk of "overweight" (54% to 57%) followed by "high maternal weight gain" (34% to 39%). The most commonly assigned anthropometric risk among infants was "preterm or early term delivery" [37] (31%) followed by "short stature or at risk of short stature" (13%). Among children, the most commonly assigned risk was "overweight or at risk of overweight" (15%) followed by "preterm or early term delivery" (10%) and "obese" (9%).

#### Biochemical Risks[38]

Women were assigned biochemical risks more often than infants or children. Between 10 and 35 percent of women in each participant category were assigned the biochemical risk "low

[36] See Tables 2a-2k in Appendix F for detailed data on assigned anthropometric risks.

[37] Defined as: preterm—delivery of an infant born ≤36 6/7 weeks gestation; early term—delivery of an infant born ≥37 0/7 and ≤38 6/7 weeks gestation.

[38] See Tables 3a-3k in Appendix F for detailed data on assigned biochemical risks.

hematocrit/hemoglobin." Less than 1 percent of infants and 13 percent of children were assigned this risk.

### Clinical/Health/Medical Risks[39]

Women were assigned clinical/health/medical risks more often than infants or children. The most commonly assigned clinical/health/medical risk for pregnant women was "closely spaced pregnancies" (16%); about one-quarter of breastfeeding and postpartum women were assigned "history of preterm or early term delivery" (25% and 24%) and "recent major surgery, trauma, burns" (27% and 24%). Breastfeeding and postpartum women were assigned the risk "closely spaced pregnancies" at similar rates as pregnant women (13% and 16%). Five percent or fewer of infants and less than 3 percent of children were assigned any clinical/health/medical risks.

### Dietary Risks[40]

Dietary risks were assigned for children more often than infants or women. Most commonly, children were assigned the dietary risk "inappropriate nutrition practices for children" (59%) followed by "failure to meet DGA recommendations" (16%). Less than one-quarter of infants were assigned the risk "inappropriate nutrition practices for infants" (23%) and all other dietary risks were assigned to fewer than 3 percent of infants. The risk "inappropriate nutrition practices for women" was assigned to less than one-quarter of women, varying between 9 and 22 percent across participant categories, and "failure to meet DGA recommendations" was assigned to about 5 percent of women, varying between 4 and 7 percent across participant categories. All other dietary risks were assigned to less than 4 percent of women, except "inadequate vitamin/mineral supplementation recognized as essential by national public health policy" which was assigned to 6 percent of postpartum women.

### Other Risks[41]

Other risks were assigned for infants more often than children or women. Almost half of infants were assigned the other risk "infant up to 6 months old of WIC mother, or of a WIC woman who would have been eligible during pregnancy" (also referred to as "postnatal enrollment;" 44%); 21 percent of infants were assigned the risk "breastfeeding infant of a woman at nutritional risk;" and 11 percent of infants were assigned the risk "breastfeeding complications." Fewer than 5 percent of pregnant or postpartum women were assigned any "other" risks, but 25 percent of breastfeeding women were assigned the risk "breastfeeding

[39] See Tables 4a-4k in Appendix F for detailed data on assigned clinical/health/medical risks.

[40] See Tables 5a-5k in Appendix F for detailed data on assigned dietary risks.

[41] See Tables 6a-6k in Appendix F for detailed data on assigned "other" risks.

mother of an infant at nutritional risk" and 6 percent of breastfeeding women were assigned the risk "breastfeeding complications." Fewer than 2 percent of children were assigned "other" risks. The most common other risk assigned to children was "exposure to environmental tobacco smoke" (2%).

## 4.3 Prevalence of Nutritional Risks by Local Agency Characteristics

The analyses of MIS data included examination of nutritional risk codes by local agency size, urbanicity, and clinic type. Local agency size and urbanicity are defined in Section 2.3.2. Self-reported data were used in analyses by clinic type. Categories available include local and county health departments, health centers or clinics, nonprofit organizations, and other entities. Other entities include hospitals/health systems, non-health-department local Government agencies, and WIC contract sites in stand-alone or physician offices. Table 4-3 presents the top five most commonly assigned nutritional risk codes across all participants and for women, infants, and children separately during the pre-pandemic period, January through February 2020. Of the top five most common risk codes assigned in the 10 study State agencies, "inappropriate nutrition

**Table 4-3. Top five nutritional risk codes reported during the pre-pandemic period (January-February 2020) by participant type and overall**

| Risk code | Percentage of participants (%) |
|---|---|
| **All participants (n=615,403)** | |
| Inappropriate nutrition practices for children | 27.7 |
| Overweight woman[a] | 15.4 |
| Low hematocrit/hemoglobin | 13.0 |
| Preterm or early delivery | 12.5 |
| Postnatal enrollment[b] | 11.2 |
| **Women (n=169,796)** | |
| Overweight[a] | 55.6 |
| High maternal weight gain | 36.9 |
| Low hematocrit/hemoglobin | 24.4 |
| History of preterm or early term delivery | 18.6 |
| Recent major surgery, trauma, burns | 17.7 |
| **Infants (n=155,781)** | |
| Postnatal enrollment[b] | 44.3 |
| Preterm or early delivery | 31.3 |
| Inappropriate nutrition practices for infants | 22.7 |
| Breastfeeding infant of woman at nutritional risk | 20.9 |
| Short stature or at risk of short stature | 13.4 |
| **Children (n=289,826)** | |
| Inappropriate nutrition practices for children | 58.8 |
| Failure to meet DGA | 15.9 |
| Overweight or at risk of overweight | 14.5 |
| Low hematocrit/hemoglobin | 13.2 |
| Preterm or early delivery | 9.8 |

Source: USDA. FNS, WIC NATS. State agency MIS data request. Ad hoc analysis using data from Appendix F, Tables 2a – 6a.

[a] Pre-pregnancy Body Mass Index (BMI) ≥25.

[b] Infant up to 6 months old of WIC mother, or of a woman who would have been eligible during pregnancy.

practices for children" was the most frequently assigned (28% of all assigned codes). Almost 60 percent of WIC-certified children were assigned this risk code and, since children are the largest WIC participant category, it easily topped the list of the most frequently assigned risk codes. "Overweight woman" (i.e., women with a prepregnancy body mass index ≥ 25) was the second most frequently assigned code (15% of all assigned codes). Fifty-six percent of WIC-certified women in the 10 study State agencies were assigned this code. Also among the top five risk codes overall were "low hematocrit/hemoglobin" (13% of assigned risk codes and among the top 5 risk codes for both women and children), "preterm or early term delivery" (13% of assigned risk codes and among the top 5 risk codes for both infants and children), and "infant up to 6 months old of a WIC mother, or of a woman who would have been eligible during pregnancy" (referred to as "postnatal enrollment;" 11% of assigned risk codes).

Subsequent analyses examined these five codes by local agency characteristics including local agency size, urbanicity, and clinic type. Table 4-4 presents the findings.

Table 4-4. Top five nutritional risk codes by local agency size, urbanicity, and local agency type

| Characteristic | Percentage of participants with code: Inappropriate nutrition practices for children % | Overweight woman[a] % | Low hematocrit/ hemoglobin % | Preterm or early term delivery % | Postnatal enrollment[b] % | Number of participants |
|---|---|---|---|---|---|---|
| All local agencies[c] (Total n=369) | 28.1 | 15.4 | 13.0 | 12.5 | 11.5 | 615,403 |
| **Local agency sized** | | | | | | |
| Small (n=116) | 31.9 | 14.6 | 14.8 | 4.7 | 11.5 | 22,975 |
| Medium (n=196) | 28.1 | 15.7 | 13.6 | 9.5 | 11.6 | 175,188 |
| Large (n=55) | 27.9 | 15.3 | 12.7 | 14.3 | 11.5 | 415,923 |
| Missing (n=2) | 36.9 | 16.9 | 16.9 | 2.6 | 10.1 | 1,317 |
| **Urbanicity** | | | | | | |
| Urban (n=199) | 28.3 | 15.2 | 13.2 | 13.1 | 11.3 | 541,051 |
| Rural (n=168) | 26.5 | 16.3 | 11.5 | 9.0 | 13.0 | 72,536 |
| Missing (n=2) | 39.1 | 8.3 | 21.9 | 0.9 | 6.1 | 1,816 |
| **Local agency type** | | | | | | |
| Local/county health department (n=223) | 27.2 | 15.8 | 13.8 | 14.2 | 11.1 | 453,373 |
| Health center/clinic (n=27) | 31.9 | 14.7 | 13.3 | 6.6 | 11.4 | 39,952 |
| Nonprofit (n=44) | 31.7 | 13.6 | 6.7 | 8.3 | 15.0 | 68,661 |
| Other[d] (n=13) | 21.2 | 14.0 | 8.3 | 9.7 | 13.8 | 17,984 |
| Missing (n=52) | 32.6 | 14.6 | 17.8 | 7.1 | 8.8 | 35,433 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 14a for local agency size, Table 15a for urbanicity, and Table 16a for local agency type. Reference date: January-February 2020.

[a] Prepregnancy body mass index (BMI) ≥25.

[b] Infant up to 6 months old of a WIC mother, or of a woman who would have been eligible during pregnancy.

[c] Includes data from all 10 study State agencies.

[d] Other includes hospitals/health systems, non-health-department local Government agencies, and WIC contract sites in stand-alone or physician offices.

"Inappropriate nutrition practices for children" was the most frequently assigned risk code regardless of local agency size, though the actual percentage varied across size categories. As shown in Table 4-4, small agencies reported this risk with somewhat more frequency than medium-sized or large agencies (32% compared to 28% in both medium-sized and large local agencies). "Overweight woman" was the second most frequently assigned nutritional risk for medium and large agencies but was the third most frequent risk code for small local agencies. Small local agencies assigned "low hematocrit/hemoglobin" slightly more frequently than "overweight woman."

Differences by local agency size were more apparent in the frequency of reporting "low hematocrit/hemoglobin" and "preterm or early term delivery" risks. Small and medium-sized agencies reported "low hematocrit/hemoglobin" risks slightly more frequently than large-sized ones (15% and 14% vs. 13%, respectively). On the other hand, small and medium-sized agencies reported "preterm or early term delivery" less frequently (5% and 10%) than large ones (14%).

Analysis by urbanicity showed a similar pattern. "Inappropriate nutrition practices for children" and "overweight woman" maintained their relative place regardless of urban/rural status as first and second most frequently reported, and percentages were similar across the two groups. Assignment of "low hematocrit/hemoglobin" was slightly higher in urban local agencies than rural ones (13% compared to 12%). However, assignment of "preterm or early term delivery" risks did vary notably with urbanicity: 13 percent of nutritional risks in urban local agencies were "preterm or early term delivery" nutritional risks compared to 9 percent of nutritional risks in rural local agencies.

Results of analysis by local agency entity type were similar to those from analyses by size and urbanicity. About 32 percent of nutritional risk codes assigned by health centers or clinics involved "inappropriate nutrition practices for children." The same was true when the local agency was a nonprofit organization. However, only 27 percent of local or county health departments' assigned nutritional risks involved "inappropriate nutrition practices for children." This percentage was 21 percent for the entities categorized in the other local agency group. This was the largest variation in percentages for any of the top five most frequently assigned risk codes by entity type. The percentage of assigned "overweight woman" risk codes was similar regardless of local agency type; however, the percentage of "low hematocrit/hemoglobin" codes varied notably. Between 13 and 14 percent of codes assigned by local or county health departments and by health centers or clinics were "low hematocrit/hemoglobin" codes, compared to only 7 to 8 percent of codes assigned by nonprofit organizations or other local agency types. Similarly, the percentage of nutritional risk codes that were "preterm or early term delivery" risk codes varied notably by local agency type. These represented 14 percent of assigned codes by local or county health departments, 7 percent of codes assigned by health centers or clinics, 8 percent of codes assigned by nonprofit organizations, and 10 percent of codes assigned by other local agency types.

### State Agency Variation in Assigned Risk Codes

Table 4-5 presents the top five most common nutritional risk codes by State agency in order. The top five risk codes varied somewhat by State agency, but in general, the most common risk codes persisted across State agencies. Across all 10 study State agencies, just 13 different codes were among the top five most frequently assigned codes and these account for 64 percent of all codes assigned. Code 425 ("inappropriate feeding practices for children") is among the top five assigned nutritional risk codes in 8 of 10 State agencies. It was not among the top five risk codes in North Carolina or West Virginia. "Overweight woman" also occurs in top five risk codes for 8 of 10 State agencies. It is not among the top five most frequently assigned risk codes in Choctaw Nation or Nevada. "Postnatal enrollment" occurs in the top five risk codes for seven State agencies. It was not in the top five risk codes for Choctaw Nation, Florida, or Louisiana. In Louisiana, "inappropriate nutrition practices for children" (code 425), for women (code 427), and for infants (code 411) all appear in the top five most frequently assigned risk codes. This is the only State agency in which "inappropriate nutrition practices for women" and for infants occurred in the top five assigned risk codes. Analysis of the top five nutritional risk codes overall found that local agency characteristics, including urbanicity, caseload size, and type of entity, had little impact on the frequency of the most common risk factors.

Table 4-5. Top five nutritional risk codes by State agency

| Top five nutritional risk codes | |
|---|---|
| **Choctaw Nation** | **Florida** |
| 425: Inappropriate Nutrition Practices for Children | 425: Inappropriate Nutrition Practices for Children |
| 904: Exposure to Environmental Tobacco Smoke | 142: Preterm or Early Term Delivery |
| 201: Low Hematocrit/Hemoglobin | 201: Low Hematocrit/Hemoglobin |
| 114: Overweight or at Risk of Overweight Woman | 111: Overweight Woman[a] |
| 142: Preterm or Early Term Delivery | 133: High Maternal Weight Gain |
| **Indiana** | **Louisiana** |
| 425: Inappropriate Nutrition Practices for Children | 425: Inappropriate Nutrition Practices for Children |
| 401: Failure to Meet DGA | 201: Low Hematocrit/Hemoglobin |
| 111: Overweight Woman[a] | 427: Inappropriate Nutrition Practices for Women |
| 701: Postnatal Enrollment[b] | 111: Overweight Woman[a] |
| 142: Preterm or early term delivery | 411: Inappropriate Nutrition Practices for Infants |
| **Nebraska** | **Nevada** |
| 425: Inappropriate Nutrition Practices for Children | 425: Inappropriate Nutrition Practices for Children |
| 701: Postnatal Enrollment[b] | 701: Postnatal Enrollment[b] |
| 201: Low Hematocrit/Hemoglobin | 114: Overweight or at Risk of Overweight Woman |
| 401: Failure to Meet DGA | 702: Breastfeeding infant of woman at nutritional risk |
| 111: Overweight Woman[a] | 121: Short Stature or at Risk of Short Stature |

Table 4-5. Top five nutritional risk codes by State agency (continued)

| Top five nutritional risk codes | |
|---|---|
| **North Carolina** | **Ohio** |
| 114: Overweight or at Risk of Overweight Woman | 111: Overweight Woman[a] |
| 111: Overweight Woman[a] | 701: Postnatal Enrollment[b] |
| 201: Low Hematocrit/Hemoglobin | 133: High Maternal Weight Gain |
| 133: High Maternal Weight Gain | 425: Inappropriate Nutrition Practices for Children |
| 701: Postnatal Enrollment[b] | 601: Breastfeeding Mother of Infant at Nutritional Risk |
| **Vermont** | **West Virginia** |
| 425: Inappropriate Nutrition Practices for Children | 114: Overweight or at Risk of Overweight Woman |
| 701: Postnatal Enrollment[b] | 701: Postnatal Enrollment[b] |
| 114: Overweight or at Risk of Overweight Woman | 111: Overweight Woman[a] |
| 111: Overweight Woman[a] | 904: Exposure to Environmental Tobacco Smoke |
| 121: Short Stature or at Risk of Short Stature | 142: Preterm or Early Term Delivery |

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Tables 14b-k. Reference date: January-February 2020.

[a] Prepregnancy body mass index (BMI) ≥25.

[b] Infant up to 6 months old of a WIC mother, or of a woman who would have been eligible during pregnancy.

Analysis of the top five nutritional risk codes by State agency and local agency characteristics is available in Appendix G.

# 5. Benefit Tailoring

**Key Findings**

- Tailoring of standard food packages takes three forms: tailoring of the amount of infant formula prescribed, assignment of a Food Package III based on documented medical or nutritional conditions, and substitutions (or removal from the package) of supplemental foods based on participant preferences (with some limitations), household conditions, and participant food intolerances or restrictions. (These substitutions are referred to as MMA tailoring in the study's analysis of benefit tailoring.)
- Almost all surveyed local agencies report that their WIC staff modify food quantities in response to nutrition assessment results, either because it is medically or nutritionally warranted (92%) or because the participant refuses or cannot use the full benefit (66%).
- A second way to modify a food package is to tailor food types and forms to accommodate household and general living conditions. The majority of local agencies tailor food types and forms to accommodate unsafe water (86%), homeless and transient status (85%), food storage conditions (81%), and equipment for food preparation (59%).
- Over 70 percent of the surveyed local agencies report that staff use the information obtained in the nutrition assessment to tailor the delivery medium of the nutrition education (75%) or the content of educational materials (72%). About one-half of local agencies report that staff tailor nutrition education for participants by providing a menu of nutrition education topics from which participants choose what interests them most (50%) or they tailor the number and frequency of education contacts (48%). Just 2 percent of local agencies report that WIC staff do not tailor nutrition education based on information obtained during the nutrition assessment.
- The only significant differences by local agency characteristics relate to the use of technology-based nutrition education used by participants off-site via the internet and one-on-one counseling using video conferencing. Urban agencies and local agencies with two or more clinics are more likely to use both of these nutrition education modes than rural agencies or local agencies with just one clinic.
- Internal referrals to RDs/RDNs are offered to all WIC participants in 41 percent of surveyed local agencies compared to 57 percent for Breastfeeding Peer Counselors and 26 percent for WIC-Designated Breastfeeding Experts. Referrals to these specialists are offered on an as-needed basis based on the nutrition assessment in 67 percent of local agencies for WIC-Designated Breastfeeding Experts, 44 percent of local agencies for RDs/RDNs, and 32 percent for Breastfeeding Peer Counselors. Local agencies without internal access to these specialists varied between 7 percent for WIC-Designated Breastfeeding Experts and 15 percent for RDs/RDNs.
- Most surveyed local agencies offer external referrals to participants on an as-needed basis, based on the participant's assessment. These range from services such as child abuse prevention/counseling, food banks, and housing support to oral health services. The majority of local agencies offer external referrals for childhood immunizations, SNAP, and Medicaid to all participants.
- Overall, 60 percent of surveyed local agencies report that their MIS helps to facilitate tailoring of program benefits, while 40 percent said their MIS did not. Of these local agencies, 82 percent report their MIS helps facilitate food package tailoring, 35 percent report that their MIS helps tailor nutrition education offered, and 39 percent report that their MIS helps tailor referrals offered.

The VENA approach is a participant-centered, health outcome-based approach to WIC nutrition assessment. It incorporates a WIC nutrition assessment process with policies, staff competencies, an MIS, and quality improvement strategies that together enhance the delivery of

WIC nutrition services. The WIC nutrition assessment is the starting point for tailoring the WIC nutrition services provided to individual participants. It is followed by benefit tailoring. VENA Guidance describes the three activities that make up benefit tailoring as follows:

- Customizing counseling strategies (e.g., nutrition/breastfeeding education, guided goal setting, affirmations) that address a participant's needs and concerns;
- Tailoring the food package to address nutrition needs and breastfeeding status and preferences, including those based on the participant's culture; and
- Making appropriate referrals.[42]

This chapter of the report explores the benefit tailoring process using data and information from several sources: State and local agency policy and procedure documents, the results of the Local Agency Director Survey, and State agency MIS data. Note that the data represent the 10 study State agencies only and not the WIC program as a whole.

## 5.1 General Description of Benefit Tailoring

With this general description of benefit tailoring synthesized from State agency documents, the study team is addressing those research questions related to describing standard benefit tailoring protocols in general and policies and procedures for specific components of the benefit tailoring process in particular, such as how local agencies use information obtained in the nutrition assessment to tailor food packages (see the research questions listed in Table 1-1). As noted in Section 3.1 above, the study team collected documents from all study State agencies. The documents, which are listed in Appendix B, were also used to describe benefit tailoring policies and procedures. As with the assessment process, the state-specific descriptions in Appendix C contain text from the documents that touch upon benefit tailoring—how it is described in policy documents and how procedures are described that may suggest variation in the State agency's approach to this activity. Since State agencies adhere closely to WIC Federal regulations in their policy and procedure documents, it is most likely that, at the State agency level, differences in policies and procedures are ones of emphasis.

This section of the report provides a general description of the benefit tailoring process from a synthesis of State agency documents. The focus is on documents that describe policies and procedures before the COVID-19 pandemic. While there were some local agency documents provided to the study team, almost all had their source as the State agency or were related to COVID-19 procedures. How WIC clinics changed their procedures in response to the COVID-19 pandemic is discussed in Chapter 7.

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[42] U.S. Department of Agriculture, Food and Nutrition Service. (2020). *Value Enhanced Nutrition Assessment (VENA) in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) – Updated guidance* (p. 25). Available at: https://wicworks.fns.usda.gov/sites/default/files/media/document/vena-guidance.pdf.

### 5.1.1 Benefit Tailoring as Described in State Agency Documents

This section provides a general description of benefit tailoring for nutrition education, referrals, and food package prescriptions as found in the policy and procedure documents provided by the 10 study State agencies. Variation in written policy and procedures that the study team uncovered in the review is also described. As with the review of documents related to the nutrition assessment, the 10 study State agencies adhere closely to WIC Federal regulations in their policy and procedure documents related to benefit tailoring.

#### Nutrition Education

WIC regulations define nutrition education as:

> …individual and group sessions and the provision of materials that are designed to improve health status and achieve positive change in dietary and physical activity habits, and that emphasize the relationship between nutrition, physical activity, and health, all in keeping with the personal and cultural preferences of the individual.[43]

During a 6-month certification period, WIC clinics are required to provide a minimum of two nutrition education contacts to "all adult participants and the parents, guardians, and/or caretakers of infant and child participants, and when possible, the child participants themselves." One State agency's documents noted that "Local programs are encouraged to provide nutrition education to participants on a more frequent basis when possible." This encouragement to provide more frequent nutrition education was across the board and not tied to any particular participants or issues.

In a certification or recertification visit, nutrition education and counseling is generally provided by the WIC CPA that conducts the nutrition assessment, who is required to use the initial certification visit to encourage participants to participate in nutrition counseling or nutrition education activities. Table 5-1 presents the nutrition education delivery modes allowed by State agencies as indicated in the agencies' State Plan documents.[44] *Prior to the pandemic*, all study State agencies allowed face-to-face nutrition education (individually and in groups) and online/internet education. Seven of 10 State agencies allowed telephone nutrition education contacts (see Table 5-1). While allowing telephone contacts, one State agency noted that they were rare prior to the pandemic.

[43] Definitions, 7 C.F.R. § 246.2.

[44] The WIC State Plans are dated 2020 for all State agencies except Louisiana whose plan is dated 2019. Information is pre-pandemic.

Table 5-1. Nutrition education delivery modes allowed by the State agency

| Mode of nutrition education delivery | Choctaw Nation | Florida | Indiana | Louisiana | Nebraska | Nevada | North Carolina | Ohio | Vermont | West Virginia |
|---|---|---|---|---|---|---|---|---|---|---|
| Face-to-face, individually or group | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Online/internet | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Telephone | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Food demonstration | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Delivery method performed by other agencies (i.e., Expanded Food and Nutrition Education Program) | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Other, specify | | ✓[a] | | | | | | | | |

Source: 2020 WIC State Plans, Section II (Nutrition Services), Q A 3c for all study State agencies except Louisiana whose State Plan is dated 2019.

[a] Florida noted the following other modes of nutrition education: Nutrition Notebook, nutrition education kits, nutrition education newsletters, Story Time nutrition education, and online nutrition education on WICHealth.org. Florida also noted that telephone nutrition education contacts are rare.

In their policy and procedure documents, State agencies provide guidance on how nutrition education topics and delivery mode should be selected. This guidance points to a number of indicators for designing the nutrition education benefit. According to State agency documents, content and delivery mode should take into consideration "participant's personal and cultural preferences," "participant's category, age, ethnicity, and other socioeconomic and cultural factors," "the needs, interests, concerns, and/or nutrition risks of the participant," "individual participant's needs, household situations, and cultural preferences," "participant/caregiver concerns and/or assigned risk code(s) of greatest need and/or concern and category," "the participant's category, nutrition risk, and participant concerns," "the participant's age, nutritional needs, interests, household situation, cultural preferences, language spoken, and any special considerations the participant might have," "the participant's highest priority needs and their interests/requests," and "the participant's record, dietary history, health history, and/or participant's questions and concerns." This guidance helps ensure that the nutrition education benefit is tailored to the needs of each WIC participant.

Some of the State agency documents reviewed include guidance on how to deliver participant- or client-centered counseling and education. Participant-centered counseling is described as including interactions with the participant/caretaker to hear the participant's concerns and opinions; reinforcement of what the participant/caretaker is doing right and commending the participant for those behaviors; review of topics pertinent to the participant/family, explaining how they impact the participant's health or nutrition status; and asking the participant/caretaker to choose a nutrition or physical activity goal to work on until the next appointment. One State agency mentioned the use of OARS (open-ended questions, affirmations, reflections, and summaries) as a method for conducting nutrition education appointments. Goals are used to encourage positive change in participants' nutrition and health habits. WIC staff help participants set realistic goals by "explaining what a goal is, asking open-ended questions, using affirmative statements during assessment and counseling, reflecting back on what was discussed during nutrition education, and discussing any challenges or barriers to reaching goals." At recertification appointments, WIC staff provide nutrition education follow-up of recommendations and goals set at the previous appointment and assist the participant in setting their next goal. State agencies may provide nutrition education materials for clinic use. Table 1 in Appendix C presents State Plan information on the types of nutrition education materials that State agencies make available (or recommend). All study State agencies indicated that they make available or recommend materials on general nutrition, maternal nutrition, infant nutrition, child nutrition, breastfeeding promotion and support, danger of harmful substances/secondhand smoke during pregnancy/breastfeeding, food safety, and physical activity. Many provide these materials in both English and Spanish (Florida also provides materials in Haitian Creole). State agencies are less likely to make available or recommend materials on the nutritional needs of the homeless, migrant farmworkers and their families, Native Americans, and teenage prenatal women.

### Referrals

Federal regulations state that "State and local agencies shall provide WIC program applicants and participants or their designated proxies with information on other health-related and public assistance programs, and when appropriate, shall refer applicants and participants to such programs."[45] Regulations specifically require referrals to the Medicaid program when participants appear to have family income below the applicable maximum income limits for the program and the provision of drug and other harmful substance abuse information to all pregnant, postpartum, and breastfeeding women and to parents or caretakers of infants and children participating in the program.

State agency policies require that WIC staff offer external referrals to participants based on identified need or the client's interests as determined at each certification appointment. However, specific guidance on providing referrals or information on external services can vary. For example, one State agency noted that "WIC staff must provide a Medicaid referral to all participants," while another indicated that "WIC staff must fulfill referral requirements of the Federal regulations by providing information on Medicaid at each certification." A third State agency's guidance noted the specific information about the Medicaid program that WIC staff should provide, saying, "All clients or their caregivers will receive information on the following programs [to include]: Medicaid Income Guidelines."

The review also identified a few unique practices with regard to referrals. One State agency requires WIC clinics to maintain a current list of local health and mental health resources for referral for diagnosis and treatment of maternal depression. Another requires WIC agencies to set protocols in conjunction with their agency's medical staff regarding what hematological or anthropometric values or other issues would indicate that a referral should be made and what issues would trigger the need for an immediate referral.

### Food Package Prescriptions

When it comes to food package tailoring, Federal regulations require that WIC programs make available to participants the full MMAs of all supplemental foods in all food packages "if medically or nutritionally warranted." WIC programs can provide less than the MMAs of supplemental foods to an individual WIC participant only when:

- It is medically or nutritionally warranted (e.g., to eliminate a food due to a food allergy);
- A participant refuses or cannot use the MMAs; or

[45] Certification of participants, 7 C.F.R. § 246.7.

- The quantities necessary to supplement another program's contribution to fill a medical prescription would be less than the MMAs.[46]

From the State Plan data, all study State agencies indicated that they allow individual nutrition tailoring of food packages only in accordance with 246.10(c) of the WIC program regulations (quoted above). (See Table 2 of Appendix C.) The WIC State Plan also required State agencies to indicate if they provide special individually tailored packages for homeless individuals and residents of institutions. It appears not all study State agencies interpreted this question in the same manner. Three State agencies indicated that the issue was not applicable as food packages are tailored on a case-by-case basis, not for groups, although one of these agencies indicated they have a food package for homeless individuals. Two State agencies said they do not develop individual nutrition tailoring policies. All other State agencies indicated they have a tailored food package for homeless individuals and that they develop tailoring policies based on nutritional risk and the nutrition and breastfeeding assessments, participant preference, and household conditions/homelessness. However, State agency guidance may note that residency in a homeless facility does not automatically result in the need for food package changes. Just three State agencies indicated they have a tailored food package for residents of institutions. One State agency indicated that they have developed written policies for cultural preferences as well. Of the 10 State agencies, only 1 State agency indicated that they do not allow local agencies to develop specific individual tailoring guidelines.

While State agencies allow for individual tailoring due to cultural food preferences, one State agency has also developed a food package focusing on kosher milk foods for participants "who self-report a cultural eating pattern."

Tailoring of individual food packages must be completed by a WIC CPA. This tailoring of the standard food packages takes three forms: tailoring of the amount of infant formula prescribed, assignment of a Food Package III based on documented medical or nutritional conditions, and substitutions (or removal from the package) of supplemental foods based on participant preferences (with some limitations), household conditions, and participant food intolerances or restrictions. These substitutions are referred to as MMA tailoring in the study's analysis of benefit tailoring.

CPAs tailor the amount of infant formula issued based on an assessment of breastfeeding and formula intake, which allows them to determine the appropriate quantity of formula needed to support breastfeeding goals. When an infant's status is "mostly breastfeeding" or "partially breastfeeding," CPAs have the ability to tailor the infant's food package to meet the infant's nutritional needs. State guidance often indicates that WIC staff be instructed not to automatically provide the full MMA of infant formula. State agency policies regarding requests for special formula due to religious beliefs vary. One State agency noted that it provides noncontract milk-based formula products that meet halal and kosher requirements as a religious exception.

[46] Supplemental foods, 7 C.F.R. § 246.10(c).

Another State agency indicated that when individuals require a special formula because of religious beliefs, CPAs must contact the state WIC office for specific guidance.

Allowable substitutions to standard food packages are generally consistent across the study State agencies. Types of food package substitutions include:

- Low-fat or nonfat milks are the standard milk for issuance to children 2 years of age or older and women, but whole milk can be substituted for low-fat or nonfat milk in certain circumstances. This change cannot be made based on personal preference.
- Whole milk is the standard milk for issuance to children less than 2 years old. These children can receive low-fat or skim milk if the child's nutrition assessment results in an assigned risk factor of "high weight for length." These children may also have yogurt made from low-fat or skim milk as a substitute for whole milk. These changes cannot be made based on personal preference.
- Soy milk can be prescribed to children 12 months of age or older due to cow's milk allergy, lactose intolerance, vegan diets, or cultural or dietary preference. One State agency noted that "Children may receive soy milk for the same reasons as women, after a nutritional assessment is made by the CPA, in consultation with the participant's healthcare provider."
- Lactose-free milk can be substituted for children and women with symptoms of lactose intolerance or for participant preference.
- Substitutions can be made based on a participant's ability to store food, access to adequate refrigeration, access to a sanitary water supply, and ability to safely handle foods.
- Substitution of peanut butter instead of beans can be made based on participant preference.
- There are generally no substitutions if a participant does not want eggs in their food prescription, although one State agency indicated that canned beans or peanut butter may be provided in lieu of eggs if the participant is homeless or lacks access to refrigeration or cooking facilities.
- Replacing the fruit and vegetable CVB with infant fruits and vegetables can be done when a medical need exists.

When a participant asks for a substitution that replaces milk with milk substitutes or requests a food be removed from their food package, some State agencies have policies instructing CPAs to provide counseling/nutrition education to make parents and caregivers aware that a child's diet may be inadequate when milk is replaced by other foods. CPAs are instructed to provide participants with information on the nutritional content and health benefits of the food that is being refused.

## 5.2 Benefit Tailoring Details at the Local Agency and Clinic Level

This section highlights findings from the Local Agency Director Survey which was sent to all local agencies within the study's selected 10 State agencies. The survey included questions related to benefit tailoring in four areas:

- Tailoring food package benefits;
- Tailoring nutrition education;
- Tailoring referrals; and
- Use of the MIS to help staff tailor program benefits.

As noted in Chapter 3, the survey provided instructions to ensure respondents answered survey questions based on clinic operations prior to the pandemic. Survey results by question are presented in Appendix D. These appendix tables show differences by urbanicity, number of clinics associated with the local agency, and local agency size. Statistically significant differences between subgroups of interest were assessed using t-tests. This report presents results significant at $p \leq 0.05$. Note that as discussed in Chapter 2, the study's sample is a nonprobability sample and is not nationally representative. The results reflect the benefit tailoring policies and procedures in our 10 selected State agencies only.

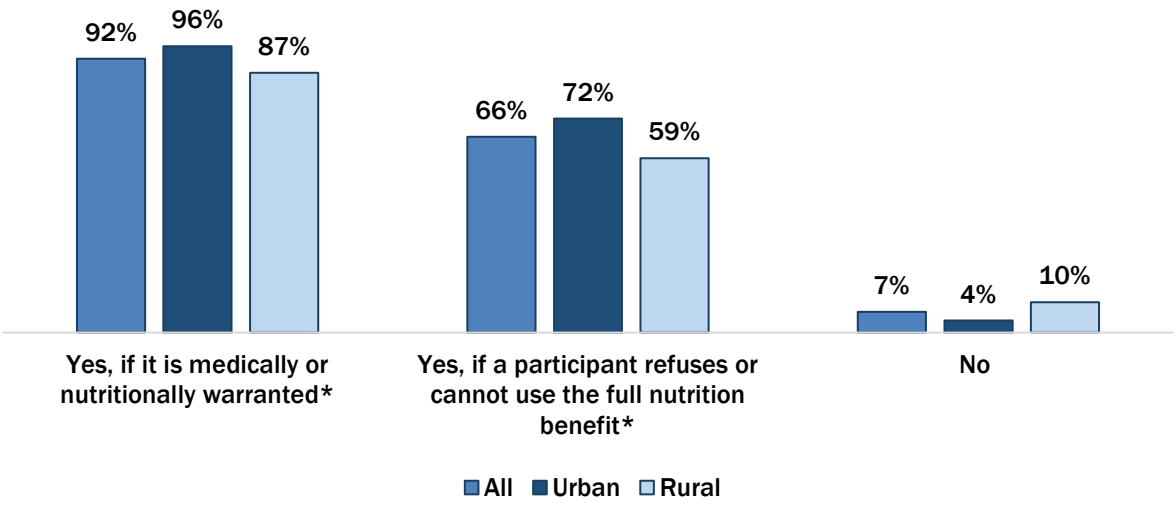
### 5.2.1 Nutrition Services Tailoring Practices Reported by Local Agencies

Local agencies provided information on their nutrition services tailoring practices in terms of how they modify food packages, how they conduct nutrition education, and the types of referrals they offer participants.

#### Food Package Modifications

Food packages can be modified in several ways. One way to modify a food package is to provide less than the full MMA. Almost all surveyed local agencies report that their WIC staff modify food quantities in response to nutrition assessment results, either because it is medically or nutritionally warranted (92%) or because the participant refuses or cannot use the full benefit (66%). However, significantly more urban local agencies allow modifications to food quantities compared to rural local agencies, both when it is medically warranted and if a participant refuses or cannot use the full nutrition benefit (see Figure 5-1). Just 7 percent of all local agencies report that their clinic staff do not modify food quantities in response to nutrition assessment results. This did not differ significantly by urbanicity.

Figure 5-1. Percentage of local agencies reporting staff modify food quantities† in response to nutrition assessment results, by urbanicity




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 24 (n: all local agencies=321, urban=174, rural=147). See Appendix D, Table 15. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

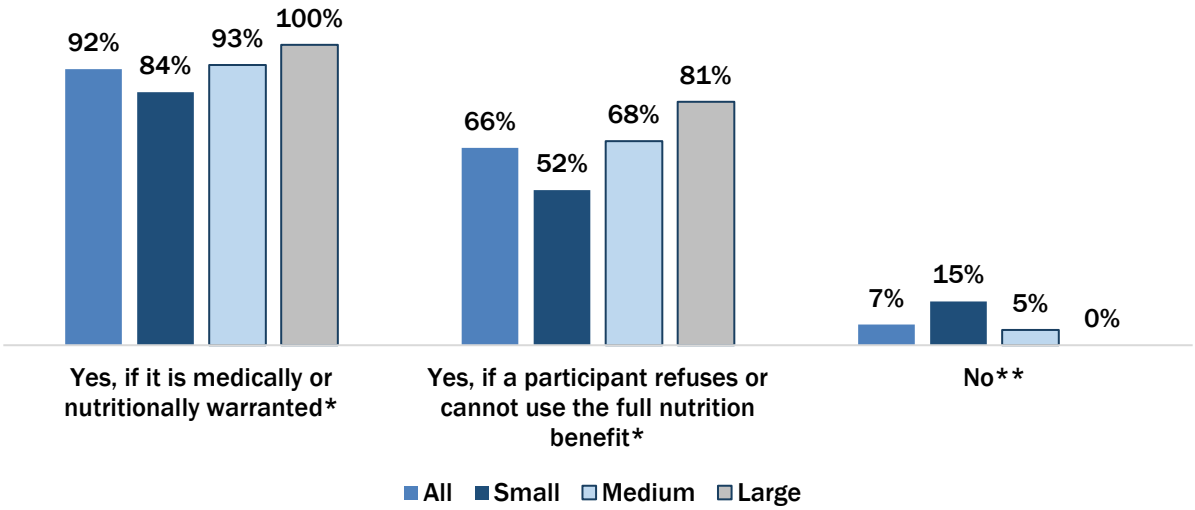
Respondents selected all that apply.

† Food quantities modified by providing less than the full MMA.

* Differences between urban and rural local agencies are significant at p≤0.05.

There are no significant differences in the answers to this question by number of clinics. However, the percentage of local agencies that allow modifications to food quantities increased by local agency size for both when medically or nutritionally warranted and if the participant refuses or cannot use the full nutrition benefit (see Figure 5-2). All large agencies report that staff modify food quantities in response to nutrition assessment results if medically or nutritionally warranted compared to 93 percent of medium-sized agencies and 84 percent of small agencies.

Figure 5-2. Percentage of local agencies reporting whether staff modify food quantities† in response to nutrition assessment results, by local agency size




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 24 (unweighted n: small=89, medium=178, large=53). See Appendix D, Tables 15 and 84. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

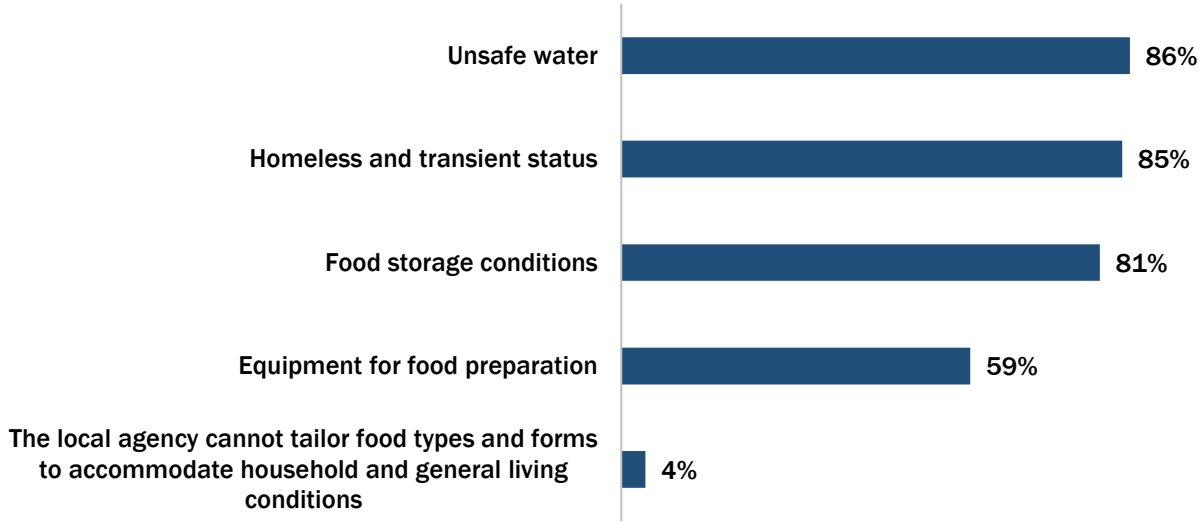
† Food quantities modified by providing less than the full MMA.

* Differences between small and medium local agencies, between medium and large local agencies, and between small and large local agencies are significant at p≤0.05.

** Differences between small and medium local agencies are significant at p≤0.05.

A second way to modify a food package is to tailor food types and forms to accommodate household and general living conditions. The majority of local agencies tailor food types and forms to accommodate unsafe water (86%), homeless and transient status (85%), food storage conditions (81%), and equipment for food preparation (59%) (see Figure 5-3). Just 4 percent of local agencies report that they cannot tailor food types and forms to accommodate living conditions.

Figure 5-3. Percentage of local agencies that tailor food types and forms to accommodate living conditions




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 25 (n=314). See Appendix D, Table 16. Tabulations are not weighted. Sample is a diverse nonprobability sample. Unweighted n=314. A total of 321 local agencies completed the survey.

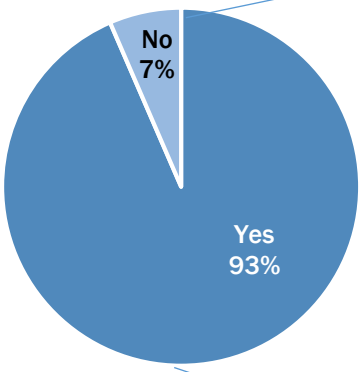
Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

The only significant differences by local agency characteristics are related to homeless and transient status. Urban local agencies are more likely to modify food packages for homeless and transient status (90%) than rural agencies (79%; see Appendix D, Table 16). Similarly, significantly more medium and large local agencies tailor food types and forms to accommodate homeless and transient status than small local agencies (88% and 91% vs. 76%; see Appendix D, Table 85). No differences emerged by number of clinics within the local agency.

Almost all local agencies allow WIC staff to make changes or substitutions to food packages to meet participants' nutritional needs and preferences (93%), and this does not differ by any local agency characteristics. Almost all local agencies that make changes or substitutions to the food package to meet individual nutritional needs and preferences allow adjustments to the amount and type of infant formula based on the breastfeeding assessment (98%) as well as substitutions based on medical diagnoses (98%) or food preferences (86%) (see Figure 5-4).

Figure 5-4. Percentage of local agencies that allow changes to the food package* based on participants' needs and preferences, and the types of changes




| Types of changes to the food package | Percentage of local agencies |
|---|---|
| Adjustment to the amount of infant formula provided based on breastfeeding assessment | 98.3 |
| Substitutions based on medical diagnoses | 98.0 |
| Substitutions based on participants' food preferences | 86.3 |
| Cultural, belief, or religious food substitutions (e.g., vegan, kosher, halal) | 83.7 |
| Adjustment to the type of infant formula provided based on breastfeeding assessment** | 78.7 |
| Other*** | ** |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey questions 26 and 27 (n: total=321, local agencies who responded "yes"=300). See Appendix D, Table 17. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

* Not including changes for Food Package III.

**The type of infant formula provided may be discussed during a breastfeeding assessment if the WIC mother is supplementing breastfeeding with infant formula.

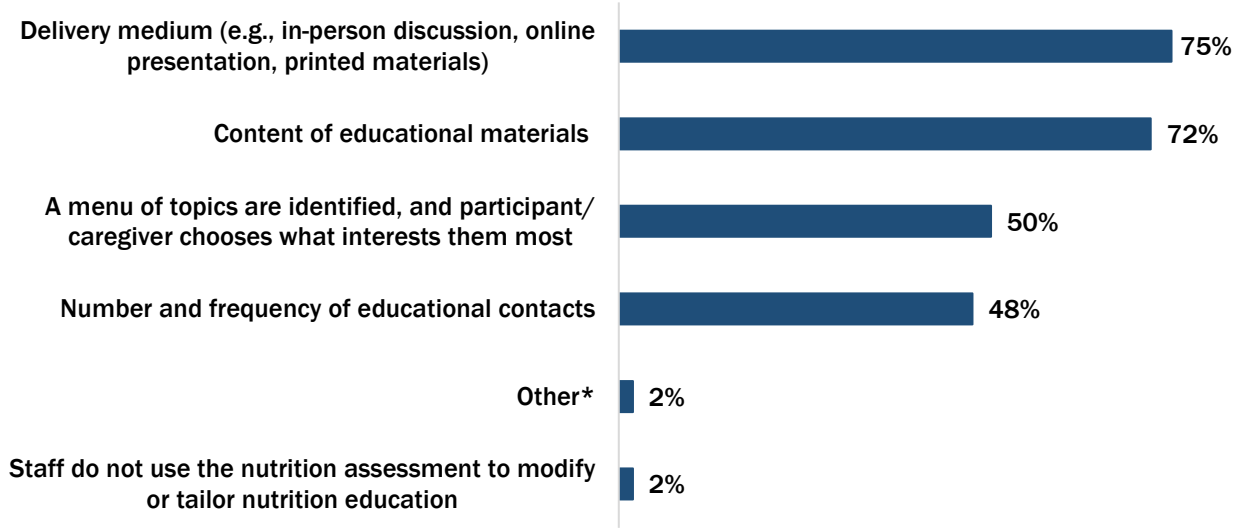
***Other changes were related to peanut butter and included removing peanut butter from the package if any member of the household has a peanut allergy.

There are no differences in the types of allowed adjustments by urbanicity or number of clinics. However, two types of changes differ by local agency size—substitutions based on participants' food preferences and cultural, belief, or religious food substitutions. In these two cases, small and medium-sized agencies are less likely to make these changes than large agencies (see Appendix D, Table 86).

## Tailoring Nutrition Education

Over 70 percent of the surveyed local agencies report that staff use the information obtained in the nutrition assessment to tailor the delivery medium of the nutrition education (75%) or the content of educational materials (72%) (see Figure 5-5). About one-half of local agencies report that staff tailor nutrition education for participants by providing a menu of nutrition education topics from which participants choose what interests them most (50%) or they tailor the number and frequency of education contacts (48%). Just 2 percent of local agencies report that WIC staff do not tailor nutrition education based on information obtained during the nutrition assessment.

Figure 5-5. Percentage of local agencies reporting how nutrition education is tailored




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 28 (n=320). See Appendix D, Table 18. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

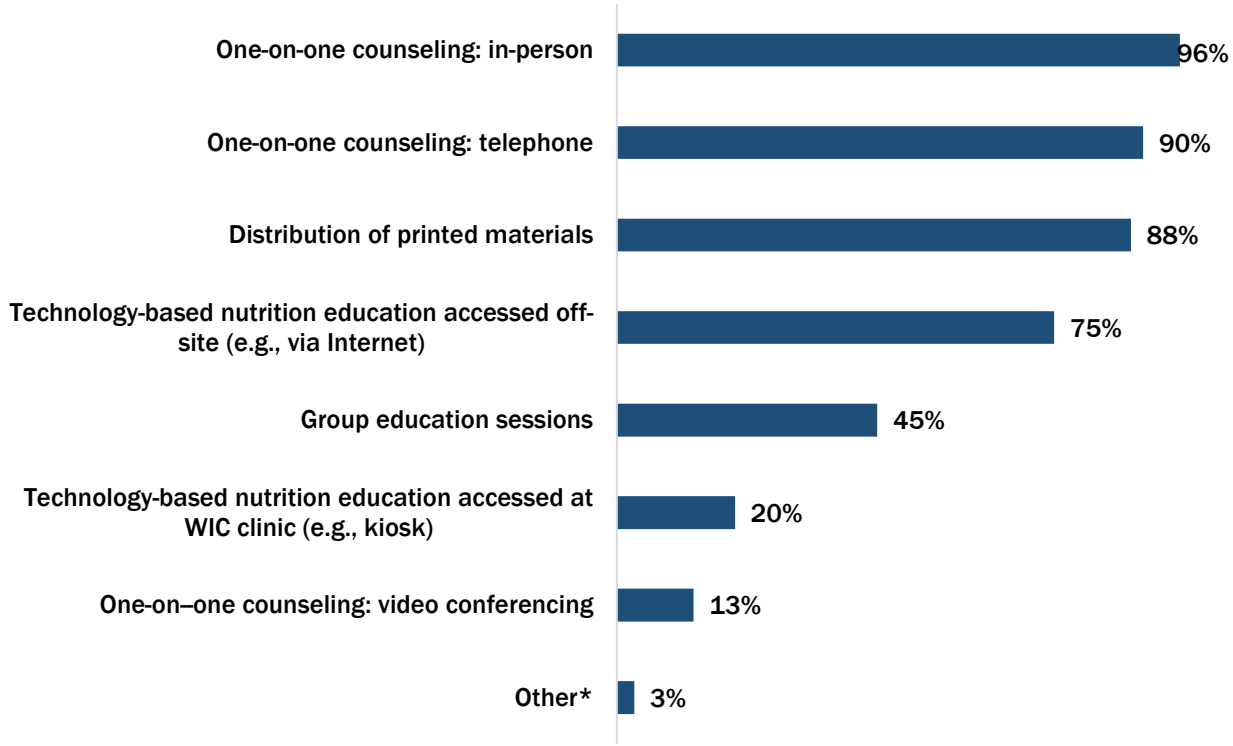
Respondents selected all that apply.

* Examples of other tailoring activities included determining whether follow-up contacts are provided by nutrition staff or clerical staff and asking participants what they want to talk about.

Significantly more local agencies with one clinic compared to two or more clinics modify the delivery medium in which the nutrition education is provided (81% vs. 70%; see Appendix D, Table 53). Also, significantly more large and medium-sized local agencies tailor the number and frequency of educational contacts based on the nutrition assessment compared to small local agencies (59% and 51%, respectively, vs. 36%; see Appendix D, Table 87). No differences emerged by urbanicity.

The most common mode of nutrition education that surveyed local agencies offer to participants, currently and prior to the pandemic, is one-on-one counseling at the WIC clinic (96%) (see Figure 5-6). Large majorities of local agencies also offer nutrition education one-on-one over the telephone (90%) and through the distribution of printed materials (88%). Also common is technology-based nutrition education accessed off-site via the internet, such as web-based nutrition education modules (75%). Slightly fewer than half of the local agencies offer group nutrition education sessions (45%), and even fewer offer technology-based nutrition education at the WIC clinic (20%) or one-on-one counseling using video conferences (13%). In response to an "Other, specify" option, local agencies indicated offering texting/emails, bulletin boards, and apps/social media as nutrition education modes.

Figure 5-6. Percentage of local agencies conducting nutrition education by each mode, currently and prior to the pandemic




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 29 (n=321). See Appendix D, Table 19. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Respondents selected all that apply.

* Examples of other include texting/emails, bulletin boards, and apps/social media.

The only significant differences by urbanicity and number of clinics relates to the use of technology-based nutrition education used by participants off-site via the internet and one-on-one counseling using video conferencing. Urban agencies are more likely to use both of these nutrition education modes than rural agencies (79% vs. 69% for technology-based nutrition education used by participants off-site via the internet, and 18% vs. 7% for video conferencing; see Appendix D, Table 19). Similarly, local agencies with two or more clinics are also more likely to use both of these nutrition education modes than agencies with a single clinic (80% vs. 66% for technology-based education using the internet, and 18% vs. 7% for video conferencing; see Appendix D, Table 54).

There are additional significant differences by local agency size, and these are shown in Table 5-2. As with urbanicity and number of clinics, significantly more large local agencies (93%), compared to small (72%) and medium-sized (71%) local agencies, use technology-based nutrition education accessed off-site over the internet. A similar pattern emerged for the use of

one-on-one video conferencing. In contrast, small local agencies are more likely to offer nutrition education through the distribution of printed materials than medium-sized local agencies (94% vs. 84%). In addition, significantly more large local agencies also offer group nutrition education sessions compared to small and medium-sized local agencies (68% vs. 43% and 38%, respectively).

**Table 5-2. Modes of nutrition education, currently and prior to COVID-19, by local agency size**

| Modes of education | Percentage of local agencies | | |
|---|---|---|---|
| | Small (n=89) | Medium (n=178) | Large (n=53) |
| One-on-one counseling: face-to-face (in WIC clinic) | 94.4[a] | 96.1[b] | 100 |
| One-on-one counseling: telephone | 93.3 | 87.1 | 94.3 |
| Distribution of printed materials | 94.4[c] | 84.3 | 88.7 |
| Technology-based nutrition education used by participants off-site via internet (e.g., web-based nutrition education modules) | 71.9[a] | 70.8[b] | 92.5 |
| Group education sessions | 42.7[a] | 38.2[b] | 67.9 |
| Technology-based nutrition education used by participants on-site (e.g., computer, kiosk, tablet) | 25.8 | 16.9 | 22.6 |
| One-on-one counseling: video conferencing | 12.4[a] | 9.6[b] | 26.4 |
| Other* | 4.5 | 3.9 | ** |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 29. See Appendix D, Table 88. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents selected all that apply.

* Examples of other include texting/emails, bulletin boards, and apps/social media.

[a] Difference between small and large local agencies are significant at p≤0.05.

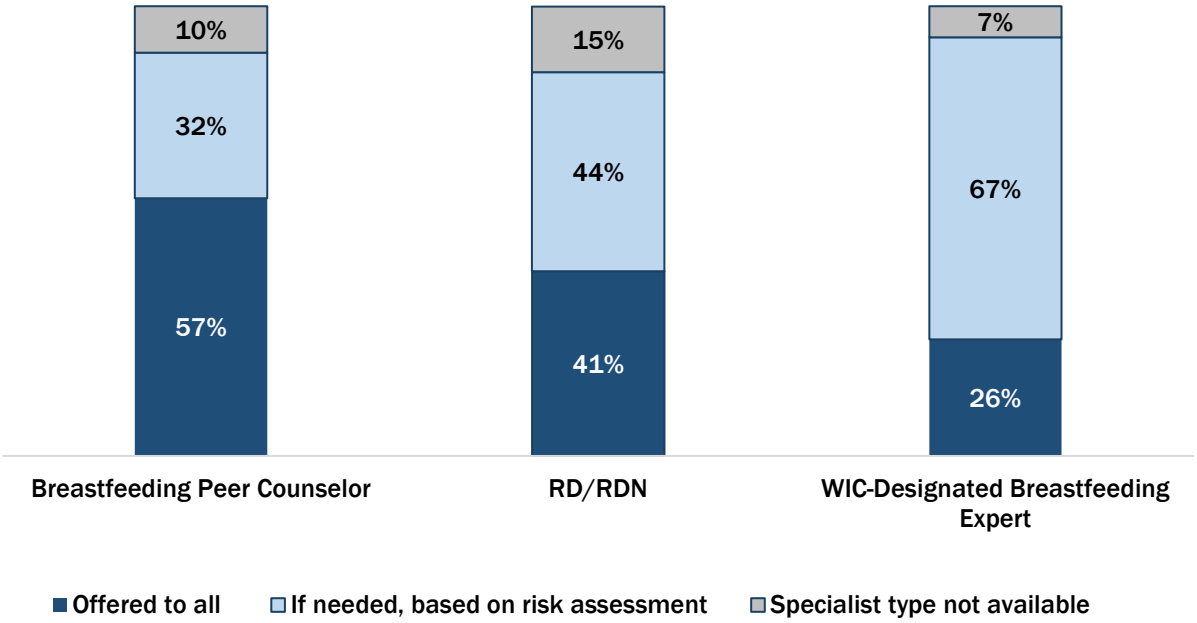
[b] Difference between medium and large local agencies are significant at p≤0.05.

[c] Difference between small and medium local agencies are significant at p≤0.05.

**Data are not reported due to small cell size.

Internal referrals to BFPCs and WIC-Designated Breastfeeding Experts were described in Section 3.2.3 as part of the analysis of the breastfeeding assessment. The data are reproduced here to allow a comparison between internal referrals to breastfeeding specialists compared to those to WIC RDs/RDNs. Internal referrals to RDs/RDNs are offered to all WIC participants in 41 percent of surveyed local agencies compared to 57 percent for BFPCs and 26 percent for WIC-Designated Breastfeeding Experts (see Figure 5-7). These referrals are offered on an as-needed basis based on the nutrition assessment in 32 percent of local agencies for BFPCs, 44 percent of local agencies for RDs/RDNs, and 67 percent of local agencies for WIC-Designated Breastfeeding Experts. Local agencies without internal access to these specialists varied between 7 percent for WIC-Designated Breastfeeding Experts and 15 percent for RDs/RDNs.

Figure 5-7. Type of internal referrals offered by local agency staff person



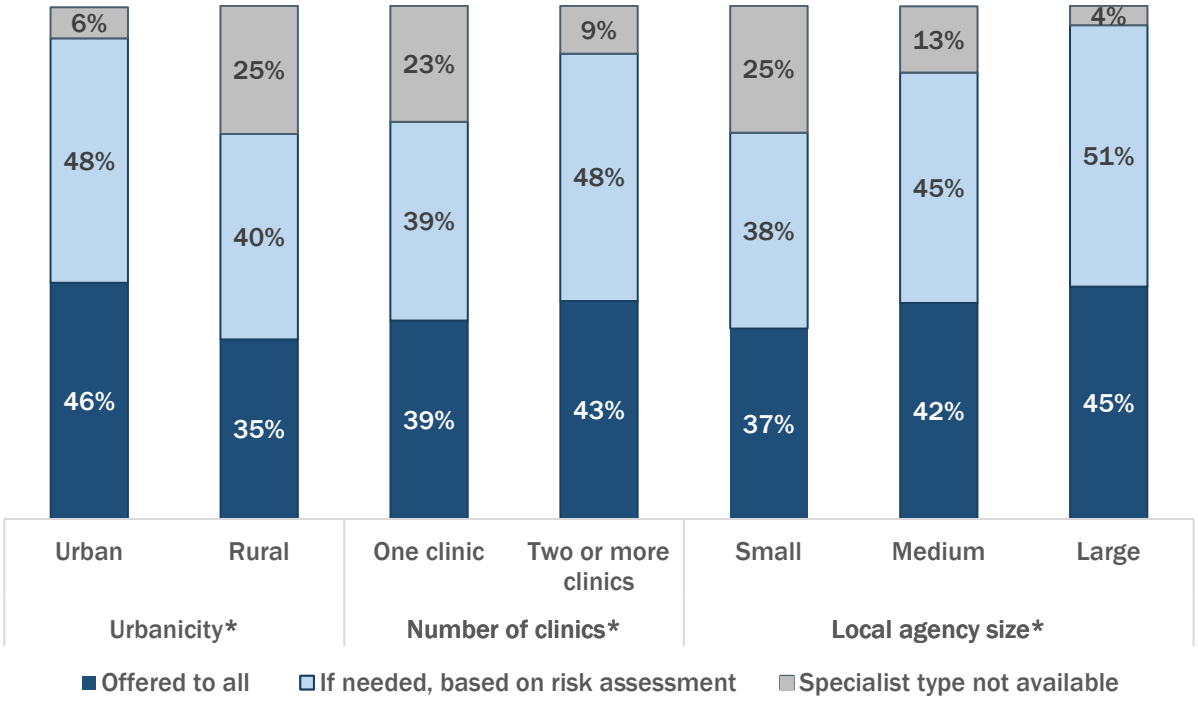

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 31 (n=320-321). See Appendix D, Table 21. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Column totals may not add to 100 due to rounding.

No differences emerged by urbanicity, number of clinics, or size of local agency for whether internal referrals to BFPCs or WIC-Designated Breastfeeding Experts are offered. However, significant differences emerged for how the local agencies offered referrals to WIC RDs/RDNs. Specifically, significantly more urban local agencies offer internal referrals to a WIC RD/RDN to all WIC participants compared to rural local agencies (46% vs. 35%), likely due in part to the larger number of rural local agencies (25%) who do not have an RD/RDN available compared to urban local agencies (6%), though this difference is not significant (see Figure 5-8).

Figure 5-8. Local agencies offering internal referrals to WIC RDs/RDNs by urbanicity, number of clinics, and size of local agency




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 31 (n: urban=174, rural=147, one clinic=124, two or more clinics=193, small=89, medium=178, large=53.) See Appendix D, Tables 21, 56, and 90. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

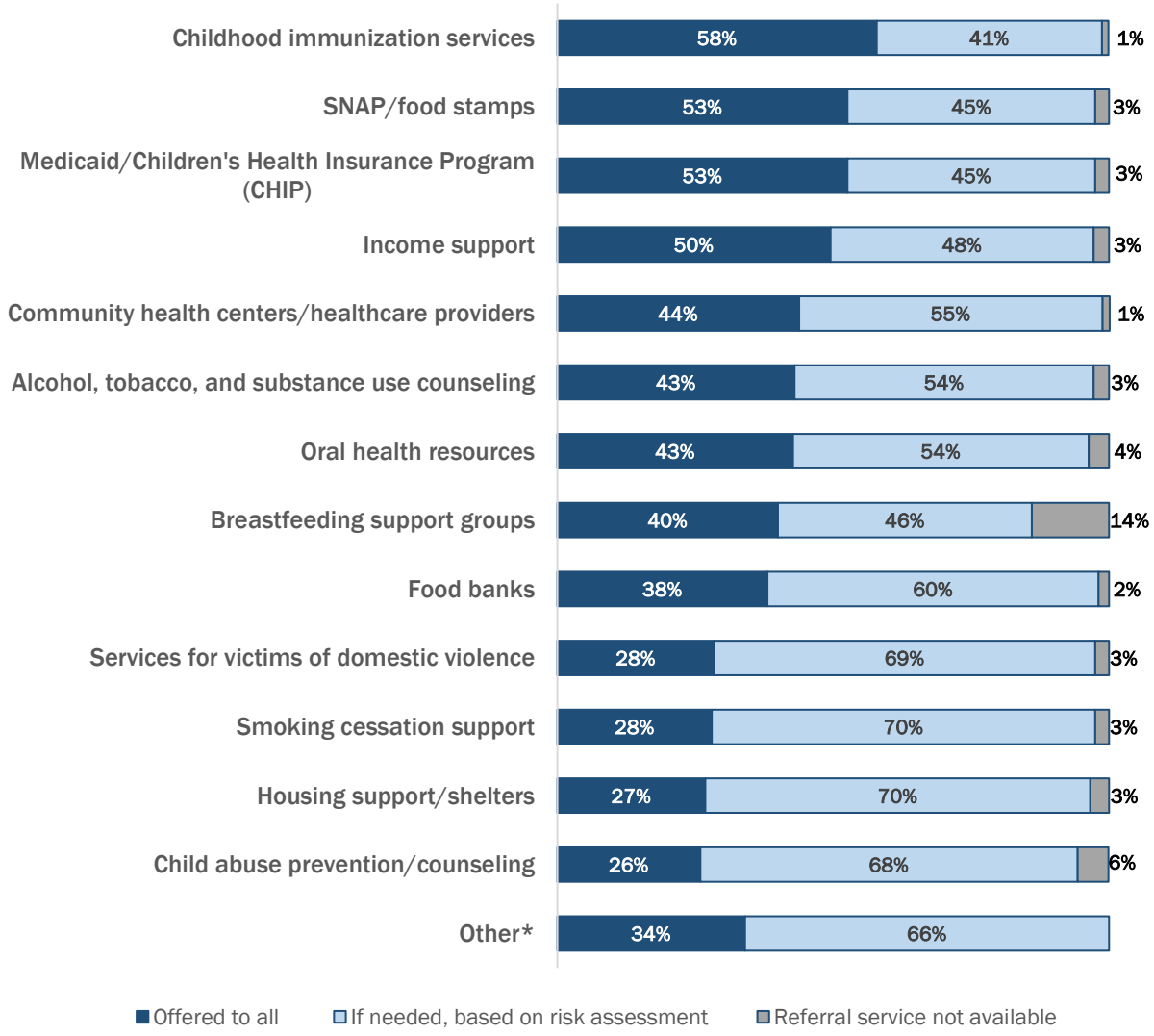
Column totals may not add to 100 due to rounding.

* Differences between urban and rural local agencies, between local agencies with one clinic or two or more clinics, and between small and large local agencies for referrals offered to all participants are significant at p≤ 0.05.

Similarly, significantly more local agencies with two or more clinics offer internal referrals to WIC RDs/RDNs to all WIC participants compared to local agencies with one clinic (43% vs. 39%). Finally, significantly more large local agencies offer internal referrals to WIC RDs/RDNs to all WIC participants compared to small local agencies (45% vs. 37%).

Most surveyed local agencies offer external referrals to participants on an as-needed basis, based on the participant's assessment. These range from services such as child abuse prevention/counseling, food banks, and housing support to oral health services (see Figure 5-9). The majority of local agencies offer external referrals for childhood immunizations, SNAP, and Medicaid to all participants.

Figure 5-9. Local agencies offering external referrals




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 32 (n: for all but open-ended responses=320-321, for open-ended responses=5-24). See Appendix D, Table 22. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Row totals may not add to 100 due to rounding.

* Examples of other responses include car seat safety/cribs/infant items, childcare support, early childhood programs/assessments, home visiting services, and mental/behavior health counseling.

There were no significant differences in whether or how external referrals are offered by local agency characteristics.

### 5.2.2 Use of the MIS to Facilitate the Tailoring of Benefits

Each study State agency has a WIC MIS which is a web-based application that supports the WIC program in providing services to WIC clients. WIC MISs were developed by a variety of vendors, and while the functionality of the systems is generally similar regardless of the developer, not all systems have all functionalities. Also, local agencies may not use all functionalities available to them. In their responses to the survey, local agencies reported whether and how the WIC MIS facilitates the tailoring of benefits for local agency staff.

#### Facilitating Food Package Tailoring

Sixty percent of local agencies report that their WIC MIS helps staff tailor program benefits based on the results of the nutrition assessment, while 40 percent say that it does not. This was not significantly different by urbanicity, number of clinics, or local agency size (see Appendix D, Tables 24, 59, and 93). Those who answered yes to this question were then asked to indicate the ways that the MIS facilitates the tailoring of food packages, nutrition education, and referrals. Not all local agencies that have an MIS that facilitates the tailoring of program benefits have systems that tailor food packages—82 percent of local agencies with an MIS that facilitates benefit tailoring report that the MIS helps the tailoring of food packages, while 18 percent say it does not (see Table 5-3). Most commonly, help with food package tailoring takes the form of the MIS automatically tailoring food packages offered to participants based on the nutrition assessment information, although staff may still make changes to the food package. Just under 50 percent of surveyed local agencies who report that their MIS helps with benefit tailoring say that their MIS does have such automatic functions. Just over a quarter of local agencies with systems that facilitate the tailoring of program benefits (27%) say that their MIS suggests possible ways to tailor food packages that staff can choose from. Small numbers of local agencies reported having an MIS that provides an "allergy alert" (included in "other"). There are no significant differences by urbanicity, number of clinics, or local agency size.

Table 5-3. How the WIC MIS helps tailor food packages

| Does the WIC MIS help staff to tailor program benefits using information from the nutrition risk assessment? | Local agencies (n=186) | |
|---|---|---|
| | Number | Percentage |
| Automatically tailors food packages offered to participants, but WIC staff can make changes | 91 | 48.9 |
| Suggests possible way to tailor food packages that WIC staff can choose from | 51 | 27.4 |
| Automatically tailors food packages offered to participants, and this cannot be changed by WIC staff | ** | ** |
| Other* | ** | ** |
| Does not help staff tailor food packages | 33 | 17.7 |

Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 35 (n=186). See Appendix D, Table 25. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Percentage totals may not add to 100 due to rounding.

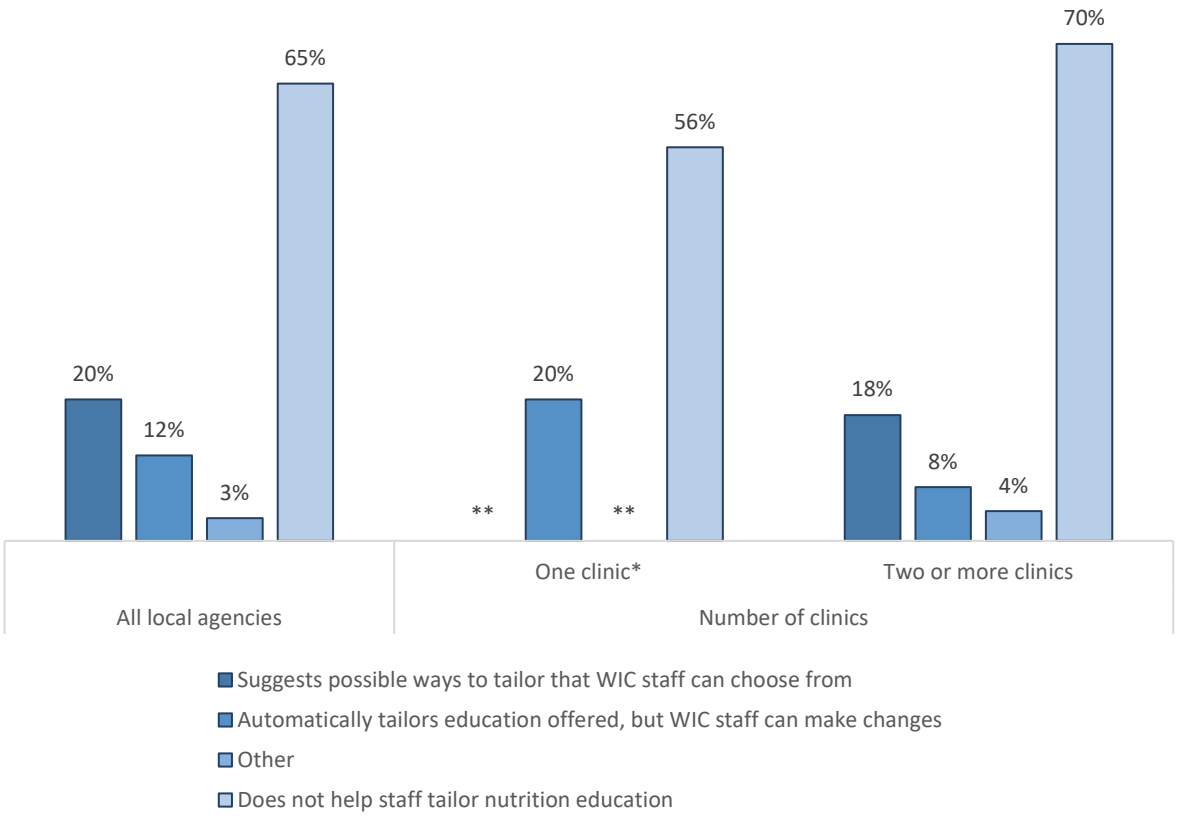
* Examples of other ways to help tailor food packages include highlighting risk codes to help draw attention to possible tailoring of food packages, providing an allergy alert, and allowing staff to remove items if requested and documenting this change.

**Data are not reported due to small cell size.

## Facilitating Nutrition Education Tailoring

By contrast, most surveyed local agencies report that their MIS does not help staff tailor nutrition education. Only 35 percent of local agencies with systems that help staff tailor program benefits say that the MIS helps tailor nutrition education, while 65 percent say their systems do not (see Figure 5-10). Local agencies with only one clinic are less likely to say their systems do not facilitate tailoring of nutrition education than agencies with two or more clinics (56% vs. 70%). Most commonly, systems facilitate the tailoring of nutrition education through suggesting possible tailoring options that staff may choose from (20%). Twelve percent say their MIS automatically tailors nutrition education offered to participants, but staff can make changes. This differs by number of clinics, with local agencies with only one clinic more likely to report that their MIS helps with tailoring nutrition education in the form of automatically tailoring nutrition education offered to participants (subject to change by WIC staff) than agencies with two or more clinics (20% vs. 8%). No local agencies indicated that their systems automatically tailor nutrition education offered to participants and the automatic tailoring cannot be changed by WIC staff.

Figure 5-10. How the WIC MIS helps staff tailor nutrition education, overall and by number of clinics




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 36 (n: all local agencies=190, one clinic=70, two or more clinics=118). See Appendix D, Tables 26 and 61. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Number of clinics is based on survey question 43, "How many clinic sites does your local agency operate?"

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Note: No local agencies selected the response "Automatically tailors nutrition education offered to participants, and this cannot be changed by WIC staff."

* Differences between "Automatically tailors education offered, but WIC staff can make changes" and "Does not help staff tailor nutrition education" are significant at p≤ 0.05.

**Data are not reported due to small cell sizes.

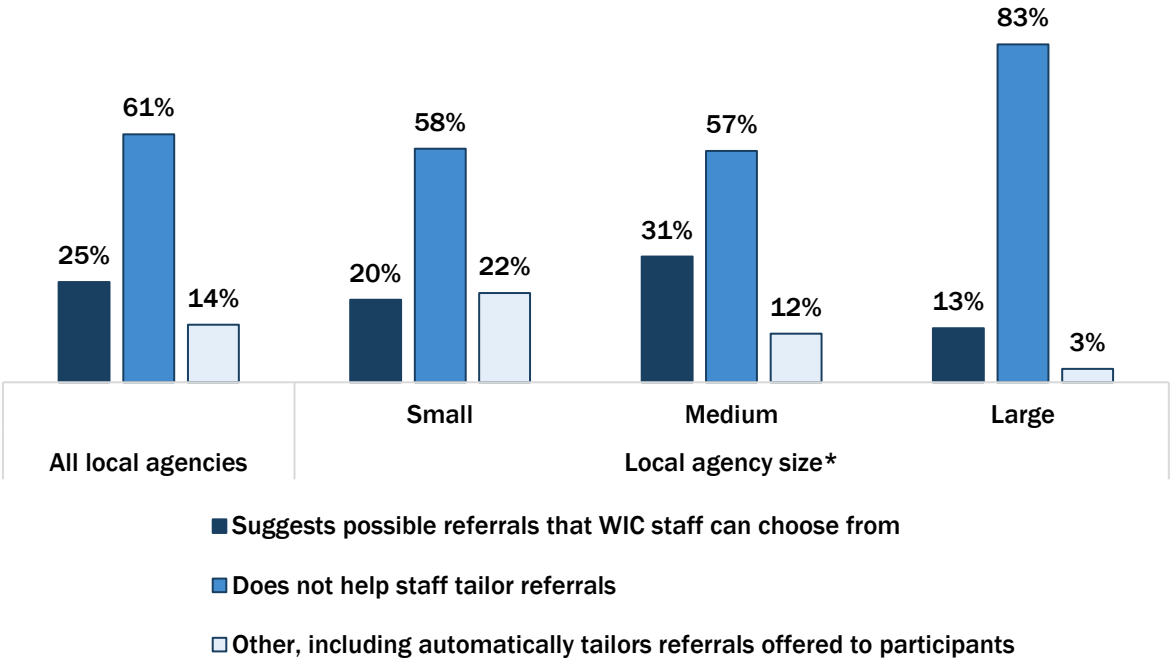
Whether MIS systems help facilitate tailoring of nutrition education also varies by local agency size. Large agencies are most likely to report that their MIS system does not facilitate the tailoring of nutrition education (87%), which is significantly different from medium-sized agencies (62%) and small agencies (59%) (see Appendix D, Table 95).

## Facilitating Referral Tailoring

Slightly more local agencies report that their MIS helps to facilitate tailoring of referrals offered than tailoring of nutrition education offered. Thirty-nine percent of local agencies whose

MIS helps to tailor program benefits report that their systems help to facilitate referrals offered while 61 percent said they did not (Figure 5-11). This does not differ significantly by urbanicity or number of clinics, but differs by local agency size. As with nutrition education, large agencies are most likely to report that their MIS does not facilitate the tailoring of referrals (83%), which is significantly different from medium-sized agencies (57%) and small agencies (58%).

**Figure 5-11. How the WIC MIS helps staff tailor referrals offered to participants, overall and by local agency size**




Source: USDA. FNS, WIC NATS, Local Agency Director Survey, summer 2021, survey question 37 (n: all local agencies=190, small=59, medium=100, large=30). See Appendix D, Tables 27 and 96. Tabulations are not weighted. Sample is a diverse nonprobability sample. A total of 321 local agencies completed the survey.

Respondents were asked to answer survey questions based on how their local agencies and clinics operated before the COVID-19 pandemic.

Percentage totals may not add to 100 due to rounding.

Note: No local agencies selected the response "Automatically tailors nutrition education offered to participants, and this cannot be changed by WIC staff."

Response options "Other," "Automatically tailors referrals offered to participants, but WIC staff can make changes," and "Automatically tailors referrals offered to participants, and this cannot be changed by WIC staff" are combined due to small cell sizes.

* Differences between small and large local agencies and between medium and large local agencies for "does not help staff tailor referrals," and between medium and large local agencies for "suggests possible referrals to offer participants" are significant at $p \leq 0.05$.

Overall, 60 percent of local agencies report that their MIS helps to facilitate tailoring of program benefits, while 40 percent said their MIS did not. Of these local agencies, 82 percent report their MIS helps facilitate food package tailoring, 35 percent report that their MIS helps tailor nutrition education offered, and 39 percent report that their MIS helps tailor referrals offered.

# 6. Frequency of Tailoring during the Pre-pandemic Period

**Key Findings**

- Among women and children, an aggregate identification of food package tailoring includes Food Package III assignment, milk tailoring, homeless population substitutions, and any MMA tailoring (excluding milk). Children had the highest rates of aggregate food package tailoring (22%) and postpartum women had the lowest (9%).
- Less than 1 percent of women and 3 percent of children were assigned Food Package III.
- The most common type of milk tailoring was a 1-year-old child receiving reduced-fat milk (11% of 1-year-old children), while tofu substitutions were least common (0.5% of all participants).
- Overall, there were few homeless population substitutions, with less than 0.1 percent of women and children receiving juice boxes or dry milk. However, 1.4 percent of women and children were prescribed ultra-high-temperature milk.
- More than 90 percent of women and children were prescribed milk below the MMA amount. While the reason for the milk MMA tailoring is not always known, many are prescribed less than the milk MMA because they request cheese and/or yogurt (among other milk alternatives) be substituted for some portion of the standard milk prescription.
- Participant data from the 10 study State agencies includes 155,781 infants, of which 138,373 (89%) received any infant formula. Among infants prescribed any formula, most were prescribed nonexempt infant formula (77%), 13 percent were prescribed exempt infant formula, and less than 1 percent were prescribed WIC-eligible nutritionals. The remaining 9 percent did not have sufficient data to classify formula type.
- Across all study State agencies with sufficient food package type data, 94 percent of participants eligible to receive milk were prescribed amounts below the MMA. Of those eligible to receive formula, 52 percent received less than the full nutrition benefit (FNB)-MMA range. No participants in the study State agencies who were eligible to receive yogurt, tofu, eggs, legumes, or the cash value benefit (CVB) were prescribed less than the MMA of these items.
- While 15 percent of all participants had some form of non-milk MMA tailoring, this type of tailoring did vary somewhat by risk assignment. Participants assigned other risks had the highest rates of MMA tailoring (excluding milk; 31%) followed by anthropometric (15%), dietary and clinical/health/medical (both 12%), and biochemical (6%) risks. Almost 82 percent of risk codes classified as "other risks," were assigned to infants, and because formula tailoring was widespread, other risks were the dominant risk code category in cases with MMA tailoring (excluding milk).
- Across all study State agencies, breastfeeding women had the highest rates of any education assignment (94%) and postpartum women had the lowest rates (79%). Good Food Choices education was assigned the most frequently across all participant categories except for infants. Infants had the highest rates of assigned education in the feeding children/infants category (61%).
- For more than half (56%) of participants, study State agencies did not report offering any referrals (i.e., referral data were classified as missing); 14 percent of participants received a total of five referrals or more. Nearly 40 percent of participants were assigned one or more of the six referral types. Participants were most likely to receive a medical referral (31%) and the least likely to receive a behavioral health referral (1%).

**Key Findings (continued)**

- More than three-quarters of 1-year-old children who were underweight or at risk of underweight, according to reported weight and length measurements, were assigned the "low weight for length" nutritional risk. Among those categorized as having high weight for length by measurement, most (72%) were assigned the "high weight for length" nutritional risk. Across anthropometric statuses, 1-year-old children with "high weight for length" were the most likely to be prescribed reduced-fat milk (20%), receive education related to Good Food Choices (66%), and receive education related to physical activity (4%).
- More than 80 percent of 2- to 4-year-old children whose reported measurements indicated they were underweight or at risk of underweight were assigned a nutritional risk of "underweight or at risk of underweight." Fewer than half (48 percent) of overweight or obese children were assigned the "overweight or at risk of overweight" nutritional risk. Underweight and at risk of underweight children were most likely to be prescribed reduced-fat (2%) milk (49% and 41%), and those who were overweight or obese were the most likely to receive education related to physical activity (12%).
- Women and children participants assigned the "lactose intolerance" nutritional risk were more likely to be prescribed all three possible substitute foods than women without the "lactose intolerance" risk. Lactose-reduced or lactose-free milk was prescribed between five to six times more frequently than soy-based beverage to participants with the "lactose intolerance" risk. Both were prescribed more frequently than tofu. Generally, between 20 and 30 percent of participants assigned a lactose intolerance nutritional risk code were not prescribed a lactose-related substitution.
- The "breastfeeding complications" nutritional risk can be assigned to both breastfeeding women and infants. Breastfeeding women and infants who were assigned this risk were three and nine times more likely than those who were not assigned this risk to receive referrals related to breastfeeding, respectively. Infants with this risk were almost twice as likely as those without the risk to receive education related to breastfeeding, but about 45 percent of breastfeeding women received education, regardless of risk assignment.

This chapter reviews different forms of benefit tailoring recorded by the MIS data from the 10 study State agencies. Benefit tailoring represents a change from standard food package contents and individualized nutrition education and referrals. This analysis of the frequency of tailoring describes how WIC staff use information obtained from the nutrition assessment to tailor food packages (research question 17 in Table 1-1) and nutrition education (research question 18 in Table 1-1). It also looks at the frequency of benefit tailoring associated with relevant nutritional risks. The data used in these analyses are from the pre-pandemic period (i.e., January-February 2020).

## 6.1 Food Package Tailoring

WIC regulations specify seven food packages, some with multiple subcategories, for a total of 28 food package types. Food packages and food package types are distinct by participant age, breastfeeding status, and qualifying condition. The type of food package a participant receives

dictates the food package contents and quantity of food items.[47] As part of this study's MIS data collection, the study's 10 State agencies submitted data on food package contents and a separate variable on food package type. For the analysis, the study team categorized infants' age and breastfeeding status based solely on the food package type received. Because of this, it is possible that an infant who was 2 months old at the time of data collection was identified as receiving a food package type intended for 0- to 0.9-month-old infants.

The study team compiled four indicators of food package tailoring for women and children:

- **Food Package III assignment.** Those with Food Package III.[48] Some participants have special dietary needs that prohibit the use of standard food packages. With medical documentation, these participants are prescribed Food Package III.

- **Milk type.** Those with milk substitutions (e.g., tofu) or a milk type assignment not normally assigned to a child of a certain age group (e.g., 1-year-old child prescribed reduced-fat milk or a 2-to-4-year-old child prescribed whole milk).

- **Homeless population substitutions.** Shelf-stable foods such as juice boxes and dry milk meant for those without access to a kitchen or refrigeration.

- **MMA.** Those with quantities of items below the standard food package type amounts. The study team divided MMA tailoring into two subcategories:

  - Milk-specific MMA tailoring (more than 90% of women and children had documented milk MMA tailoring); and

  - MMA tailoring for all other food categories, excluding milk.

All study State agencies were able to provide data on food package contents. Choctaw Nation and Ohio were not able to supply data on food package type. The results presented on milk type tailoring cover all 10 State agencies, but Choctaw Nation and Ohio are excluded from the analytic universe for other types of food package tailoring due to the lack of information on food package type. All data presented in this section are from the January through February 2020 data collection period (i.e., the pre-pandemic period).

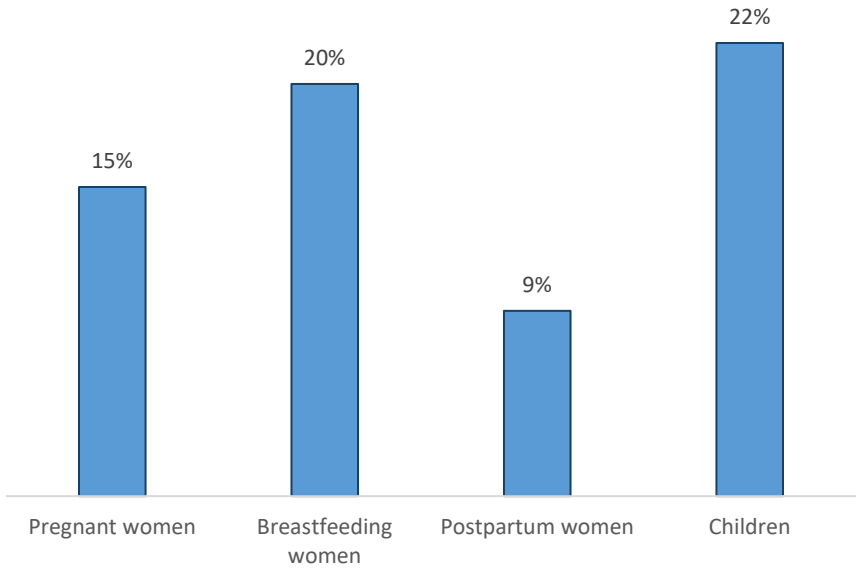
[47] For more information, see 7 C.F.R. 246 – Special Supplemental Nutrition Program for Women, Infants, and Children (1985).

[48] Food Package III is reserved for women, infant, and child participants who have a documented qualifying medical condition that requires the use of a WIC-eligible infant formula, exempt infant formula, or WIC-eligible nutritionals because the use of conventional foods is precluded, restricted, or inadequate to address their special nutritional needs. Medical documentation as defined in the regulations is required for Food Package III.

### Food Package Tailoring – Women and Children

Among women and children, an aggregate identification of food package tailoring includes Food Package III assignment, milk tailoring, homeless population substitutions, and any MMA tailoring (excluding milk). Rates of the different types of food package tailoring for women and children are included in Table 13.1a in Appendix F for all study State agencies combined. Children had the highest rates of aggregate food package tailoring and postpartum women had the lowest (22% vs. 9%; see Figure 6-1).

**Figure 6-1. Percentage of women and children with any food package tailoring, excluding milk MMA tailoring**




Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 13.1a. Reference date: January-February 2020.

Note: Two of 10 State agencies did not provide sufficient food package type data, and the data combined for these two State agencies include only milk type tailoring and homeless population substitutions.

When looking at individual types of food package tailoring for women and children, the data show:

- **Food Package III.** Less than 1 percent of women and 3 percent of children were assigned Food Package III.
- **Milk type tailoring.** The most common type of milk tailoring was a 1-year-old child receiving reduced-fat milk (11% of 1-year-old children), while tofu substitutions were least common (0.5% of all participants).
- **Homeless population substitutions.** Overall, there were few homeless population substitutions, with less than 0.1 percent of women and children receiving juice boxes

or dry milk. However, 1.4 percent of women and children were prescribed ultra-high-temperature milk.

- **MMA tailoring (excluding milk).** Breastfeeding women had the highest rates of MMA food tailoring excluding milk (7%), and postpartum women had the lowest rates of MMA food tailoring excluding milk (3%).

- **MMA tailoring (milk).** More than 90 percent of women and children were prescribed milk below the MMA amount. While the reason for the milk MMA tailoring is not always known, many are prescribed less than the milk MMA because they request cheese and/or yogurt (among other milk alternatives) be substituted for some portion of the standard milk prescription.

### Food Package Tailoring – Infants

The study team compiled three indicators of food package tailoring for infants:

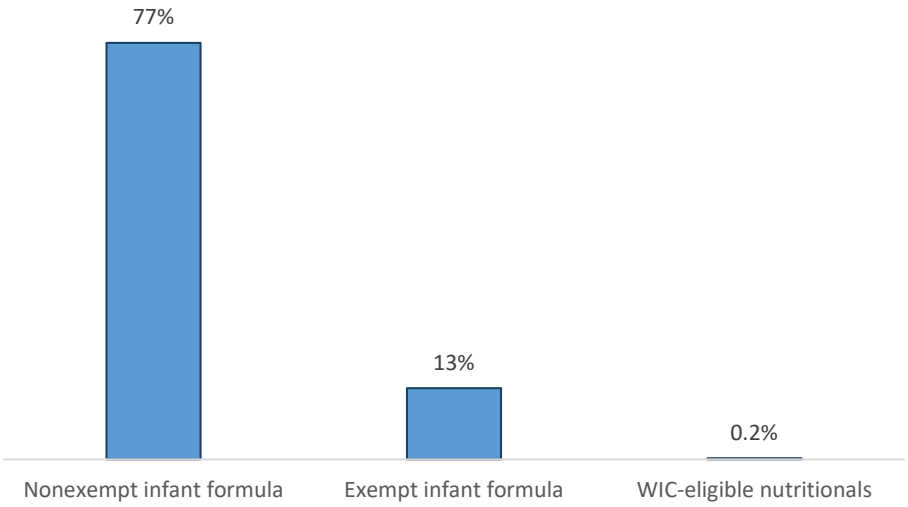
- **Food package assignment.** Those with Food Package III. As with women and children, some infants have special dietary needs that prohibit the use of standard food packages—with medical documentation, these participants are prescribed exempt formula or nutritionals in Food Package III.

- **Infant formula assignment.** Those with food packages based on age and breastfeeding status.

- **Infant formula MMA.** Those with quantities of formula below the standard range of food package type amounts. The standard range falls between the full nutritional benefit (FNB) and the MMA.

Participant data from the 10 study State agencies includes 155,781 infants, of which 138,373 (89%) received any infant formula. Among infants prescribed any formula, most were prescribed nonexempt infant formula (77%), 13 percent were prescribed exempt infant formula, and less than 1 percent were prescribed WIC-eligible nutritionals (see Figure 6-2).

Figure 6-2. Percentage of infants in each infant formula category*



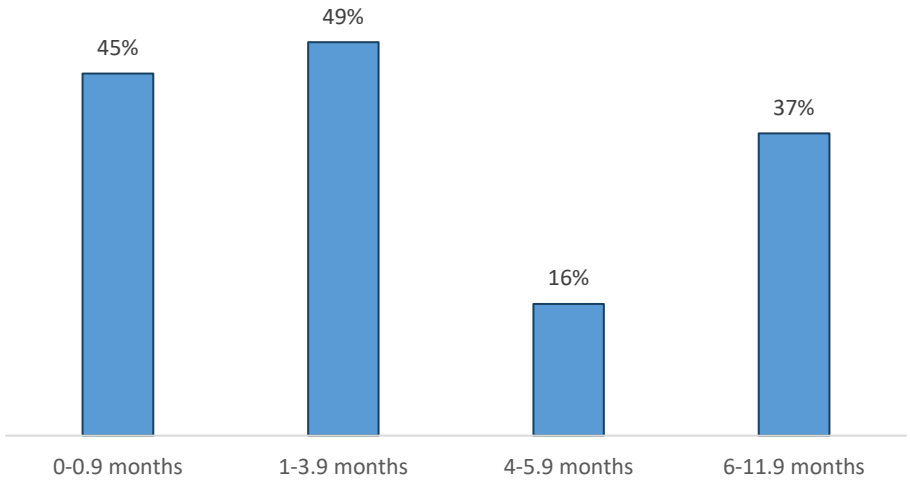

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 13.2a. Reference date: January-February 2020.

* Analysis denominator is defined as infants who received any infant formula (n=138,373); 9.3 percent of these infants did not have data of sufficient quality to be used in this analysis and are not included in the figure.

There was little variation in breastfeeding status (fully breastfeeding, partially breastfeeding, or fully formula-fed) across the four infant age groups— 0-0.9 months, 1-3.9 months, 4-5.9 months, and 6-11.9 months old. About 70 percent of infants in each age group were assigned food package types which indicated the infants were fully formula-fed. Six- to 11.9-month-old infants had the highest rates of infants receiving a fully breastfed package (14% of 3,779 infants) and 1- to 3.9-month-old infants had the lowest rate (7% of 19,284 infants). MMA formula tailoring among infants was highest for fully formula-fed 1- to 3.9-month-old infants and the lowest for partially breastfeeding 6- to 11.9-month-old infants (49% and 1.2%).

Across all study State agencies, 1 to 3.9-month-old fully formula-fed infants had the highest rates of MMA tailoring and 4- to 5.9-month-old infants had the lowest rates (49% vs. 16%) (see Figure 6-3). Partially breastfed infants were less likely to receive an infant formula amount below the FNB-MMA range. For those who were partially breastfed, MMA tailoring peaked at 1 to 3.9 months old (7%) and then decreased to 1 percent at 6 to 11.9 months (see Appendix F, Table 13.2a).

Figure 6-3. Percentage of fully formula-fed infants with MMA formula tailoring by infant age category

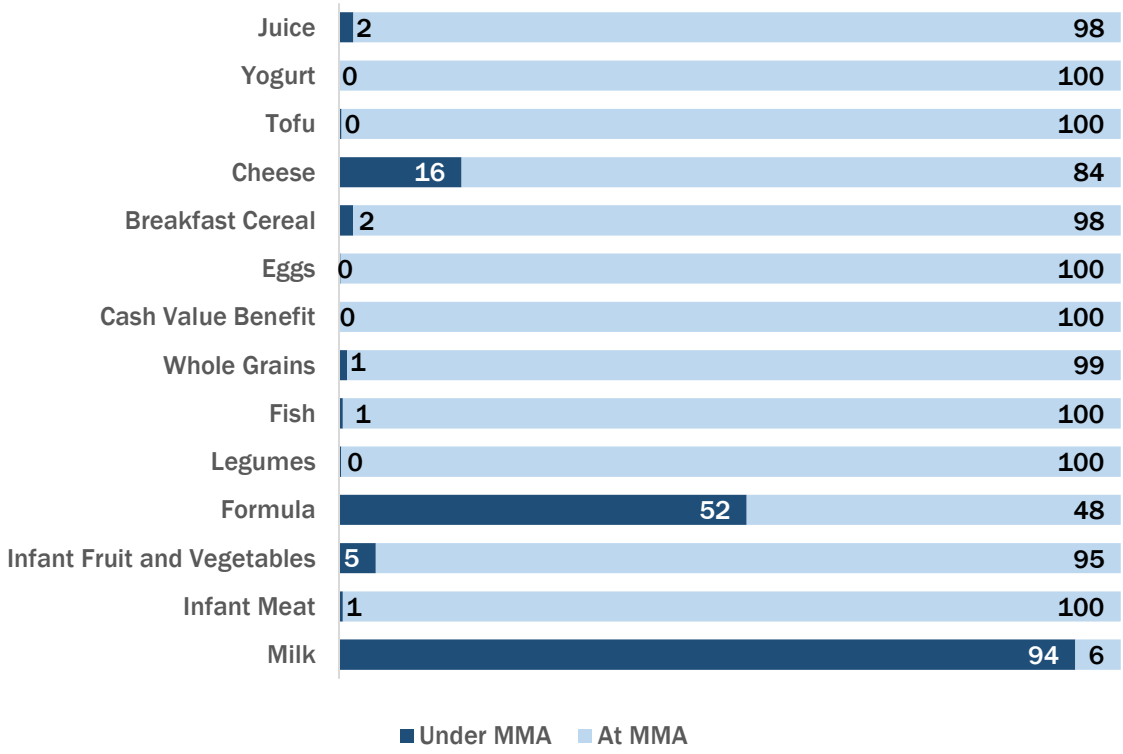



Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 13.2a. Reference date: January – February 2020.

Two State agencies did not provide sufficient food package type data and are therefore excluded from the data presented in this figure.

Divergence from the standard food package MMA stems from WIC staff either substituting one item for another, resulting in an item with a lower amount than the MMA, or removing an item from the prescribed food package if the participant would be unlikely to consume the item. Clinic staff can base these decisions off the nutritional risk code assignment or personal preference (with limitations). Figure 6-4 presents the percentage of all participants eligible to receive a food item who either received the MMA for the food item or received less than the MMA of that item. Across all study State agencies with sufficient food package type data, 94 percent of participants were prescribed milk amounts below the MMA. Of those eligible to receive formula, 52 percent received less than the FNB-MMA range. No participants in the study State agencies who were eligible to receive yogurt, tofu, eggs, legumes, or the cash value benefit were prescribed less than the MMA of these items.

Figure 6-4. Percentage of participants eligible to receive a food item who received the MMA and who received less than the MMA




Source: USDA. FNS, WIC NATS, State agency MIS data request. Ad hoc analysis. Reference date: January-February 2020.

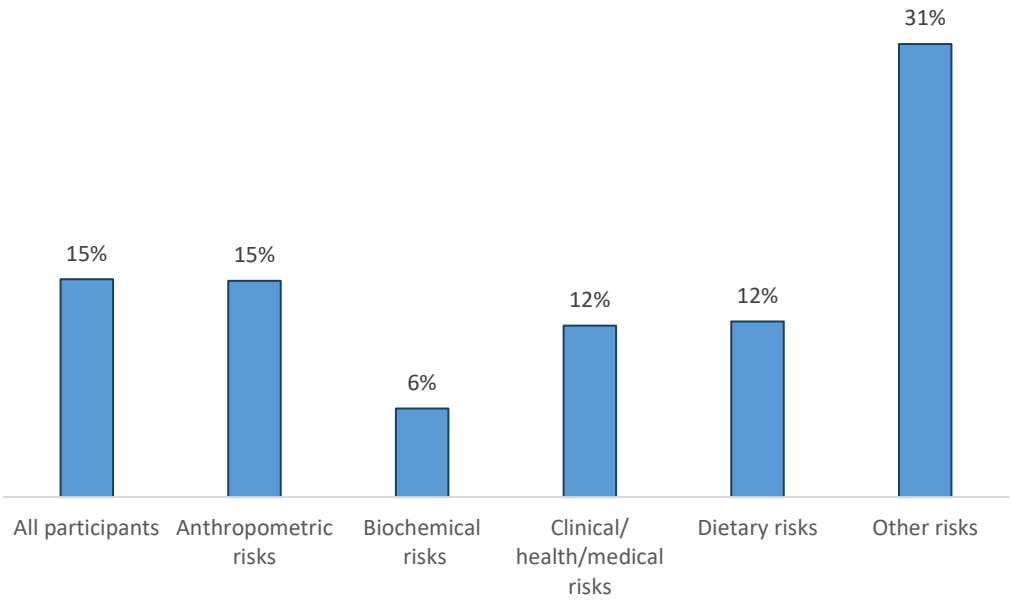
Two State agencies did not provide sufficient food package type data and are therefore excluded from the data presented in this figure.

Eligibility to receive a specific food item was determined using food package type and WIC regulations. For more information, see 7 C.F.R. 246, Special Supplemental Nutrition Program for Women, Infants, and Children (1985).

Only data meeting the food package data quality thresholds are included in the food package tailoring analysis. Over 90 percent of data in all States meet the quality threshold

Figure 6-5 shows the percentage of participants with any MMA tailoring (excluding milk) by assigned nutritional risk code categories. While 15 percent of all participants had some form of non-milk MMA tailoring, this type of tailoring did vary somewhat by risk assignment. Participants assigned other risks had the highest rates of MMA tailoring (excluding milk; 31%) followed by anthropometric (15%), dietary and clinical/health/medical (both 12%), and biochemical (6%) risks. Almost 82 percent of risk codes classified as "other risks" were assigned to infants, and because formula tailoring was widespread, other risks were the dominant risk code category in cases with MMA tailoring (excluding milk).

Figure 6-5. Percentage of all participants with MMA tailoring (excluding milk) by nutritional risk assignment




Source: USDA. FNS, WIC NATS, State agency MIS data request. Appendix F, Table 13.3a. Reference date: January-February 2020.

Two State agencies did not provide sufficient food package type data and are therefore excluded from the data presented in this figure.

Only data meeting the food package data quality thresholds are included in the food package tailoring analysis. Over 90 percent of data in all states meet the quality threshold.

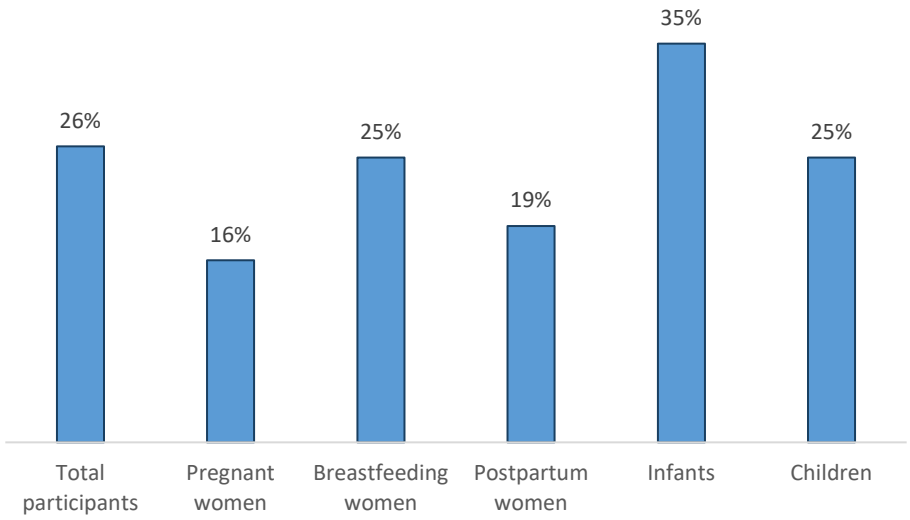
Percentages may add to more than 100 because participants may be assigned up to 10 nutritional risks.

## 6.2 Education Topic Assignments

The WIC NATS State Agency MIS data request asked State agencies to submit up to five assigned education codes. Nine of 10 State agencies submitted education-related data, including 3 that provided 10 possible education codes.[49] Of those who submitted data, all except three State agencies included a code that identified "no education assigned;" for those without this code, the study team used "no education assigned" if all education fields were blank. Approximately a quarter of all participants were assigned five or more education codes (26%; see Figure 6-6). Across all study State agencies, infants had the highest rates for assignment of five or more education codes (35%); pregnant women were the least likely to be assigned five or more education codes (16%).

[49] The study team retained a total of 10 training codes from these State agencies. Under 1 percent of participants had over 10 training codes recorded.

Figure 6-6. Percentage of participants assigned five or more education codes by participant category




Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 7a. Reference date: January-February 2020.

One State agency did not provide education data and another did not provide education codes for more than 80 percent of participants; both are excluded from this figure.

Each State agency used a unique list of education codes. For analysis, the study team grouped these State agency-specific education codes into eight education types: breastfeeding, Good Food Choices, physical activity, meal planning and preparation, medical, feeding children, WIC procedures, and other education (see Table 2-5 for a definition of each code).[50] Across all study State agencies with data, 90 percent of participants were assigned one or more education codes. Participants were most likely to be assigned to Good Food Choices education (57%) and the least likely to be assigned education related to physical activity (4%) (see Table 6-1).

[50] Not all State agencies provided codes that fit into each category. Three State agencies did not assign WIC procedures training. Another State agency only assigned training on breastfeeding, feeding children/infants, and other training.

Table 6-1. Percentage of participants receiving education

| Education type | Participants | |
|---|---|---|
| | Number | Percentage |
| Breastfeeding | 108,422 | 18.4 |
| Good Food Choices | 338,659 | 57.4 |
| Physical activity | 21,351 | 3.6 |
| Meal planning and prep | 43,066 | 7.3 |
| Medical | 178,461 | 30.2 |
| Feeding children/infants | 201,114 | 34.1 |
| WIC procedures | 134,927 | 22.9 |
| Other education | 135,226 | 22.9 |
| Any education | 531,445 | 90.0 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 8a. Reference date: January-February 2020.

One State agency did not provide education data and is excluded from this table.

Across all study State agencies, breastfeeding women had the highest rates of any education assignment (94%) and postpartum women had the lowest rates (79%) (see Appendix F, Table 7a). Good Food Choices education was assigned the most frequently across all participant categories except for infants. Infants had the highest rates of assigned education in the feeding children/infants category (61%). Table 6-2 shows the percentage of participants assigned Good Food Choices education by participant category. Children and pregnant women were the two categories most frequently assigned this education with 72 percent of children and 71 percent of pregnant women being offered Good Food Choices education.

Table 6-2. Percentage of participants offered Good Food Choices education by participant category

| Participant category | Participants offered Good Food Choices education | |
|---|---|---|
| | Number | Percentage |
| All participants | 338,659 | 63.1 |
| Pregnant women | 35,375 | 70.9 |
| Breastfeeding women | 31,725 | 58.8 |
| Postpartum women | 21,185 | 56.5 |
| Infants | 64,707 | 47.6 |
| Children | 185,667 | 71.5 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. Reference date: January-February 2020.

One State agency did not provide education data and another did not provide a Good Food Choices education code; both State agencies are excluded from this table.

Assigned education often corresponded with the appropriate assigned nutritional risks. For example, the rate of breastfeeding education assignment is highest for those who are assigned other nutritional risks (35%; see Appendix F, Table 9a). Other nutritional risks include

breastfeeding complications for infants and breastfeeding women. Medical education is most frequently assigned to those with biochemical risks (45%).

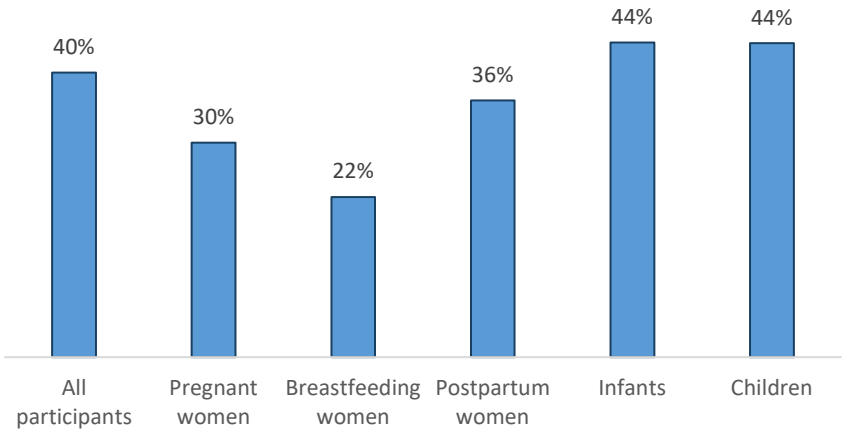
## 6.3 Referral Receipt

The WIC NATS MIS data request asked State agencies to submit up to five referral codes. Three State agencies provided up to seven referral codes. Also, all but three State agencies included a code that identified "no referral assigned."

For more than half (56%) of participants, study State agencies did not report offering any referrals[51] (i.e., referral data were classified as missing); 14 percent of participants received a total of five referrals or more (see Appendix F, Table 10a). Across all study State agencies, breastfeeding women had the highest rates of missing referrals (74%) and lowest rates of five or more referrals (11%). Postpartum women had the highest rates of five or more referrals (16%).

As with education codes, each State agency used a unique set of referral codes. For analysis purposes, the study team grouped the State agency-specific referral codes into six referral types: breastfeeding, medical, other benefit programs, behavioral health, other social services, and other referrals (see Table 2-5 for code definitions). Across all study State agencies, 40 percent of participants were assigned one or more of the six referral types (see Figure 6-7). Children and infants had the highest rates of receiving any referral (44% each) and breastfeeding women had the lowest rates (22%). Participants were most likely to receive a medical referral (31%) and the least likely to receive a behavioral health referral (1%; see Appendix 4, Table 11a).

**Figure 6-7. Percentage of participants with any referrals by participant category**




Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 11a. Reference date: January-February 2020.

Three State agencies submitted up to seven referral codes. All other State agencies submitted up to five codes.

[51] Records with no assigned referral and no assignment of "no referral."

Referral types often corresponded with the appropriate assigned nutritional risks (see Appendix F, Table 12a). The highest rates of breastfeeding referrals and other social service referrals (i.e., education, domestic violence, housing) were those with "other" nutritional risks; this risk group includes breastfeeding complications, migrancy, homelessness, and abuse. However, participants assigned biochemical or clinical/health/medical risks had the lowest rates of medical referrals compared to other nutritional risk groups.

## 6.4 Frequency of Tailoring by Selected Risk Factors

The analysis reported in this section details the relationships between certain nutritional risks and specific types of benefit tailoring (i.e., a change in food package contents, provision of nutrition education, and referrals) that State agencies might consider in response to those risks. State agencies reported different education and referral codes. When an analysis focuses on specific education or referral codes, only those State agencies that used those codes are included in the analysis. For example, one State agency did not use education codes associated with Good Food Choices education and, therefore, is not included in any analysis related to this type of education.

### Anthropometrics, Nutritional Risk Assignment, and Benefit Tailoring

State agencies have the option to tailor certain benefits for child participants based on anthropometric status (e.g., overweight or underweight). State agencies may prescribe reduced-fat milk for 1-year-old children for whom overweight or obesity is a concern, in lieu of the standard whole milk for this age group. State agencies also have the option to prescribe reduced-fat (2%) milk to underweight 2- to 4-year-old children in lieu of the standard low-fat (1%) or nonfat milk for this age group.[52] State agencies may also provide education in Good Food Choices or physical activity education to families with children with anthropometric risks.

Across all study State agencies, more than three-quarters of 1-year-old children who were underweight or at risk of underweight, according to reported weight and length measurements, were assigned the "low weight for length" nutritional risk (see Table 6-3). Among those categorized as having high weight for length by measurement, most (72%) were assigned the "high weight for length" nutritional risk. Across anthropometric statuses, 1-year-old children with "high weight for length" were the most likely to be prescribed reduced-fat milk (20%), receive education related to Good Food Choices (66%), and receive education related to physical activity (4%).

[52] For all descriptions of optional benefit tailoring in this section, see 7 C.F.R. 246, Special Supplemental Nutrition Program for Women, Infants, and Children (1985). Retrieved on: June 17, 2022.

Across all study State agencies, more than 80 percent of 2- to 4-year-old children whose reported measurements indicated they were underweight or at risk of underweight were assigned a nutritional risk of "underweight or at risk of underweight." Fewer than half (48%) of overweight or obese children were assigned the "overweight or at risk of overweight" nutritional risk. Underweight and at risk of underweight children were most likely to be prescribed reduced-fat (2%) milk (49% and 41%), and those who were overweight or obese were the most likely to receive education related to physical activity (12%). Between one-half and two-thirds of children in each anthropometric category received education related to Good Food Choices.

Table 6-3. Nutritional risk assignment and benefit tailoring based on anthropometric measurements among children

| Calculated anthropometric status using weight and length/height measurements | Number of children in age group | Percentage of participants | | | | | |
|---|---|---|---|---|---|---|---|
| | | Assigned nutritional risk related to low weight | Assigned nutritional risk related to high weight | Prescribed reduced-fat milk | Prescribed whole milk | Received Good Food Choices education | Received physical activity education |
| 1-year-old children | | | | | | | |
| Underweight | 593 | 82.3 | – | 12.5 | n/a | 49.6 | 1.5 |
| Risk of underweight | 560 | 77.3 | – | 11.8 | n/a | 60.0 | 2.5 |
| Normal weight | 82,038 | 1.4 | 2.0 | 9.6 | n/a | 63.8 | 2.7 |
| High weight for length | 14,247 | < 0.1 | 71.6 | 20.0 | n/a | 66.4 | 3.9 |
| Height/weight not reported | 1,842 | 4.6 | 23.6 | 22.5 | n/a | 14.7 | 1.0 |
| 2- to 4-year-old children | | | | | | | |
| Underweight | 6,110 | 87.7 | 4.8 | 48.6 | 10.1 | 53.6 | 2.5 |
| Risk of underweight | 5,090 | 83.1 | 4.2 | 40.9 | 4.8 | 61.2 | 2.8 |
| Normal weight | 114,370 | 3.8 | 7.1 | 5.6 | 1.4 | 66.9 | 4.3 |
| Overweight or obese | 55,440 | 0.1 | 47.5 | 2.5 | 0.6 | 66.5 | 12.1 |
| Height/weight not reported | 2,812 | 11.8 | 18.3 | 1.2 | 0.3 | 17.6 | 2.5 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Tables 18.1a and 18.2a. Reference date: January-February 2020.

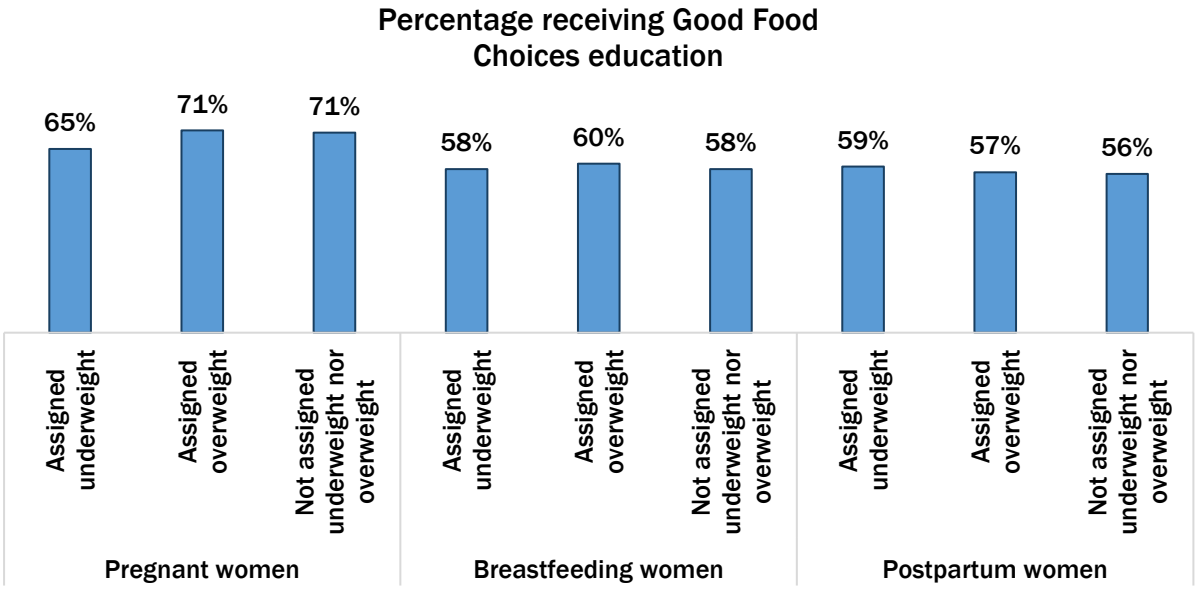
Anthropometric status for 1-year-old children was calculated using programming code for pediatric anthropometry developed by the World Health Organization (WHO) based on WHO Child Growth Standards. Anthropometric status for 2- to 4-year-old children was calculated using programming code for pediatric anthropometry developed by the Centers for Disease Control and Prevention (CDC) based on current growth charts.

For a small number of children, the assigned nutritional risk was inconsistent with actual weight measurements.

One State agency did not provide education categories for Good Food Choices or physical activity education; another State agency did not provide education categories for physical activity education; a third State agency provided no education data.

Women participants may also receive education related to Good Food Choices and physical activity. However, there were very few differences in the likelihood of being offered these types of education associated with anthropometric nutritional risks (see Figure 6-8).

**Figure 6-8. Education received among women, by assigned nutritional risk status***




Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 19.1a. Reference date: January-February 2020.

* Fewer than 5 percent of women in any weight category were assigned physical activity education.

Two State agencies did not provide data on education for Good Food Choices.

## Lactose Intolerance and Benefit Tailoring

WIC clinic staff ask about lactose intolerance as part of the nutrition assessment and assign participants a "lactose intolerance" nutritional risk code as appropriate. State agencies have several options for tailoring food packages to accommodate lactose intolerance: They may prescribe tofu or soy-based beverage in lieu of cow's milk or they may prescribe lactose-reduced or lactose-free milk.[53] Women and children participants assigned the "lactose intolerance" nutritional risk were more likely to be prescribed all three substitute foods than women without the "lactose intolerance" risk (see Table 6-4). Lactose-reduced or lactose-free milk was prescribed between five to six times more frequently than soy-based beverage to participants with the "lactose intolerance" risk. Both were prescribed more frequently than tofu. Generally, between 20 and 30 percent of participants assigned a lactose intolerance nutritional risk code were not prescribed a lactose-related substitution.

[53] State agencies also have the option to prescribe tofu and soy-based beverage for reasons other than lactose intolerance, such as milk allergy and vegan diets.

Table 6-4. Food package tailoring for lactose intolerance for women and children

| Participant category | Number of participants | Percentage who were: Prescribed lactose-reduced or lactose-free milk | Prescribed soy-based beverage | Prescribed tofu | Not prescribed lactose-related substitutions |
|---|---|---|---|---|---|
| **Pregnant women** | | | | | |
| Assigned lactose intolerance | 1,378 | 67.7 | 11.3 | 1.2 | 21.1 |
| Not assigned lactose intolerance | 58,387 | 5.4 | 2.7 | 0.6 | 91.5 |
| **Breastfeeding women** | | | | | |
| Assigned lactose intolerance | 1,173 | 66.4 | 9.6 | 0.9 | 24.0 |
| Not assigned lactose intolerance | 55,048 | 6.9 | 3.7 | 0.7 | 89.0 |
| **Postpartum women** | | | | | |
| Assigned lactose intolerance | 764 | 60.2 | 8.9 | 0.7 | 30.9 |
| Not assigned lactose intolerance | 48,267 | 2.9 | 1.2 | 0.2 | 95.7 |
| **Children** | | | | | |
| Assigned lactose intolerance | 7,290 | 67.5 | 13.7 | 0.6 | 18.8 |
| Not assigned lactose intolerance | 278,523 | 6.3 | 2.6 | 0.4 | 90.8 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 20a. Reference date: January-February 2020.

Row percentages do not add to 100 as individuals could have been prescribed more than one milk substitution.

## Smoking and Benefit Tailoring

State agencies may refer women with the "maternal smoking" nutritional risk to smoking cessation programs or provide education related to smoking. Among State agencies that reported smoking cessation referrals, 11 percent of women assigned the "maternal smoking" risk code received such a referral, more than six times the proportion among women who were not assigned this risk. Similarly, women assigned the "maternal smoking" risk were about 2.5 times as likely to receive education related to smoking than their counterparts who were not assigned this risk (see Table 6-5).

Table 6-5. Percentage of women that received smoking-related referrals and education by assigned nutritional risk

| Nutritional risk assignment | Number of participants | Received smoking cessation referral | Number of participants | Received smoking-related education |
|---|---|---|---|---|
| January-February 2020 | | | | |
| Assigned maternal smoking | 6,681 | 11.0 | 9,346 | 24.8 |
| Not assigned maternal smoking | 55,744 | 1.8 | 125,958 | 10.4 |

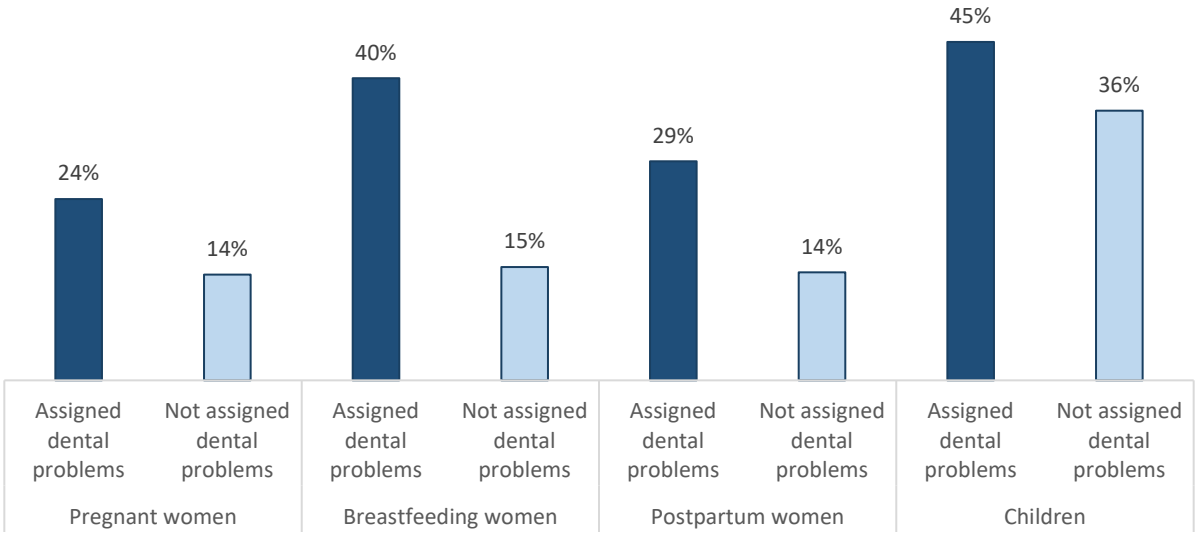
Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 21.1a.

Table includes only those State agencies that reported smoking cessation referral codes for the referral analysis and includes only those that reported smoking-related education codes for the education analysis. One State agency did not provide either the referral or education codes. Six others provided only one of the two code types.

## Dental Problems and Benefit Tailoring

State agencies may refer women and child participants with the risk code 381, "dental problems," to a dentist or other oral health services. Figure 6-9 presents the percentage of women and children participants who received a dental referral by whether or not they were assigned the "dental problems" nutritional risk code. This nutritional risk was used relatively rarely, with the percentage of participants assigned a "dental problems" risk code ranging from 1 to 2 percent across participant categories. Referrals to dental services were more common for participants who were assigned the "dental problems" risk code than for those who were not across all participant categories. For children, 45 percent of those assigned the "dental problems" risk code received a dental referral, but more than a third (36%) of children who were not assigned the risk also received a referral.

Figure 6-9. Percentage of women and children that received dental referral



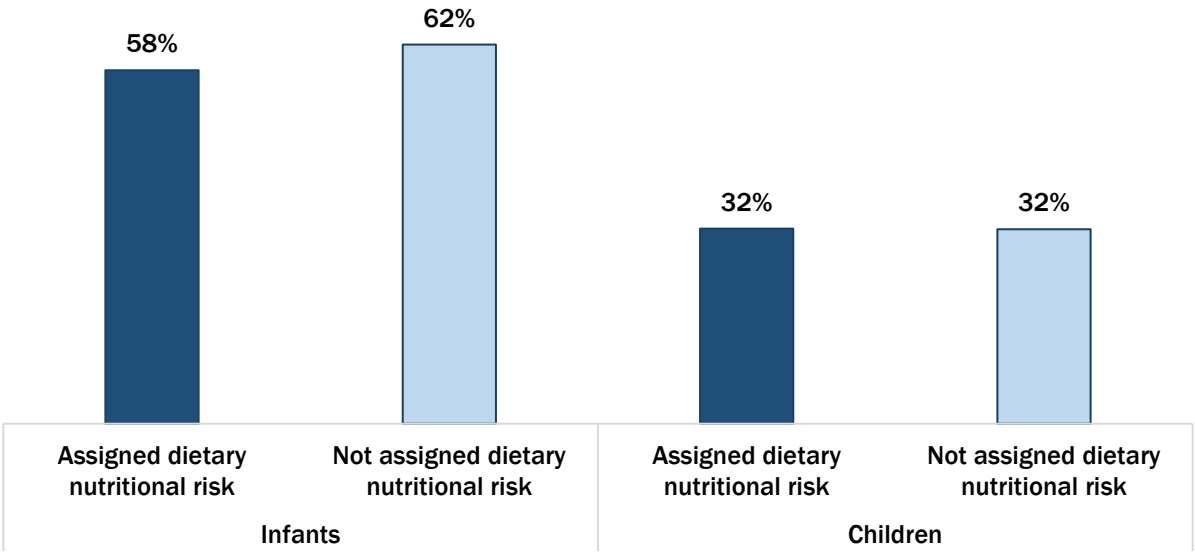

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 22a. Reference date: January-February 2020.

Four State agencies did not report any referral codes related to dental care.

## Dietary Risks and Benefit Tailoring

Dietary risks for infants and children include a range of infant and child feeding practices that may result in impaired nutrient status, disease, or health problems. In such cases, State agencies may provide education to caregivers related to appropriate infant and child feeding practices. Receipt of such education is common—more than half of infants' and about a third of children's caregivers receive education in feeding practices. Though the difference was small, State agencies more commonly report providing education in infant and child feeding among infants who were not assigned this nutritional risk (see Figure 6-10). Education is not associated with dietary nutritional risks among children.

**Figure 6-10. Percentage of infants and children whose caregiver received education on infant or child feeding**




Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 23a. Reference date: January-February 2022.

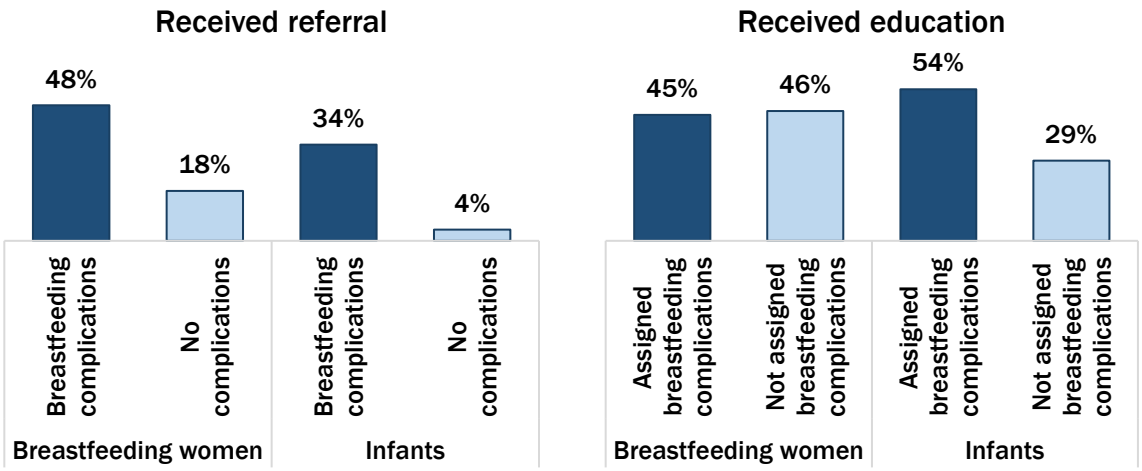
One State agency did not provide education data.

State agencies varied substantially in the frequency with which they assigned dietary nutritional risks, especially for infants, and how frequently they provided nutrition education. For example, one State agency only assigned dietary nutritional risks to 14 percent of infants but provided education in infant and child feeding to 88 percent of all infants. Conversely, another State agency assigned this nutritional risk to 47 percent of infants but provided education to 9 percent. Because of these differences, the State agency-level relationships between dietary risks and education in infant and child feeding practices look different than among the pooled State agencies.

### Breastfeeding Complications and Benefit Tailoring

The "breastfeeding complications" nutritional risk can be assigned to both breastfeeding women and infants. State agencies may tailor benefits by providing breastfeeding-related referrals and education. Breastfeeding women and infants who were assigned this risk were three and nine times more likely than those who were not assigned this risk to receive referrals related to breastfeeding (see Figure 6-11). Infants with this risk were almost twice as likely as those without the risk to receive education related to breastfeeding, but about 45 percent of breastfeeding women received education regardless of risk assignment.

**Figure 6-11. Percentage of breastfeeding women and infants receiving breastfeeding referral or education**




Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Tables 24.1a and 24.2a. Reference date: January-February 2020.

Three State agencies did not provide documentation on breastfeeding referral. Another State agency did not provide education data.

## 6.5 Logistic Regression Analysis

To further investigate the relationships between participant characteristics, food package tailoring, and nutrition education and referrals, the study team used logistic regression to assess independent associations. Typically used in case-control studies,[54] logistic regressions, in this application, assessed the likelihood that a particular characteristic is associated with an outcome, all else equal in the model. The outcome was characterized as binary (e.g., received a benefit or did not receive a benefit); covariates included the characteristics of interest available in the MIS data (e.g., participant race). It was initially unknown whether local agency or participant characteristics would be independently associated with outcomes of interest; however, the

[54] Szumilas M. Explaining odds ratios. J Can Acad Child Adolesc Psychiatry. 2010 Aug;19(3):227-9. Erratum in: J Can Acad Child Adolesc Psychiatry. 2015 Winter;24(1):58. PMID: 20842279; PMCID: PMC2938757.

previous bivariate analyses gradually led to the general expectation that they would be. The logistic models were developed iteratively, beginning with the main explanatory variables and assessing how the addition of covariates affected the magnitude and standard errors of the main explanatory variables. The data presented previously guided the ensuing approach rather than a specific conceptual model with testable hypotheses. McFadden's R-Square was used to assess model fit.

Logistic regression models assessed independent associations with five different outcomes: non-milk MMA food tailoring for women and children (Model 1) and infants (Model 2) and medical referral assignment for women (Model 3), children (Model 4), and infants (Model 5). The study team did not conduct similar analyses on nutrition education outcomes because the bivariate findings revealed that nutrition education offered did not generally vary by the type of nutritional risk codes assigned. See for example Figure 6-8 which indicates that the percentage of women offered Good Food Choices education varied little by nutritional risk status related to weight. That is, women were offered this education whether or not they were assigned underweight, overweight, or no weight-related risk codes. Documentation on medical referral from the State agencies was the clearest to categorize and included hospitals, family doctors, or other medical clinics. For those reasons, the study team chose to evaluate the receipt of medical referrals. To facilitate the ensuing discussion, the covariates included in the Models 1 and 2 are presented in Table 5 of Appendix E-4: Logistic Regression Analysis Methodology. The covariates included in Models 3, 4 and 5 are included in Table 6 of Appendix E-4.

### Maximum Monthly Allowance Tailoring

Using regression Models 1 and 2, the study team aimed to identify whether non-milk MMA tailoring (hereafter referred to as "MMA food tailoring" for women and children and "MMA formula tailoring" for infants) variations by State agency, participant category, and nutritional risk (see Section 6.1) were significant when considered in conjunction with important factors such as participant's race or the size or urbanicity of the local agency. In the WIC NATS Local Agency Director Survey, policies, procedures, and languages served were dependent on the size and urbanicity of a local agency (see Chapter 3). However, there was little variation in whether or not WIC clinics modify food quantity based on the nutritional risk assessment (see Figure 5-1). To test whether other factors such as participant nutritional risk, certification category, or race changed the likelihood of MMA tailoring, the study team conducted logistic regressions. When identifying the appropriate sample for these analyses, there were several additional considerations which are described in Appendix E, Logistic Regression Analysis Methodology.

Table 6-6 presents the results of two logistic regressions, one model assesses associations with MMA food tailoring (milk excluded) for women and children and the other model assesses associations with MMA formula tailoring for infants. Discussion of the results by characteristic follows. The odds ratios (ORs) indicate the odds of the outcome (e.g., women and children receive MMA food tailoring) occurring when a case is assigned a characteristic variable (e.g.,

race equal to American Indian) compared to the reference variable (e.g., race equal to Non-Hispanic White). The significance indicator indicates if the OR is statistically significant at the $p<0.05$ (*) or $p<0.01$ (**) levels. The confidence interval is an indication of how reliable the OR is (the wider the interval, the greater the uncertainty associated with the estimate). A confidence interval containing 1 indicates the OR is not statistically significant (i.e., there is no significant difference between the covariate and reference values).

**Table 6-6. Logistic regression of MMA tailoring, odds ratios and 95 percent confidence intervals**

| | Model 1: Women and children MMA food tailoring (n=428,248) | | | Model 2: Infants MMA formula tailoring (n=129,940) | | |
|---|---|---|---|---|---|---|
| | Odds ratio | | 95% confidence interval | Odds ratio | | 95% confidence interval |
| **Race/ethnicity (reference=Non-Hispanic White)** | | | | | | |
| American Indian | 1.437 | ** | (1.15, 1.80) | 0.725 | ** | (0.60, 0.88) |
| Asian or Pacific Islander | 3.643 | ** | (3.36, 3.95) | 0.627 | ** | (0.57, 0.69) |
| Non-Hispanic Black | 1.151 | ** | (1.10, 1.20) | 0.950 | ** | (0.92, 0.98) |
| Hispanic | 0.970 | | (0.92, 1.02) | 0.736 | ** | (0.71, 0.76) |
| **State agency of certification (reference=State agency 1)** | | | | | | |
| State agency 2 | 4.326 | ** | (4.11, 4.55) | 0.655 | ** | (0.63, 0.68) |
| State agency 3 | 32.32 | ** | (30.4, 34.4) | 3.540 | ** | (3.32, 3.77) |
| State agency 4 | 0.970 | | (0.82, 1.14) | 0.308 | ** | (0.28, 0.34) |
| State agency 5 | 1.135 | * | (1.02, 1.26) | 1.139 | ** | (1.07, 1.21) |
| State agency 6 | 0.705 | ** | (0.65, 0.77) | 0.082 | ** | (0.08, 0.09) |
| State agency 7 | 5.309 | ** | (4.50, 6.26) | 0.099 | ** | (0.08, 0.13) |
| State agency 8 | 1.194 | ** | (1.06, 1.34) | 0.034 | ** | (0.03, 0.04) |

Table 6-6. Logistic regression of MMA tailoring, odds ratios and 95 percent confidence intervals (continued)

| | Model 1: Women and children MMA food tailoring (n=428,248) | | | Model 2: Infants MMA formula tailoring (n=129,940) | | |
|---|---|---|---|---|---|---|
| | Odds ratio | | 95% confidence interval | Odds ratio | | 95% confidence interval |
| **Nutritional risk type (reference=not prescribed that risk)** | | | | | | |
| Anthropometric risk | 1.291 | ** | (1.25, 1.34) | 1.020 | | (0.99, 1.05) |
| Biochemical risk | 0.932 | ** | (0.89, 0.97) | 0.594 | ** | (0.47, 0.75) |
| Clinical/health/medical risk | 2.058 | ** | (1.98, 2.14) | 1.064 | ** | (1.03, 1.09) |
| Dietary risk | 1.136 | ** | (1.09, 1.18) | 0.725 | ** | (0.70, 0.76) |
| Other risk | 0.836 | ** | (0.79, 0.89) | 0.851 | ** | (0.83, 0.88) |
| **Urbanicity (reference=rural local agency** | | | | | | |
| Urban local agency | 1.122 | ** | (1.07, 1.18) | 1.003 | | (0.95, 1.06) |
| **Local agency size (reference=small local agency)** | | | | | | |
| Medium agency | 1.188 | ** | (1.12, 1.26) | 1.089 | | (1.00, 1.19) |
| Large agency | 1.117 | ** | (1.03, 1.21) | 1.094 | | (1.00, 1.20) |
| **Certification category (reference=children)** | | | | | | |
| Pregnant women | 0.846 | ** | (0.80, 0.09) | - | | - |
| Breastfeeding women | 2.662 | ** | (2.52, 2.81) | - | | - |
| Postpartum women | 0.350 | ** | (0.33, 0.37) | - | | - |
| Food package III assignment | 143.0 | ** | (134.4, 152.2) | 0.365 | ** | (0.35, 0.38) |

Source: USDA. FNS, WIC NATS, State agency MIS data request. Reference date: January-February 2020.

**p<0.01;*p<0.05.

McFadden's R-Square 0.34 for Model 1 and 0.13 for Model 2. A McFadden's R-Square of 0.2 to 0.4 indicates a good model fit.

State agency names are masked. Two States were excluded because they did not provide the variable the team used to identify Food Package III assignments.

MMA food tailoring excludes any milk-related tailoring.

## Race and Ethnicity

The regression results presented in Table 6-6 show a statistically significant association between race-ethnicity and MMA tailoring in both Model 1 and Model 2; in each model, however, the association was in a different direction and magnitudes varied. In Model 1 in Table 6-6, racial-ethnic characteristics are generally associated with a statistically significant increase in the odds of MMA food tailoring for women and children. American Indian and Asian or Pacific Islander women and children had significantly higher odds of MMA food tailoring than non-Hispanic White women and children, but the difference was relatively small for American Indian women and children. Asian or Pacific Islander women and children were nearly four times more likely to receive MMA food tailoring than non-Hispanic White women and children.

In Model 2 in Table 6-6, racial-ethnic characteristics were generally significantly associated with reduced the odds of MMA food tailoring for infants. Asian or Pacific Islander infants were close to two-thirds as likely as non-Hispanic White infants to receive MMA formula tailoring. Though the estimates for non-Hispanic Black women and children and infants were statistically significant, the OR had a magnitude close to 1, indicating that these results are likely not operationally meaningful. As these results hold all else equal in the models (including biomedical risk), more research may be warranted to identify causes of significant racial-ethnic differences.

### State Agency

State agency variables indicate the State in which a participant was certified (referred to here as the State agency of certification). State agency of certification was a statistically significant predictor in both Models 1 and 2 (see Table 6-6) with just one exception in Model 1. In Model 1, four State agencies had higher odds of non-milk food tailoring than the reference state and three State agencies had lower odds. In one State agency (State agency 3), the odds of non-milk food package tailoring were 30 times greater than the odds in the reference State agency, suggesting differences in State agency policy can make a real difference in terms of the likelihood of non-milk food package tailoring. In Model 2, all State agency covariates varied significantly from the reference State agency, but the ORs tended to be smaller. Five State agencies had odds of non-milk food package tailoring for infants that were higher than the reference State agency and 2 had odds lower than the reference State agency.

### Local Agency Characteristics

Local agency characteristics associated with MMA food tailoring for women and children included urbanicity and size (Table 6-6, Model 1). None of the local agency characteristics assessed were associated with MMA infant formula tailoring (Table 6-6, Model 2). Women and children certified in an urban local agency had a statistically significantly higher likelihood of MMA food tailoring. Urbanicity was not a statistically significant predictor of MMA tailoring for infants. Women and children who were certified in small agencies had statistically significantly lower odds of MMA tailoring compared to participants certified in medium or large local agencies, which is consistent with findings from the WIC NATS Local Agency Director Survey (Figure 5-2).

### Nutritional Risk Assignment

Nutritional risk assignments were similar across Models 1 and 2 (Table 6-6). Women and children assigned anthropometric, clinical/health/medical, or dietary risks were statistically significantly more likely to receive MMA food tailoring relative to women and children who

were not assigned those risks, indicating that nutritional risk prompts tailoring. Women and children assigned other risks were statistically significantly less likely to receive MMA food tailoring compared to women and children who were not assigned those risks (Model 1, Table 6-6). Future research may want to focus on the nature of these risks. For infants, assignment of a biochemical, dietary, or other risk statistically significantly lowered the odds of MMA formula tailoring, suggesting that formula tailoring does not usually address these types of risks (Model 2, Table 6-6). Anthropometric risks were not statistically significantly associated with MMA formula tailoring, but clinical/health/medical risks were statistically significant, but with an OR close to 1 (Model 2, Table 6-6), which suggests that the finding may not have practical implications.

### Participant Category and Food Package III Assignment

Pregnant women and postpartum women had lower odds of MMA food tailoring relative to children all else equal (Model 1, Table 6-6). Breastfeeding women, however, had nearly three times higher odds of MMA food tailoring relative to children. This may be a reflection of the larger MMA amounts available under the breastfeeding food package. Food Package III assignment[55] greatly increased the odds of non-milk MMA for tailoring for women and children, which suggests that WIC staff adjust food packages to account for participant's medical conditions (i.e., removing items from the food package if a participant is allergic), but statistically significantly lowered the odds of MMA tailoring for infants. The explanation for this second finding is unclear.

### Medical Referral Assignment

Using a separate set of logistic models, the study team examined whether variations in assignment of medical referrals by State agency, participant category, and nutritional risk were significant when considered along with other important factors such as race, urbanicity, local agency size, and local agency type. Table 6-7 presents results from three separate logistic regressions: women, children, and infants. Sample consideration for this analysis are presented in Appendix E, Logistic Regression Analysis Methodology.

For the findings presented in Table 6-7, medical referral assignment is a binary indicator. Participants identified as receiving a medical-based referral were coded as 1; everyone else was coded as 0. Those with a 0 include those not receiving any referrals or with missing referrals. State agency MIS submissions did not specify the reason for a missing referral; the team was unable to determine whether a missing referral meant that the participant did not receive any

[55] Food Package III is reserved for women, infant, and child participants who have a documented qualifying medical condition that requires the use of a WIC-eligible infant formula, exempt infant formula, or WIC-eligible nutritionals.

referral or if they did receive a referral but it was not recorded. Therefore, the percentage of medical referrals may be underinflated due to a larger eligible sample size. In the MIS data for referrals, it was unclear in a mother-child/infant dyad who received the referral when a referral was assigned to either participant. To remove possible confusion, the study team ran analyses on women, children, and infants separately. The findings are discussed below.

Table 6-7. Logistic regression of medical referral assignment, odds ratios, and 95 percent confidence intervals

| | Model 3: Women (n=78,502) | | | Model 4: Children (n=118,867) | | | Model 5: Infants (n=65,659) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Odds ratio | | 95% confidence interval | Odds ratio | | 95% confidence interval | Odds ratio | | 95% confidence interval |
| **Race/ethnicity (reference=non-Hispanic White)** | | | | | | | | | |
| American Indian | 1.181 | | (0.91, 1.53) | 1.057 | | (0.91, 1.23) | 0.954 | | (0.77, 1.18) |
| Asian or Pacific Islander | 1.099 | | (0.92, 1.31) | 0.993 | | (0.89, 1.11) | 1.077 | | (0.90, 1.29) |
| Non-Hispanic Black | 1.125 | ** | (1.04, 1.21) | 0.926 | * | (0.87, 0.98) | 1.008 | | (0.94, 1.08) |
| Hispanic | 1.024 | | (0.94, 1.12) | 0.986 | | (0.93, 1.05) | 0.836 | ** | (0.77, 0.91) |
| **State agency of certification (reference=State agency 1)** | | | | | | | | | |
| State agency 2 | 0.003 | ** | (0.00, 0.00) | 0.009 | ** | (0.00, 0.01) | 0.018 | ** | (0.01, 0.02) |
| State agency 3 | 0.003 | ** | (0.00, 0.00) | 0.001 | ** | (0.00, 0.00) | 0.005 | ** | (0.00, 0.00) |
| State agency 4 | 0.023 | ** | (0.02, 0.03) | 0.051 | ** | (0.05, 0.06) | 0.010 | ** | (0.00, 0.01) |
| State agency 5 | 0.004 | ** | (0.00, 0.00) | 0.008 | ** | (0.00, 0.00) | 0.005 | ** | (0.00, 0.00) |
| State agency 6 | 0.000 | ** | (0.00, 0.00) | 0.001 | ** | (0.00, 0.00) | 0.001 | ** | (0.00, 0.00) |
| State agency 7 | 0.005 | ** | (0.00, 0.00) | 0.014 | ** | (0.01, 0.02) | 0.015 | ** | (0.01, 0.02) |
| State agency 8 | 0.003 | ** | (0.00, 0.00) | 0.062 | ** | (0.06, 0.07) | 0.017 | ** | (0.01, 0.02) |
| State agency 9 | 0.045 | ** | (0.04, 0.05) | 0.003 | ** | (0.00, 0.00) | 0.004 | ** | (0.00, 0.00) |
| **Nutritional risk type (reference=not prescribed that risk)** | | | | | | | | | |
| Anthropometric risk | 1.102 | ** | (1.03, 1.18) | 1.155 | ** | (1.10, 1.21) | 1.205 | ** | (1.14, 1.28) |
| Biochemical risk | 1.485 | ** | (1.38, 1.60) | 1.178 | ** | (1.10, 1.26) | 1.466 | ** | (1.11, 1.93) |
| Clinical/health/medical risk | 1.304 | ** | (1.23, 1.39) | 1.408 | ** | (1.32, 1.50) | 1.968 | ** | (1.79, 2.16) |
| Dietary risk | 1.083 | * | (1.01, 1.16) | 1.172 | ** | (1.11, 1.23) | 1.319 | ** | (1.24, 1.41) |
| Other risk | 1.290 | ** | (1.02, 1.39) | 0.975 | | (0.91, 1.04) | 1.256 | ** | (1.17, 1.35) |
| **Urbanicity (reference=rural local agency)** | | | | | | | | | |
| Urban local agency | 0.734 | ** | (0.67, 0.80) | 1.598 | ** | (1.49, 1.71) | 1.145 | ** | (1.05, 1.25) |

Table 6-7. Logistic regression of medical referral assignment, odds ratios, and 95 percent confidence intervals (continued)

| | Women (n=78,502) | | | Children (n=118,867) | | | Infants (n=65,659) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Odds ratio | | 95% confidence interval | Odds ratio | | 95% confidence interval | Odds ratio | | 95% confidence interval |
| **Local agency size (reference=small local agency)** | | | | | | | | | |
| Medium agency | 1.175 | ** | (1.04, 1.32) | 0.895 | * | (0.82, 0.98) | 0.977 | | (0.87, 1.10) |
| Large agency | 1.312 | ** | (1.14, 1.51) | 0.968 | | (0.88, 1.07) | 1.600 | ** | (1.40, 1.83) |
| **Local health department (reference=all other types** | | | | | | | | | |
| Local health department | 1.263 | ** | (1.18, 1.35) | 0.967 | | (0.91, 1.02) | 1.480 | ** | (1.38, 1.58) |
| **Certification category (reference=postpartum women)** | | | | | | | | | |
| Pregnant women | 1.111 | ** | (1.04, 1.19) | - | | - | - | | - |
| Breastfeeding women | 0.872 | ** | (0.80, 0.95) | - | | - | - | | - |

Source: USDA. FNS, WIC NATS, State agency MIS data request. Reference date: January-February 2020.

**p<0.001, *p<0.05.

McFadden's R-Square for Model 1 is 0.66, for Model 2 it is 0.63, and for Model 3 it is 0.60. A McFadden's R-Square of 0.2 to 0.4 indicates a good model fit.

One State agency was excluded from this analysis because its medical referral data was limited.

### Race and Ethnicity

Associations between race/ethnicity and medical referral were limited. Most differences were not significant and when they were the ORs were not substantially different from one in any of the three models (Table 6-7). Medical referrals appear not to be impacted by race/ethnicity.

### State Agency

State agency variables indicate the state in which a participant was certified (referred to here as the State agency of certification). State agency of certification was a major predictor for all participant categories, as reflected in the overall variation in medical referral assignment between State agencies (see Tables 11a-11k in Appendix F). Of all study State agencies, the reference State agency had the highest odds of medical referrals in all three models. The differences were statistically significant, but small.

### Local Agency Characteristics

Urbanicity was significantly associated with medical referral assignment in all three models. Women in urban local agencies were much less likely to receive a referral (Model 3, Table 6-7) while children and infants were more likely (Models 4 and 5, Table 6-7). The MIS did not indicate whom the referral was for (woman, child, or infant). If referrals were tied to participants, the findings could reflect structural characteristics of an environment. For example, women in urban areas may be familiar with doctors for themselves and therefore do not seek referrals for themselves, but for their young children they may not know where to get medical services among all the providers available. In rural areas, the supply of medical personnel may limit choice such that everyone knows exactly where to go. Structural determinants of choice may be worth exploring in future studies. WIC clinics that are local health departments (as compared to any other type of entity) are associated with a higher likelihood of providing medical referrals to infants and women, while there is no significant difference in medical referrals to children by clinic type. This may be because children are less likely to require medical referrals than pregnant or post-partum women and infants across the board. That health departments are more likely to provide medical referrals may be a function of access to a community health nurse or other health professional within the health department itself.

### Nutritional Risk Assignment and Other Dependent Variables

With the exception of "Other" nutritional risks, the assignment of a nutritional risk was associated with medical referral in all three models (Models 3, 4, and 5, Table 6-7). The assignment of "Other" nutritional risks was not significantly associated with medical referral assignment for children (Model 4, Table 6-7), which makes sense as "other" risks for children

are risks that would be unlikely to require a medical referral such as homelessness, exposure to tobacco smoke, and foster care. Otherwise, having a nutritional risk was generally more likely to result in a medical referral than not having a nutritional risk, regardless of risk type. Pregnant women had the highest odds of receiving a medical referral compared to both postpartum and breastfeeding women (Model 3, Table 6-7). That pregnant women would receive medical referrals with a statistically significant higher OR seems intuitive since pregnant women may not be under a doctor's care at the time they first visit the WIC clinic.

### Future Research

For women and children, the characteristics associated with highest likelihood of non-milk MMA tailoring were (1) participant race reported as Asian or Pacific Islander (2) the assignment of a clinical/health/medical nutritional risk, (3) being certified as a breastfeeding woman, and (4) having a Food Package III assignment. For infants, characteristics associated with the highest likelihood of non-milk MMA tailoring were (1) infants reported as non-Hispanic White, (2) not being assigned a biochemical risk, and (3) not having a Food Package III assignment. Future research may want to focus on the mechanisms that drive the discovered independent associations, specifically whether ethnic-racial differences persist under different modeling assumptions and whether identified differences in in the likelihood of non-milk MMA tailoring for women and children compared to infants can be explained by confounding factors. For infants, having a Food Package III assignment decreases the odds of a less-than-MMA prescription of formula, while for women and children, a Food Package III assignment increases the odds of MMA tailoring. Local agency characteristics such as urbanicity and local agency size are not predictive of any differences in formula MMA tailoring for infants; however, for women and children, larger and urban agencies are associated with non-milk MMA tailoring. These findings are consistent with those from the WIC NATS Local Agency Survey, where infant formula adjustment was nearly universal among local agencies surveyed (98.3 percent; Figure 5-4) and food modifications varied by local agency characteristics. Formula agreements standardize formula across agencies, so variation may be limited, but for women and children participants in urban areas there may be a wider variety of options for food tailoring than for these participants in rural areas. When examining medical referrals, local agency characteristics were statistically significantly associated with receipt of a medical referral (or not), all else equal in the models. This, too, may reflect structural determinants, such as the availability of medical personnel. Future work may want to explore incorporating information on neighborhood characteristics to assess when these independently influence outcomes.

# 7. Impact of the COVID-19 Pandemic

**Key Findings**

- Beginning in March 2020, WIC State agencies could request and receive FNS waivers impacting multiple aspects of the WIC program. FNS granted all study State agencies physical presence and remote benefit issuance waivers which allowed WIC offices to conduct nutrition assessments remotely. In addition, all but one of the study State agencies requested (and were granted) food package waivers to allow for greater flexibility in food package substitutions.
- Each State agency also made numerous changes to their operating procedures in response to COVID-19. While flexibilities were introduced in order for WIC staff to conduct service provision remotely, WIC staff were still charged with gathering the information needed to complete a nutrition assessment, assign risk, and complete a care plan. The underlying components of the assessment process remained the same.
- Overall, the total number of participants declined about 7 percent from January-February 2020 (the pre-pandemic period) to January-February 2021. The decline was not universal across all study State agencies. Only half of the State agencies saw a decline in participation, while total participation in the other five State agencies increased over the same period.
- Eight of the 10 study State agencies were able to provide sufficient data to be included in reporting on breastfeeding initiation and duration at 6 months. Across all eight State agencies, the percentage of participants that initiated breastfeeding declined from the pre-pandemic period to January-February 2021 (74% vs. 69%).
- The number of participants assigned just one nutritional risk increased by more than 17 percentage points in January-February 2021 compared to the pre-pandemic period. The number of participants assigned three to five risks decreased by 11 percentage points.
- Anthropometric and biochemical risk assignments decreased by 24 and 12 percentage points, respectively, and dietary risk assignments increased by 8 percentage points over the study time period compared to the pre-pandemic period. These changes were likely due to the COVID-19 physical presence waivers which resulted in participants not having anthropometric and biochemical data recorded in person at the WIC clinic. Rates of assignment for clinical/health/medical and other risks remained the same over time.
- From the pre-pandemic period, there were few changes over time for the number of education codes assigned to participants or education types assigned. The rate of receiving any referral increased from 40 to 43 percent in January-February 2021 from the pre-pandemic period.
- While participants had fewer nutritional risks assigned during the pandemic, MIS data showed little to no change in the rate of food package tailoring. There was very little change to the rate of any food package tailoring for women and children between the pre-pandemic period and January-February 2021.
- How MMA food tailoring for women and children (excluding milk tailoring) and MMA formula tailoring for infants changed over time varied based on nutritional risk assignment. Women and children assigned anthropometric risks saw an increase in MMA tailoring over time, but those with dietary risks saw a decrease in MMA food tailoring. For infants, MMA tailoring fell slightly between the pre-pandemic period and July-July 2020 for all risk categories, but then rose between June-July 2020 and January-February 2021, resulting in essentially no change in MMA tailoring for infants for all risk categories from the pre-pandemic period to January-February 2021.

This chapter briefly describes the changes to WIC services during the COVID-19 pandemic in terms of the waivers issued to State agencies so they could continue to serve WIC participants safely during the pandemic and from the COVID-19-related policy and procedure documents

gathered from local agencies during the study's remote data collection. This chapter also describes changes observed in the MIS data across the three MIS data collection periods—January through February 2020, the study's baseline period prior to the start of pandemic changes, referred to as the "pre-pandemic period;" June through July 2020, which reflects service delivery early in the pandemic; and January through February 2021, which reflects service delivery when WIC programs were well into remote service delivery. The findings reported in this chapter will inform the analysis addressing research objective 5, "Describe the nutrition assessment and benefit tailoring processes when conducted remotely and compare these to the same processes as they occur in an in-person setting."

## 7.1 How the Pandemic Changed Nutrition Assessment and Food Package Tailoring—State Agency Waivers

Beginning March 2020, WIC State agencies could request and receive FNS waivers impacting multiple aspects of the WIC program. These waivers were issued under the Families First Coronavirus Response Act of 2020 (FFCRA, P.L. 116-127), as amended by the Continuing Appropriations Act, 2021 and Other Extensions Act (P.L. 116-159). The purpose of these waivers was to provide the flexibility needed for State agencies to continue to serve WIC participants during the COVID-19 pandemic. Table 7-1 provides a list of the waivers approved for each of the study State agencies that impacted how WIC clinics conducted the nutrition assessment and food package tailoring. FNS granted all study State agencies physical presence and remote benefit issuance waivers. These two waivers allowed for the following:

- The remote benefit issuance waiver waived 7 C.F.R. 246.12(r)(4), which requires in-person pickup of food instruments when a participant is scheduled for nutrition education or has a subsequent certification appointment. This waiver allows WIC programs to remotely issue benefits to any participant.

- The physical presence waiver waived the requirement in 42 U.S.C. 1786(d)(3)(C)(i), which states that WIC participants must appear in person for certification or recertification in order to determine eligibility under the program. With this waiver, WIC clinics were able to defer the anthropometric and blood work requirements necessary to determine nutritional risk.

These waivers allowed WIC offices to conduct nutrition assessments remotely. In practice, this meant that many WIC offices conducted nutrition assessments by phone or curbside where WIC participants would call the WIC office from outside the building. Curbside appointments occurred in one of the study's 10 State agencies.

In addition, State agencies requested waivers to allow for greater flexibility in food package substitutions. All study State agencies with the exception of Choctaw Nation requested (and were granted) food package waivers. This compares to 67 of 89 WIC State agencies (75%) across the

entire program who were granted food package substitution waivers.[56] The most common food package waivers included milk (7 State agencies requested substitution of different fat contents based on availability) and whole wheat/whole grain bread (5 State agencies requested size substitutions for bread based on availability) (see Table 7-1). Other waivers included yogurt and cheese (requested by 2 State agencies each for different fat content and container size, respectively). One State agency each requested waivers for size for eggs, juice, and rice.

**Table 7-1. Waivers enacted by study State agencies**

| State agency | Remote benefit issuance | Physical presence | Food package* | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Milk | Cheese | Yogurt | Bread | Rice | Eggs | Juice |
| Choctaw Nation | ✓ | ✓ | | | | | | | |
| Florida | ✓ | ✓ | ✓ | | | ✓ | | | |
| Indiana | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | |
| Louisiana | ✓ | ✓ | ✓ | | | | | | |
| Nebraska | ✓ | ✓ | | | | ✓ | ✓ | | |
| Nevada | ✓ | ✓ | ✓ | | | | | | |
| North Carolina | ✓ | ✓ | ✓ | | | ✓ | | | ✓ |
| Ohio | ✓ | ✓ | ✓ | | | ✓ | | | |
| Vermont | ✓ | ✓ | ✓ | ✓ | ✓ | | | | |
| West Virginia | ✓ | ✓ | | | | | | | |

Source: USDA, FNS. WIC: COVID-19 Waivers by State. Retrieved on: June 17, 2022.

* Food package waiver definitions: Milk – Substitute milk of any available fat content; Cheese – Substitute 12 ounce (oz) containers of shredded cheese and string cheese when prescribed size is not available (Vermont only), families with aggregate food benefits will be allowed to purchase up to 32 oz containers of cheese (Nebraska only); Yogurt – Substitute yogurt of any available fat content; Bread – Substitute 24 oz packages of whole wheat/whole grain bread for 16 oz packages (when unavailable); Rice – Families with aggregate food benefits will be allowed to purchase up to 32 oz containers of brown rice; Eggs – Substitute 18-count package for 12-count (when unavailable); Juice – Substitute 12, 16, and 46 oz containers of juice when prescribed size is not available

## 7.2 How the Pandemic Changed WIC Service Provision

Each State agency also made numerous changes to their operating procedures in response to COVID-19. Documents related to COVID-19 policies and procedures were provided to data collectors by local agencies and/or clinics in five study State agencies during remote data collection. Most of the changes described in these documents were in response to the physical presence waiver granted by FNS; WIC programs had to determine how to conduct WIC

[56] Bush, A., and Lee, H. (2021). *Changes in USDA Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) operations during the COVID-19 pandemic: A first look at the impact of Federal waivers* (research brief). Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support. Available at: https://fns-prod.azureedge.us/sites/default/files/resource-files/FFCRA-WICWaiver-Prelim-1.pdf.

assessments remotely. States typically issued procedure documents to local clinics, and local clinics issued guidance to their staff on three main topics: technology, physical safety, and requirements. Technological guidance included instructions on how to use new remote communication platforms or specialized video-conferencing platforms as well as instruction on forms converted for remote use, such as online fillable forms for capturing proof of identity. States also issued guidance on safety in the era of COVID-19, including describing procedures for conducting curbside appointments or equipment returns while maintaining physical distance and while wearing gloves and masks, as well as how to maintain safe procedures in reopened clinics.

The bulk of COVID-19-related policies and procedures, however, focused on clarifying what requirements applied during COVID-19 and how these requirements could be met in remote environments. State agencies sent memoranda to clinics explaining which requirements were suspended (including anthropometric measurements), which were modified (including medical documentation), and which remain unchanged but could now be captured remotely (such as nutrition assessments). One State agency, for instance, issued multiple memos explaining how to complete infant enrollment forms without medical documentation, how to schedule remote appointments, how to provide nutrition education guidance remotely, and other topics. Another State agency issued a Remote Appointment Policy document that detailed procedures for WIC staff to follow in conducting and documenting remote appointments, such as:

- Verbally verifying that they are speaking with the participant, parent/guardian, or caretaker before starting any appointment;
- Explaining to the participant/parent/guardian that information will be entered into the computer system during the appointment, so they are aware of what is happening in the appointment;
- Allowing documentation of identification, residency, and income to be mailed, emailed, faxed, photographed, texted, etc., to the WIC clinic;
- Allowing a temporary 30-day certification if the participant, parent/guardian, or caretaker cannot provide proof of eligibility or cannot email documentation, giving participants time to provide documentation;
- Issuing an EBT card by mail or through a "drive-by;"
- Verbally reading the Participant Agreement, Rights and Responsibilities form to participants or parent/guardian/caretaker when they do not have access to the internet;
- Obtaining the participant signature;
- Obtaining height/length, weight, and hemoglobin from another source;

- Completing nutrition assessment screens (as usual) to document answers to questions, assign risks, discuss and document referrals, discuss and assign goals, and complete a nutrition care plan; and
- Utilizing the WIC website for handouts to share with participants and offering to mail nutrition education materials.

While flexibilities were introduced in order for WIC staff to conduct service provision remotely, WIC staff were still charged with gathering the information needed to complete a nutrition assessment, assign risk, and complete a care plan. The underlying components of the assessment process remained the same.

## 7.3 Changes to MIS Data across the Three Data Collection Periods

Because of the flexibilities granted by the physical presence and remote issuance waivers implemented by State agencies during the COVID-19 pandemic, changes in WIC clinic operations impacted the participant data that State agencies submitted. For example, more individuals in some State agencies may have had appointments because they were able to attend via telephone or video conference. Because clinic staff assign biochemical nutritional risks based on an in-person hematological test (e.g., anemia screening), fewer participants may have been assigned these risks. The findings in this chapter, however, are descriptive in nature and do not assess causality between participant characteristics, risks, nutrition education, and referrals and the policies and procedures implemented by State agencies during the COVID-19 pandemic.

### Comparison of Participant Data

Overall, the total number of participants declined about 7 percent from January-February 2020 to January-February 2021. The decline was not universal across all study State agencies. Only half of the State agencies saw a decline in participation, while total participation in the other five State agencies increased over the same period. Overall, the distribution of participants across participant categories did not change over time (see Table 7-2). The distribution of WIC participants by race, ethnicity, participation in other benefit programs, income as a percentage of the Federal Poverty Guidelines, and number of people in the household remained consistent over time as well (see Appendix F, Table 1a).

Table 7-2. Percentage of participants by participant category

| Participant category | January-February 2020 | | June-July 2020 | | January-February 2021 | |
|---|---|---|---|---|---|---|
| | N | Percentage | N | Percentage | N | Percentage |
| Total participants | 615,403 | 100.0 | 589,471 | 100.0 | 570,119 | 100.0 |
| Pregnant women | 60,601 | 9.8 | 56,466 | 9.6 | 51,641 | 9.1 |
| Breastfeeding women | 59,467 | 9.7 | 54,163 | 9.2 | 49,614 | 8.7 |
| Postpartum women | 49,728 | 8.1 | 44,767 | 7.6 | 44,870 | 7.9 |
| Total women | 169,796 | 27.6 | 155,396 | 26.4 | 146,125 | 25.6 |
| Infants | 155,781 | 25.3 | 152,551 | 25.9 | 142,296 | 25.0 |
| Children | 289,826 | 47.1 | 281,524 | 47.8 | 281,698 | 49.4 |

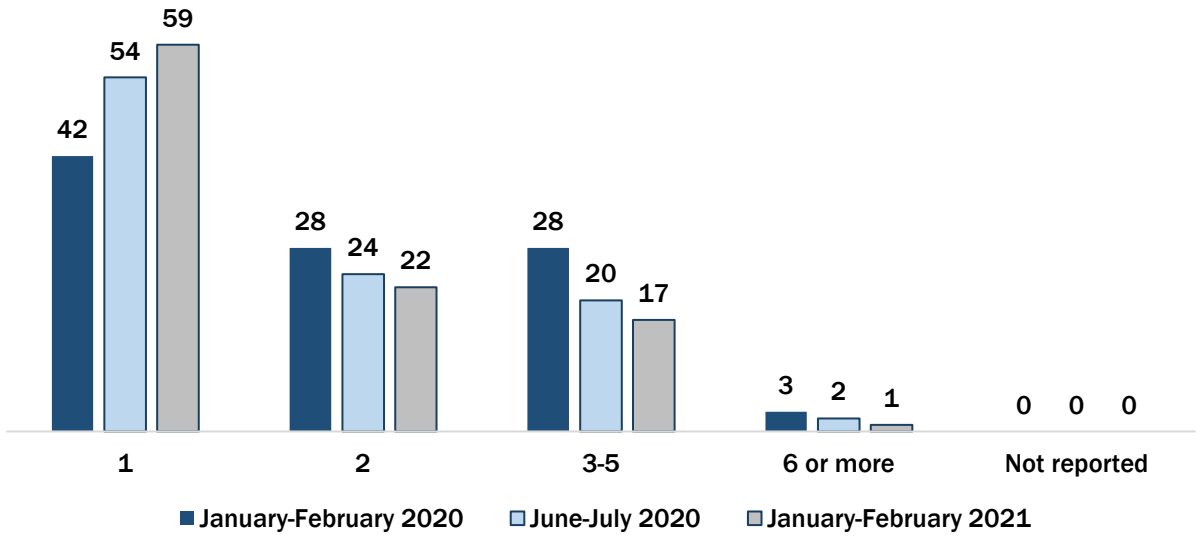
Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 1a.
Percentages may not add to 100 due to rounding.

Eight of the 10 study State agencies were able to provide sufficient data to be included in reporting on breastfeeding initiation and duration at 6 months. Across all eight State agencies, the percentage of participants that initiated breastfeeding declined from the pre-pandemic period to January-February 2021 (74% vs. 69%). Rates of breastfeeding initiation declined over time in four State agencies, while rates increased in three State agencies and remained the same in one State agency (see Appendix F, Tables 1b-1k).

## Comparison of Assigned Risks

The number of participants assigned just one nutritional risk increased by 12 percentage points in June-July 2020 compared to the pre-pandemic period and an additional 5 percentage points in January-February 2021 (see Figure 7-1). The number of participants assigned three to five risks decreased by 8 percentage points in June-July 2020 compared to the pre-pandemic period and an additional 3 percentage points in January-February 2021.

Figure 7-1. Number of nutritional risks assigned over three time periods in 2020 and 2021




Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 1a.

Overall, anthropometric and biochemical risk assignments decreased by 24 and 12 percentage points, respectively, and dietary risk assignments increased by 8 percentage points over time compared to the pre-pandemic period (see Table 7-3). These changes were larger from the pre-pandemic period to June-July 2020 than from June-July 2020 to January-February 2021. These changes were likely due to the COVID-19 physical presence waivers, which resulted in participants not having anthropometric and biochemical data recorded in person at the WIC clinic. Rates of assignment for clinical/health/medical and other risks remained the same over time.

Table 7-3. Nutritional risk assignments by broad categories

| Risk category | January-February 2020 (n=615,403) | | June-July 2020 (n=589,471) | | January-February 2021 (n=570,119) | |
|---|---|---|---|---|---|---|
| | N | Percentage | N | Percentage | N | Percentage |
| Anthropometric | 334,836 | 54.4 | 221,169 | 37.5 | 172,401 | 30.2 |
| Biochemical | 80,288 | 13.0 | 29,572 | 5.0 | 6,189 | 1.1 |
| Clinical/health/medical | 154,162 | 25.1 | 139,259 | 23.6 | 138,379 | 24.3 |
| Dietary | 290,623 | 47.2 | 313,137 | 53.1 | 314,592 | 55.2 |
| Other risks | 141,923 | 23.1 | 133,448 | 22.6 | 125,601 | 22.0 |
| Not reported | 4,326 | 0.7 | 8,003 | 1.4 | 8,606 | 1.5 |

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 1a.
Percentages add to more than 100 because participants may be assigned up to 10 nutritional risks.

### Comparison of Education and Referral Codes

**Education assignment.** From the pre-pandemic period, there were few changes over time for the number of education codes assigned to participants or education types assigned (see Appendix F, Tables 7a and 8a). Approximately a quarter of all participants received five or more education codes across all three time periods (26%, 28%, and 26%, respectively). Infants continued to have the highest rate of being assigned five or more education codes (35%), though with a decrease in June-July 2020 and January-February 2021 (34% and 31%).

The largest difference in education type participants received over time was for education on WIC procedures. About one-quarter of participants received education on WIC procedures during the pre-pandemic period. The percentage of participants who received the WIC procedures education decreased to 17 percent in June-July 2020 and to 11 percent in January-February 2021. Medical education decreased from 30 percent in January-February 2020 to 27 percent in January-February 2021.

**Referral receipt.** During the pre-pandemic period, more than half of participants either were missing referral data or had been assigned "no referral" (60%). In the subsequent time periods, this value decreased to 58 percent in June-July 2020 and 57 percent in January-February 2021 (see Appendix F, Table 10a). Breastfeeding women consistently had the highest percentage of missing or no referrals and infants and children had the lowest. Postpartum women had the highest rates of receiving five or more referral codes across all three time periods (16%, 19%, and 18%, respectively). The rates of receiving any referral increased from 40 to 43 percent in January-February 2021 from the pre-pandemic period. All participant categories saw an increase of 3 to 4 percentage points of any referrals, except for infants who saw an increase of less than 1 percentage point from the pre-pandemic period.

The study team observed trends in referral type by nutritional risk type (see Appendix F, Table 12a). Participants with anthropometric nutritional risks saw an increase of over 13 percentage points in any referral assignment between the pre-pandemic period and January-February 2021, and those with a biochemical nutritional risk saw an increase in any referral assignment of 8 percentage points. The largest observed difference over time was for those assigned anthropometric risks and receiving a medical referral, which rose from 26 percent during the pre-pandemic period to 39 percent in January-February 2021.

### Food Package Tailoring

The FFCRA WIC waivers aimed to ensure continued access to WIC services while maintaining safety for participants and staff. Participants had fewer nutritional risks assigned (see Figure 7-1 above); however, MIS data collected from the study State agencies showed little to no change in food package tailoring offered.

Table 7-4 shows no change to the rate of food package tailoring for pregnant, breastfeeding, and postpartum women between the pre-pandemic period, June-July 2020, and January-February

2021. Breastfeeding women, postpartum women, and children show a less than 1 percentage point change in the rate of food package tailoring from the pre-pandemic period to January-February 2021.

**Table 7-4. Percentage of women and children with any food package tailoring (excluding milk)**

| Participant category | January-February 2020 | | June-July 2020 | | January-February 2021 | |
|---|---|---|---|---|---|---|
| | N | Percentage | N | Percentage | N | Percentage |
| Pregnant women | 9,061 | 15.2 | 8,425 | 15.4 | 7,788 | 15.6 |
| Breastfeeding women | 10,950 | 19.5 | 9,200 | 18.8 | 8,575 | 19.1 |
| Postpartum women | 4,453 | 9.1 | 3,560 | 8.5 | 3,795 | 9.0 |
| Children | 61,986 | 21.7 | 55,203 | 20.2 | 54,888 | 20.0 |

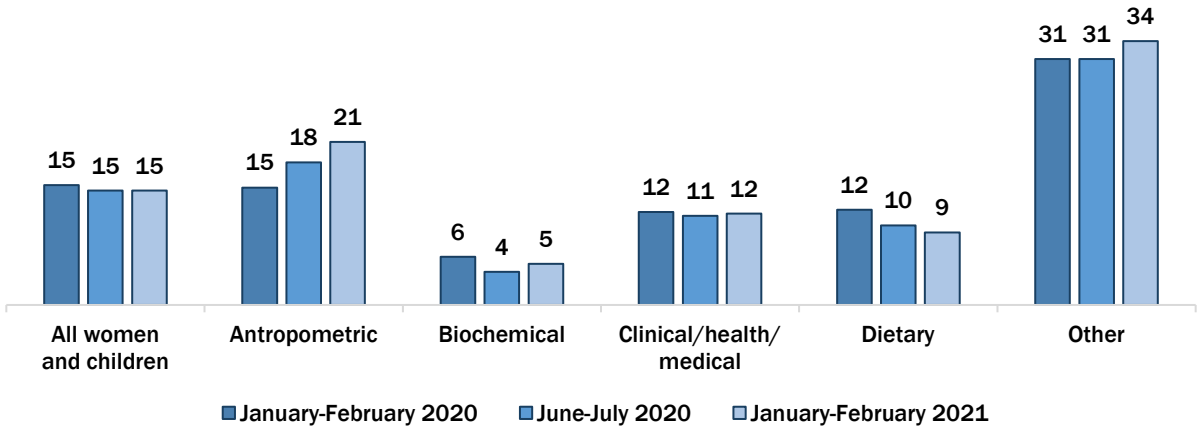
Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 13.1a.

Two State agencies did not provide food package type; therefore, any food tailoring included for these two agencies is indicated only by milk type and homeless population substitutions.

Only data meeting the food package data quality thresholds are included in the food package tailoring analysis. Over 90 percent of data in all State agencies meet the quality thresholds.

Figures 7-2 and 7-3 display MMA food tailoring for women and children (excluding milk tailoring) and infants, respectively, by nutritional risk category over time—how MMA food tailoring for women, children, and infants changed over time varied based on nutritional risk assignment. Women and children assigned anthropometric risks saw an increase in MMA tailoring over time, but those with dietary risks saw a decrease in MMA food tailoring. For infants, MMA tailoring fell slightly between the pre-pandemic period and July-July 2020 for all risk categories, but then rose between June-July 2020 and January-February 2021, resulting in essentially no change in MMA tailoring for infants across the three time periods for all risk categories.

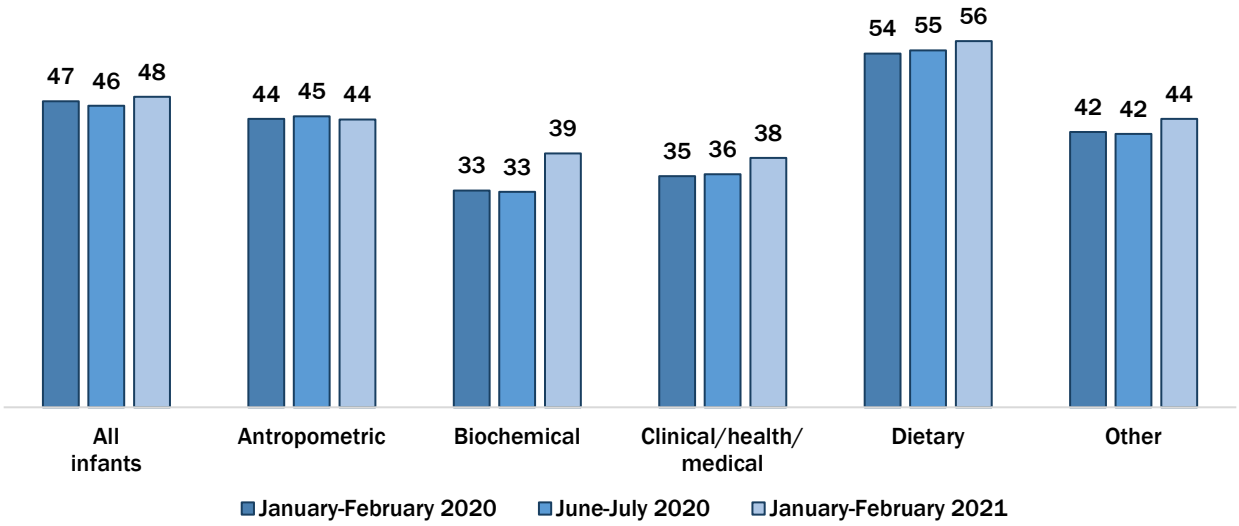
**Figure 7-2. Distribution of nutritional risk assignment and MMA food tailoring over time for women and children**




Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 13.3a.

Two State agencies were unable to provide food package type and are therefore excluded from this figure.

Figure 7-3. Distribution of nutritional risk assignment and MMA formula tailoring over time for infants




Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Table 13.3a.
Two State agencies were unable to provide food package type and are therefore excluded from this figure.

# 8. Conclusions

This study is intended to summarize how WIC local agencies and clinics conduct the nutrition assessment and use the information they gather to tailor benefits provided to WIC participants. In this report, the study team conducted a synthesis of State agency documents and analysis of both local agency survey results and State agency administrative data to describe the assessment process and its outcomes. Analysis of the data allowed the study team to draw the following conclusions:

- The 10 study State agencies adhere closely to WIC Federal regulations in their nutrition assessment policies and procedures. Some variation in policies and procedures does exist, but these differences are ones of emphasis, not mission.

- Local agencies can also be a source of policy and procedure documents that can add variation to how WIC clinics provide nutrition services. In practice, however, only one-quarter of the local agencies reported creating policy and procedure documents on nutrition assessments for their WIC clinics in addition to those they received from the State agency.

- Urban, large-caseload, and local agencies with more than one clinic appear to have advantages over rural, small, and local agencies with just one clinic in terms of their ability to hire staff with specialized education and credentials for conducting nutrition and breastfeeding assessments. Significantly more urban compared to rural local agencies, large local agencies compared to medium-sized and small local agencies, and local agencies with two or more clinics compared to one clinic use RDs/RDNs for nutrition assessments. In contrast, rural, small, and local agencies with just one clinic are significantly more likely to use nurses to conduct nutrition assessments. A similar pattern exists in the education and credentials of staff who conduct breastfeeding assessments. Urban local agencies, those with large caseloads, and those operating two or more clinics are significantly more likely to have RDs/RDNs, nutritionists, CLCs, and IBCLCs conduct breastfeeding assessments than local agencies that are rural, that have small caseloads, or that operate only one clinic.

- The 10 study State agencies, like the WIC program as a whole, serve a culturally diverse clientele. Over 80 percent of local agencies who responded to the survey reported serving clients who speak a language other than English. These local agencies most commonly use a language line service to communicate with non-English speakers. The second most common way to communicate with non-English speakers is to have bilingual staff on-site. And again, urban, large-caseload, and local agencies with more than one clinic are more likely to have this resource than rural agencies, small or medium-sized local agencies, and agencies with one clinic only.

- Staff training for those who perform nutrition assessments is extensive. Staff receive annual training on a wide variety of topics with access to refresher training as

needed. Just over half of local agencies identified 15 or more topic areas in which nutrition assessment staff are trained. Over 80 percent of local agencies offer training on anthropometric data collection techniques, infant nutrition, child nutrition, hematological data collection techniques, documentation of nutrition assessment findings, prenatal nutrition, the nutrition assessment process, assessment of breastfeeding behaviors, counseling and participant-centered services skills, and postnatal nutrition.

- The FNS Breastfeeding Curriculum is almost universally used by local agencies for breastfeeding assessment training. Ninety-three percent of surveyed local agencies use the FNS Breastfeeding Curriculum to train staff that conduct breastfeeding assessments. The curriculum appears to meet their training needs well. When asked what additional topics not covered by the FNS Breastfeeding Curriculum that agencies include in their breastfeeding assessment training, 74 percent of local agencies that use the curriculum said "none." Of those that did specify additional topics, the topics most frequently reported included breast pump policies and issues and use of social media and apps.

- Women, infants, and children must have a nutritional need to be eligible for the WIC program. As part of the nutrition assessment, WIC staff take height and weight measurements and test for anemia. Taking these measurements is a pathway to eligibility for participants in need. Participants were assigned anthropometric (i.e., height and weight) risks at the highest rate (54%) of all risk code types. Thirteen percent of participants were assigned biochemical (i.e., anemia) risks.

- Tailoring of nutrition services is common practice for WIC clinics. Large majorities of local agencies report they use information from the nutrition assessment to tailor food packages, the content and delivery of nutrition education, and referrals offered.

- Urban agencies and local agencies with two or more clinics are able to provide a wider array of education modes than rural agencies or local agencies with just one clinic. They are significantly more likely to provide technology-based nutrition education options to their participants, including providing educational content off-site via the internet and one-on-one counseling using video conferencing.

- While tailoring of nutrition services is common, it appears that this tailoring is not always facilitated by the WIC MIS. Overall, 60 percent of surveyed local agencies report that their MIS helps to facilitate tailoring of program benefits, while 40 percent said their MIS does not. Of the 60 percent that indicated the MIS helps to facilitate tailoring, 82 percent report their MIS helps facilitate food package tailoring, 35 percent report that their MIS helps tailor nutrition education offered, and 39 percent report that their MIS helps tailor referrals offered.

- Milk-specific MMA tailoring is very common, suggesting that the standard food packages' milk allowances are large enough to allow participants to substitute some milk for other types of dairy products while still having the amount of milk they would like for drinking. Ninety-four percent of women and children who were eligible for milk were prescribed quantities of milk below the MMA.

- Infant formula prescriptions are considered tailored by their very nature, as breastfeeding assessments guide decisions on type and amount of formula prescribed. The data provide evidence that breastfeeding assessments are working to match formula amounts with need as 52 percent of infants received less than the FNB-MMA formula amount.

- Some food items were never prescribed less than the MMA. These were yogurt, tofu, eggs, legumes, and the CVB for fresh fruits and vegetables. While the data for this study did not include redemption rates, the fact that these food types were always prescribed at the MMA suggests those who were eligible to receive these benefits expected to use the full benefit.

- There is evidence of food package tailoring based on risk assignment, although the associations are not absolute. For instance, women and children participants assigned the "lactose intolerance" nutritional risk were more likely to be prescribed three possible substitute foods (lactose-reduced or lactose-free milk, soy-based beverages, and tofu) than women without the "lactose intolerance" risk. On the other hand, between 20 and 30 percent of participants assigned a lactose intolerance nutritional risk code were not prescribed a lactose-related substitution.

- Across the 10 study State agencies, WIC participation declined over the first year of the COVID-19 pandemic by about 7 percent. While remote services were necessary to continue to serve WIC participants during the COVID-19 pandemic, they did not prevent an overall decline in the number of WIC participants served during the pandemic's first year.

- The COVID-19 pandemic appears to have impacted risk code assignment. A higher percentage of participants were assigned just one nutritional risk and smaller percentages were assigned two or more risks during the pandemic's first year. There were also fewer anthropometric and biochemical risks assigned, while the assignment of dietary risks increased. These changes were likely due to the COVID-19 physical presence waivers which resulted in participants not having anthropometric and biochemical data recorded in person at the WIC clinic.

- Eight of the 10 study State agencies were able to provide sufficient data to be included in reporting on breastfeeding initiation and duration at 6 months. Across all eight of these State agencies, the percentage of participants that initiated breastfeeding declined from the pre-pandemic period (January-February 2020) to January-February 2021 (74% vs. 69%). A possible reason for this decline is the lack of in-person breastfeeding support during the pandemic.

- WIC clinics continued to provide tailored nutrition services during the pandemic. There were little to no changes to the rate of food package tailoring during the pandemic, few changes to number of education codes assigned, and a small increase to the rate of receiving any referral.

The analyses described in this report used State agency documents, local agency survey results, and WIC MIS administrative data to provide the study's first look at the WIC nutrition assessment and tailoring processes. The study's Part 2 report will include analyses of data collected at the clinic level for both remote and in-person services, and will examine actual nutrition assessment and benefit tailoring practices in WIC clinics. Analysis of qualitative data from site director and staff interviews will inform and extend the analyses presented in this initial report.