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WIC Nutrition Assessment and Tailoring Study: Final Report Part 1 – Appendix G

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

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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."

In approving Nebraska WIC's participation in this study, the Nebraska Department of Health and Human Services requires that publication of research findings include the following disclaimer: "These findings and their interpretation are the sole responsibility of the author and do not necessarily reflect the opinions or policy position of DHHS."

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Appendix G

State Agency-Specific MIS Data Analysis Results

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The WIC Nutrition Assessment and Tailoring Study (WIC NATS) examines how WIC clinics assess applicants' and participants' nutritional status and how WIC staff tailor benefits as a result of that assessment. The Part 1 report provides descriptive statistics on nutrition risk assignment, food packages, nutrition education, and referrals to other services. These statistics were based on administrative data drawn from WIC eligibility systems and pooled across all 10 study State agencies. This appendix provides results by State agency. Unless otherwise specified, the data represent the WIC population that attended WIC appointments in January-February 2020, before the changes in program participation and administration following the COVID-19 pandemic.

G-1. The MIS Data Submissions

Most State agencies were able to submit data for all variables needed for the Management Information System (MIS) analysis. Particularly important was the ability to obtain data for the analysis of benefit tailoring. State agencies submitted data for the analysis of food package tailoring, nutrition education and counseling (referred to as "training" in the MIS data) tailoring, and referral tailoring. Table 1 indicates the primary ways in which data used in the tailoring analysis differed by State agency. It shows the following:

- The first column indicates whether or not a State agency provided food package type with their MIS data submission. Food package types are numbered 1 through 28 and specify the type of food package corresponding to participant category, age, and breastfeeding status. Some aspects of food package tailoring could not be determined without this variable. For example, the study team could not identify breastfeeding status and formula amount (essential for determining infant food package tailoring) because that is dependent on food package type. Of the 10 State agencies, only Choctaw Nation could not provide food package type.

- The second column lists the education code categories that State agencies do not have in their system education codes. The study team grouped education codes into eight categories: breastfeeding, Good Food Choices, physical activity, meal planning and prep, medical, feeding children, WIC procedures, and other. Florida, Nebraska, Nevada, Vermont, and West Virginia had education codes that could be grouped into each of these categories. Choctaw Nation, Indiana, Louisiana, and North Carolina had some, but not all eight, education types identified. The Ohio data submission included no education data.

- The third column lists categories the State agencies do not have in their system referral codes. The study team grouped referral codes into six categories: breastfeeding, medical, benefit programs, behavioral health, social services, and other. Choctaw Nation, Nebraska, Nevada, North Carolina, Ohio, and Vermont have referral codes in all these categories. Florida, Indiana, Louisiana, and West Virginia use some, but not all six, referral types identified.

Table 1. Data differences across State agencies

State agency	Submitted food package type	Education categories with no education codes	Referral categories with no referral codes	Type of inappropriate nutrition practice codes submitted
Choctaw Nation	No	Physical activity	–	5-digit codes
Florida	Yes	–	Breastfeeding Benefit programs Behavioral health Social services Other	3-digit codes
Indiana	Yes	WIC procedures	Breastfeeding	5-digit codes
Louisiana	Yes	Good Food Choices Physical activity Meal planning and prep Medical WIC procedures	Behavioral health	3-digit codes
Nebraska	Yes	–	–	5-digit codes
Nevada	Yes	–	–	3-digit codes
North Carolina	Yes	WIC procedures	–	3-digit codes
Ohio	Yes	All	–	3-digit codes
Vermont	Yes	–	–	5-digit codes
West Virginia	Yes	–	Breastfeeding	3-digit codes

- The final column in the table indicates whether State agencies submitted three- or five-digit “Inappropriate nutrition practices” nutritional risk codes. The five-digit codes can be rolled up to the three-digit level, but submitted five-digit codes allow for a more detailed analysis of dietary nutritional risk codes.

Small Cell Sizes

To protect the identities of participants whose data are provided in this report, all tables that show results by State agency (in Appendixes F and G) have small cell sizes ($n \leq 5$) 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.

G-2. Participant Characteristics

The administrative data on participants included demographic characteristics, such as participant category, race, ethnicity, participation in other benefit programs, income, and number in household. These characteristics are typically recorded during the enrollment process and verified at follow-up appointments. Table 2 presents these characteristics by State agency and overall.

Table 2. Percentage of participants with characteristics, overall and by State agency

Characteristics	Percentage of participants										
	Total (n= 615,403)	CN (n= 3,839)	FL (n= 323,169)	IN (n= 100,442)	LA (n= 53,425)	NC (n= 53,131)	NE (n= 11,368)	NV (n= 24,864)	OH (n= 25,080)	VT (n= 3,702)	WV (n= 16,383)
Participant category											
Pregnant women	9.8	7.6	8.6	8.6	11.7	15.2	9.8	8.5	17.6	7.6	10.5
Breastfeeding women	9.7	4.1	11.4	7.5	5.1	10.9	7.4	6.8	11.3	9.7	4.1
Postpartum women	8.1	8.9	5.5	8.9	16.3	12.4	4.8	5.9	14.1	4.1	10.4
Total women	27.6	20.6	25.5	25.0	33.1	38.5	22.0	21.2	43.0	21.4	25.0
Infants	25.3	29.3	25.8	26.5	24.0	20.0	25.8	22.9	28.1	20.6	28.3
Children	47.1	50.1	48.7	48.4	43.0	41.5	52.1	55.9	28.9	58.0	46.7
Race											
American Indian	1.4	18.1	0.8	0.3	0.4	1.4	6.2	13.2	0.3	**	0.2
Asian	1.8	0.2	1.3	3.3	0.8	2.1	4.8	3.1	2.4	2.9	0.3
Black	29.4	2.3	31.2	19.5	48.8	36.4	14.7	17.4	33.0	5.2	5.0
Pacific Islander	0.3	0.3	0.2	0.1	0.4	0.2	**	**	0.2	**	–
White	60.0	35.6	60.1	69.5	36.7	57.1	65.2	59.6	56.3	88.5	87.0
Two or more races	6.1	41.9	6.4	7.1	2.3	2.7	8.6	5.2	7.8	2.8	7.5
Race not reported	1.0	1.5	< 0.1	0.1	10.6	< 0.1	**	**	< 0.1	–	–
Ethnicity											
Hispanic/Latino	32.4	5.8	44.2	18	8.4	24.5	**	51.5	12.7	4.2	3.3
Non-Hispanic/Latino	66.6	92.7	55.7	81.9	81.0	75.4	62.6	**	87.3	95.8	96.7
Ethnicity not reported	1.0	1.5	< 0.1	0.1	10.6	< 0.1	**	**	< 0.1	–	–
Participation in other benefit programs[a]											
SNAP	29.4	1.5	34.5	23.8	3.8	34.7	24.6	16.0	44.5	0.9	44.3
TANF	1.5	<0.1	1.7	1.1	< 0.1	0.4	3.7	1.5	4.3	0.3	2.4
Medicaid	77.1	74.8	85.5	56.5	70.8	84.3	75.8	32.1	82.8	84.6	94.1
No other programs	18.8	0.2	12.8	42.4	28.3	12	14.8	13.6	16.4	8.3	5.6
Not reported	2.3	23.7	–	0.3	–	–	7.6	48.7	–	6.3	–

Table 2. Percentage of participants with characteristics, overall and by State agency (continued)

Characteristics	Percentage of participants										
	Total	CN	FL	IN	LA	NC	NE	NV	OH	VT	WV
	(n= 615,403)	(n= 3,839)	(n= 323,169)	(n= 100,442)	(n= 53,425)	(n= 53,131)	(n= 11,368)	(n= 24,864)	(n= 25,080)	(n= 3,702)	(n= 16,383)
Income as a percentage of the Federal Poverty Guidelines[b]											
$0	3.1	–	1.0	5.6	2.0	13.2	4.1	2.2	2.6	6.8	–
1-50%	31.2	45.3	26.9	27.9	32.9	43.7	24.1	33.1	34.8	16.6	87.4
51-100%	35.1	18.0	42.0	33.1	28.2	22.6	36.9	30.1	24.7	22.6	2.5
101-150%	19.8	9.6	20.9	21.6	22.8	12.6	23.0	21.1	16.5	21.1	2.6
151-185%	6.6	2.9	6.4	6.3	11.5	4.9	7.6	8.1	6.0	9.4	2.0
More than 185%	1.9	0.5	1.3	4.0	1.7	1.6	3.6	1.4	2.3	8.1	0.8
Not reported	2.4	23.7	1.6	1.5	0.9	1.5	0.7	4.1	13	15.3	4.6
Number of people in economic unit											
1-2	10.8	7.6	9.6	7.9	18.0	9.3	9.7	12.8	**	**	16.4
3	23.2	19.7	23.1	21.3	26.4	23.2	20.9	22.7	27.1	27.9	24.8
4	27.6	21.1	28.8	27.5	25.4	27.6	25.0	24.8	24.0	31.1	26.0
5+	37.1	28.0	37.2	41.9	30.1	38.4	44.0	39.0	30.0	24.5	32.2
Not reported	1.3	23.7	1.3	1.5	< 0.1	1.4	0.3	0.7	**	**	0.7
Number of assigned nutritional risks											
1	41.6	27.8	40.3	62.7	29.6	36.0	27.7	35.1	34.2	30.3	32.6
2	27.7	30.9	30.5	18.4	29.1	25.4	31.6	28.7	28.1	26.3	25.2
3-5	27.6	37.2	27.0	16.9	35.1	34.4	34.8	30.7	33.5	35.8	36.4
6 or more	3.0	3.6	2.2	2.0	5.9	4.2	5.1	3.1	4.2	6.9	5.7
Not reported	0.2	0.4	< 0.1	< 0.1	0.4	–	0.9	2.4	–	0.7	–

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

Note: Percentages may not add to 100 because of rounding. CN = Choctaw Nation. SNAP = Supplemental Nutrition Assistance Program. TANF = Temporary Assistance for Needy Families.

[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 also 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.

** Data are not reported because of small cell size.

Participant Category

WIC participants are assigned one of five categories based on age and breastfeeding status: pregnant women, breastfeeding women, (non-breastfeeding) postpartum women, infants (up to age 1), and children (up to age 5). Four State agencies (Choctaw Nation, Nevada, Vermont, and Nebraska) had fewer than 25 percent of women participants (21%, 21%, 21%, and 22%, respectively); Ohio had the highest percentage of women participants (43%). Four State agencies (North Carolina, Vermont, Nevada, and Louisiana) also had fewer than 25 percent of infant participants (20%, 21%, 23%, and 24%, respectively); Choctaw Nation had the highest percentage of infant participants (29%). Four State agencies (Choctaw Nation, Nebraska, Nevada, and Vermont) had at least 50 percent of child participants (50%, 52%, 56%, and 58%, respectively); Ohio had the lowest percentage of child participants (29%).

Race[1]

As Table 2 shows, Choctaw Nation and Louisiana have the smallest percentage of participants with a reported race of White (36% and 37%). Louisiana's largest racial group for WIC participants is Black (49% of participants). In Choctaw Nation, more participants reported being of two or more races (42%) than any one racial category. Vermont and West Virginia had the highest percentages of participants reporting their race as White (89% and 87%.) While just 1.4 percent of participants overall reported their race as American Indian, the percentage was much higher for Choctaw Nation (18%) and Nevada (13%).

Ethnicity

In Choctaw Nation, Indiana, Louisiana, Ohio, Vermont, and West Virginia, more than 80 percent of participants reported their ethnicity as non-Hispanic/Latino (81% to 97%). In Nevada, however, the majority of WIC participants reported their ethnicity as Hispanic/Latino (52%).

Participation in Other Benefit Programs

When enrolling in WIC, participants may report participation in the Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), and/or Medicaid. Often, participation in one of these programs is used to determine automatic or

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[1] 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.

adjunctive eligibility in WIC. Differences by State agency in the percentage of participation in other benefit programs include:

- In Choctaw Nation, Louisiana, and Vermont, less than 5 percent of WIC participants reported participation in SNAP (2%, 4%, and 1%, respectively), compared to more than one-quarter overall;
- In Indiana, 42 percent of participants did not report participation in other benefit programs (i.e., SNAP, TANF, or Medicaid); and
- In Nevada, 32 and 16 percent of WIC participants reported participation in Medicaid and SNAP, respectively. Forty-nine percent of WIC participants in Nevada were missing data on participation in other benefit programs.

Income

Income did not vary widely by State agency. Overall, more than two-thirds (69.4%) of WIC participants had incomes below 100 percent of the Federal Poverty Guidelines. This amount was higher in North Carolina and West Virginia (80% and 90%) and lower in Vermont (46%).

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 Participant and Program Characteristics 2020 (PC 2020) data. This was true for all study State agencies, except for Vermont, where participants most commonly lived in households with four people (31%).

Number of Assigned Nutritional Risks

Five of the study's 10 State agencies had participants who were most commonly assigned one nutritional risk. In the remaining five State agencies, Choctaw Nation, Louisiana, Nebraska, Vermont, and West Virginia, participants were most commonly assigned three nutritional risks (34 to 37% of participants in these State agencies).

G-3. Recorded Nutritional Risks

WIC applicants are screened for nutritional risk during the nutrition assessment process and relevant risk codes are recorded in the eligibility system. These nutritional risk criteria can be grouped into five broad nutritional risk categories as defined by the Food and Nutrition Service (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; and
- Other risks include risks such as regression, transfer, presumptive eligibility, homelessness, and migrancy.

Although anthropometric and dietary risks were consistently the most common, rates of nutritional risk assignments varied across State agencies (Table 3). The percentage of participants who were assigned an anthropometric risk code ranged from 37 percent in Indiana to 73 percent in North Carolina. West Virginia also had a substantially larger percentage of participants with an anthropometric risk code as well (at 71%). Assignment of biochemical risk codes varied from 2 percent of participants in Indiana to 24 percent in Louisiana. Clinical/health/medical risk code percentages varied the least, from 18 percent of participants assigned this type of code in Nevada to 34 percent in Ohio. Assignment of dietary risk codes varied widely from 14 percent of participants in North Carolina to 71 percent in Louisiana. Other risk codes were least frequently assigned in Louisiana (to 13% of participants) and most frequently assigned in Choctaw Nation and West Virginia (to 41% of participants).

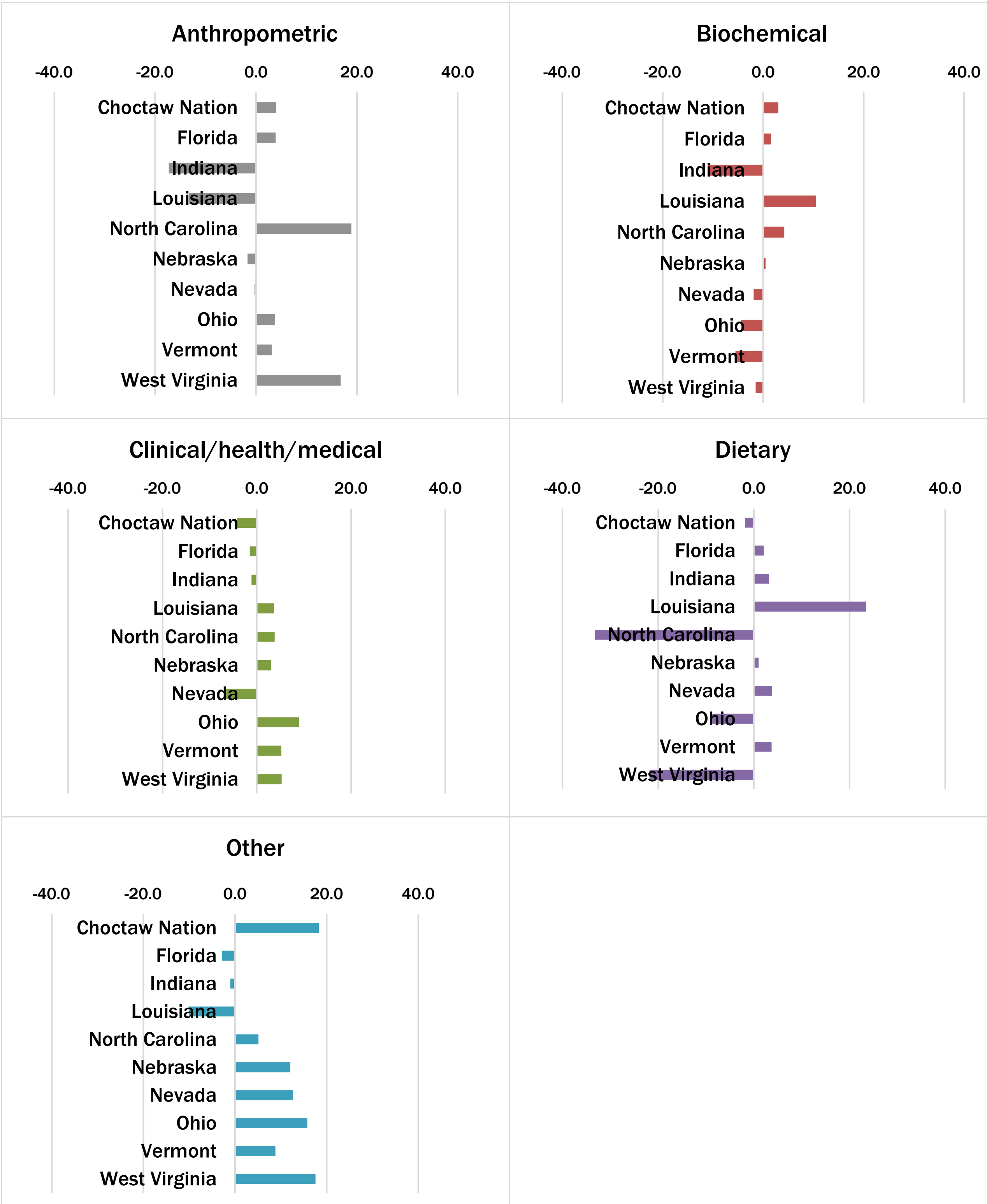
Table 3. Nutritional risk assignments by broad categories and State agency

State agency	Percentage of participants					
	Anthropometric (n= 334,836)	Biochemical (n=80,288)	Clinical/ health/ medical (n=154,162)	Dietary (n=290,623)	Other (n=141,923)	Not reported (n=4,326)
Choctaw Nation	58.1	16.0	20.9	45.4	41.4	0.4
Florida	58.0	14.6	23.6	49.3	20.3	< 0.1
Indiana	36.8	2.0	24.0	50.4	22.1	< 0.1
Louisiana	40.8	23.5	28.8	70.7	13.0	4.7
North Carolina	73.0	17.2	28.9	14.0	28.2	1.8
Nebraska	52.4	13.5	28.1	48.2	35.2	1.0
Nevada	53.8	11.1	18.1	51.0	35.7	2.4
Ohio	57.9	8.6	34.1	38.2	38.9	< 0.1
Vermont	57.2	7.5	30.3	50.9	31.9	0.7
West Virginia	70.9	11.5	30.4	25.4	40.7	–
All participants	54.4	13.0	25.1	47.2	23.1	0.7

Source: USDA. FNS, WIC NATS, State agency MIS data request. Reference date: January-February 2020.
Note: Percentages add to more than 100 because participants may be assigned up to 10 nutritional risks.

Figure 1 shows how each State agency's percentage of assigned nutritional risk codes by broad category differs from the overall unweighted average across all study State agencies. Figure 1 presents one graph for each broad category of risk codes. The "0" vertical line represents the overall percentage of participants who were assigned a risk code in the broad category. Each graph shows how the State agency-specific percentages of participants who were assigned a risk code in the broad category differ from the overall percentage. For instance, in the "Anthropometric" graph, Choctaw Nation's percentage of participants with an anthropometric risk code was 4 percentage points higher than the overall average. For Indiana, the percentage was 17 percentage points lower. So in these graphs, the reader can see at a glance how each State agency's percentage differed from the overall percentage both in terms of the percentage point difference and whether the difference was positive or negative. The graphs show an interesting difference in how clinical risk codes are assigned compared to dietary risk codes. For clinical risk codes, the State agency differences are for the most part clustered around the overall percentage, which is not surprising because assignment of clinical risk codes are not likely to be affected by State agency policy, either a participant has the underlying medical or health condition or they do not. The percentage of participants assigned a dietary risk code, on the other hand, varies much more widely around the overall percentage. Participants in North Carolina are assigned dietary risk codes at a rate 24 percentage points higher than the overall percentage, and those in Choctaw Nation and Nevada are assigned dietary risk codes at rates that are 22 and 33 percentage points lower than overall, suggesting State agency policy may impact assignment of these codes.

Figure 1. Distribution of broad nutritional risks from the overall unweighted average, by State agency



Source: USDA. FNS, WIC NATS, State agency MIS data request. Differences calculated from Appendix D, Tables 1a-1k. Reference date: January-February 2020.
Note: Percentages add to more than 100 because participants may be assigned up to 10 nutritional risks.

State Agency Variation in Assigned Risk Codes

Analysis of the top five nutritional risk codes by State agency and local agency characteristics is presented below, noting divergence from overall findings while commenting on the within-State-agency variation. The data discussed are presented in Appendix F, Tables 25a-25k.

Choctaw Nation. Risk codes assigned by the single Choctaw Nation local agency during the pre-pandemic period accounted for less than 1 percent of the total number of risk codes analyzed across the combined 10 State agencies. The top five nutritional risk codes assigned by the Choctaw Nation during the pre-pandemic period were (in order): “inappropriate nutrition practices for children,” “exposure to environmental tobacco smoke,” “low hematocrit/ hemoglobin,” “overweight or at risk of overweight,” and “preterm or early term delivery” (see Appendix F, Table 25b). Two of these five risk codes—”exposure to environmental tobacco smoke” and “overweight or at risk of overweight”—were not among the top five assigned overall (see Chapter 4, Table 4-3 in the main report). As the Choctaw Nation has only a single local agency, there are no variations by local agency characteristics to report. However, it is worth noting “inappropriate nutrition practices for children” accounted for 48 percent of all assigned risk codes for the Choctaw Nation.

Florida. As the largest State agency in the study sample, risk codes reported by local agencies in Florida during the pre-pandemic period accounted for slightly more than half (53%, calculated using data from Appendix F, Tables 1a and 1c) of the total number of risk codes analyzed across the combined State agencies. The top five nutritional risk codes reported by Florida local agencies during the pre-pandemic period were (in order): “inappropriate nutrition practices for children,” “preterm or early term delivery,” “low hematocrit/hemoglobin,” “overweight woman,” and “high maternal weight gain” (see Appendix F, Table 25c). “High maternal weight gain” was the only code not in the top five reported nutritional risk codes overall. Assignment of the top five risk codes was generally similar for medium-sized and large local agencies in Florida—the largest difference being that “inappropriate nutrition practices for children” was 37 percent of risk codes assigned by medium-sized local agencies and 31 percent assigned by large agencies (Florida has no local agencies that meet the definition of small size). Findings by urbanicity suggest urban/rural differences are small. The largest difference is for “overweight woman,” which was more frequently assigned in rural agencies than urban ones. All Florida agencies with a reported entity type were local or county health departments.

Indiana. Risk codes assigned by local agencies in Indiana during the pre-pandemic period accounted for about 16 percent of the total number of risk codes analyzed across the combined 10 State agencies. The top five nutritional risk codes assigned by local agencies in Indiana during the pre-pandemic period were (in order): “inappropriate nutrition practices for children,” “failure of a 2- to 5-year-old child’s diet to meet DGA recommendations” (henceforth “failure to meet DGA recommendations”), “overweight woman,” “postnatal enrollment,” and “preterm or early term delivery” (see Appendix F, Table 25d). The “failure to meet DGA recommendations” was not one of the risk codes in the top five overall. There were no large differences by local agency size. Findings from analysis by urbanicity, however, revealed that urban entities less frequently assigned “inappropriate nutrition practices for children” than their rural counterparts (23% vs. 31% of assigned codes) and more frequently assigned “failure to meet DGA recommendations” (17% vs. 12%). This pattern held for the analysis by local agency type as well, with county or local health departments assigning “inappropriate nutrition practices for children” more often and assigning “failure to meet DGA recommendations” less often than other entity types.

Louisiana. Risk codes assigned by local agencies in Louisiana during the pre-pandemic period accounted for just under 9 percent of the total number of risk codes analyzed across the combined 10 State agencies. The top five nutritional risk codes assigned by local agencies in Louisiana during the pre-pandemic period were (in order): “inappropriate nutrition practices for children,” “low hematocrit/hemoglobin,” “inappropriate nutrition practices for women,” “overweight woman,” and “inappropriate nutrition practices for infants” (see Appendix F, Table 25e). “Inappropriate nutrition practices for women” and “for infants” were not in the top five nutritional risk codes assigned overall. The most frequently assigned risk code in Louisiana—”inappropriate nutrition practices for children”—accounted for about 40 percent of assigned codes across all local agency characteristics.

Nebraska. Risk codes assigned by local agencies in Nebraska during the pre-pandemic period accounted for nearly 2 percent of the total number of risk codes assigned across the combined 10 State agencies. The top five nutritional risk codes assigned by local agencies in Nebraska during the pre-pandemic period were (in order): “inappropriate nutrition practices for children,” “postnatal enrollment,” “low hematocrit/hemoglobin,” “failure to meet DGA recommendations,” and “overweight woman” (see Appendix F, Table 25f). “Failure to meet DGA recommendations” was not among the top five codes assigned overall. Small agencies were much more likely to report “inappropriate nutrition practices for children” (48% of assigned codes) than large or medium-sized ones (34% and 40%, respectively). Rural agencies were also more likely to assign “inappropriate nutrition practices for children” than urban ones (47% vs. 35% of assigned codes).

Nevada. Risk codes assigned by local agencies in Nevada during the pre-pandemic period accounted for 4 percent of the total number of risk codes assigned across the combined 10 State agencies. The top five nutritional risk codes assigned by local agencies in Nevada during the pre-pandemic period were (in order): “inappropriate feeding practices for children,” “postnatal enrollment,” “overweight or at risk of overweight,” “breastfeeding infant of woman at nutritional risk,” and “short stature or at risk of short stature.” The latter three—”overweight or at risk of overweight,” “breastfeeding infant of woman at nutritional risk,” and “short stature or at risk of short stature”—were not among the top five codes assigned overall. Analysis by local agency size found notable variation in assigning “inappropriate feeding practices for children” (see Appendix F, Table 25g). Small agencies assigned this code much less frequently than medium-sized agencies (17% vs. 32% of codes assigned) and medium-sized agencies assigned it less frequently than large entities (43% of assigned codes). Assignment of “inappropriate feeding practices for children” varied by urbanicity, with urban entities assigning this risk code more than twice as frequently as rural entities (38% vs. 14%). Local agencies that were nonprofit entities (8 of 12 local agencies with a reported agency type in Nevada) assigned “inappropriate feeding practices for children” frequently; 40 percent of all their assigned codes were “inappropriate feeding practices for children.”

North Carolina. Risk codes assigned by local agencies in North Carolina during the pre-pandemic period also accounted for nearly 9 percent of the total number of risk codes assigned across the combined 10 State agencies. The top five nutritional risk codes assigned by local agencies in North Carolina during the pre-pandemic period were (in order): “overweight for a child age 2-5 or risk of overweight for a child age 1” (henceforth “overweight or at risk of overweight”), “overweight woman,” “low hematocrit/hemoglobin,” “high maternal weight gain,” and “postnatal enrollment” (see Appendix F, Table 25h). Only two of these—”overweight woman” and “low hematocrit/hemoglobin”—were among the top five risk codes overall. “Overweight and at risk of overweight” was the most frequently assigned code regardless of agency size, urbanicity, or type. Assigned percentages did not differ greatly across these local agency characteristics.

Ohio. Risk codes assigned by local agencies in Ohio during the pre-pandemic period accounted for 4 percent of the total number of risk codes assigned across the combined 10 State agencies. The top five nutritional risk codes assigned by local agencies in Ohio during the pre-pandemic period were (in order): “overweight woman,” “postnatal enrollment,” “high maternal weight gain,” “inappropriate nutrition practices for children,” and “breastfeeding mother of infant at nutritional risk” (see Appendix F, Table 25i). “High maternal weight gain” and “breastfeeding mother of infant at nutritional risk” were not among the top five most commonly assigned risk codes overall. Analysis by agency size, urbanicity, and agency type show fairly similar trends in assigning risk codes across these local agency characteristics.

Vermont. Risk codes assigned by local agencies in Vermont during the pre-pandemic period accounted for less than 1 percent of the total number of risk codes assigned across the combined 10 State agencies. The top five nutritional risk codes assigned by local agencies in Vermont during the pre-pandemic period were (in order): “inappropriate nutrition practices for children,” “postnatal enrollment,” “overweight or at risk of overweight,” “overweight woman,” and “short stature or at risk of short stature” (see Appendix F, Table 25j). Two of these five risk codes—”overweight or at risk of overweight” and “short stature or at risk of short stature”—were not among the top five assigned overall. All local agencies in Vermont were defined as either small or medium-sized. Noteworthy differences in the frequency of risks assigned by small and medium-sized entities were limited to “inappropriate nutrition practices for children.” Small entities assigned these risk codes more frequently than medium-sized entities (46% vs. 37%). Analysis by urbanicity showed that rural agencies assigned all risks except “overweight woman” more frequently than urban agencies. Differences in percentages of assigned codes for "inappropriate nutrition practices for children" exceeded 10 percentage points for rural compared to urban agencies (46% vs. 30%). All local agencies in Vermont are local or county health departments.

West Virginia. Risk codes assigned by local agencies in West Virginia during the pre-pandemic period accounted for nearly 3 percent of the total number of risk codes assigned across the combined 10 State agencies. The top five nutritional risk codes assigned by local agencies in West Virginia during the pre-pandemic period were (in order): "overweight or at risk of overweight," "postnatal enrollment," "overweight woman," "exposure to environmental tobacco smoke," and "preterm or early term delivery" (see Appendix F, Table 25k). "Overweight or at risk of overweight" and "exposure to environmental tobacco smoke" were not among the top five risk codes overall. Analysis by agency size, urbanicity, and agency type showed fairly similar trends in assigning risk codes across all these local agency characteristics.

G-4. Benefit Tailoring

WIC State agencies can use the information gathered during the nutrition assessment to tailor WIC benefits to a participant's particular needs. The Value Enhanced Nutrition Assessment (VENA) Guidance describes the three activities that make up benefit tailoring as follows:

- Tailoring the food package to address nutrition needs and breastfeeding status and preferences, including those based on the participant's culture;
- Customizing counseling strategies (e.g., nutrition/breastfeeding education, guided goal setting, affirmations) that address a participant's needs and concerns; and
- Making appropriate referrals.[2]

This section 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 overall and when associated with relevant nutrition risks describes how WIC staff use information obtained from the nutrition assessment to tailor food packages and nutrition education. The MIS data used in these analyses is from January-February 2020.

[2] 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) (FNS-880). Available at: https://wicworks.fns.usda.gov/sites/default/files/media/document/vena-guidance.pdf.

Any 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.[3] The study team compiled four indicators of food package tailoring for women and children: Food Package III assignment, milk type (e.g., tofu, milk fat), homeless population substitutions, and maximum monthly allowance (MMA) tailoring. The reasons for MMA tailoring could vary, including such things as food substitutions based on participant preferences (i.e., substitution cheese for milk), removing items due to allergies, or removing items that participants feel they will not eat and have asked to have removed from their food package.

Among the State agencies with complete data (i.e., excluding Choctaw Nation and Ohio), Nebraska had the lowest rate of any food package tailoring (Figure 2). In Indiana and Vermont, breastfeeding women had the highest rates of any food package tailoring, most likely due to their relatively high rates of MMA tailoring (excluding milk). In both these State agencies, more than 20 percent of breastfeeding women had MMA tailoring (excluding milk) compared to 20 percent of breastfeeding women overall. Any food package tailoring for pregnant women ranged from 5 percent in Vermont to 39 percent in Louisiana, from 11 percent in Nebraska and West Virginia to 31 percent in Indiana for breastfeeding women, and from 1 percent in West Virginia to 19 percent in Louisiana for postpartum women. The rates of any food package tailoring for children ranged from 14 percent in Vermont to 34 percent in Louisiana.

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

- **Food Package III.** Food Package III assignment for children was highest in West Virginia (12%) and lowest in Indiana (1%).
- **Milk type tailoring.** Rates of 1-year-old children prescribed reduced-fat milk were highest in Ohio (35%) and lowest in West Virginia (0.6%).
- **MMA tailoring (excluding milk).** These rates were highest in Louisiana and lowest in North Carolina for all participant categories.
- **MMA tailoring (milk).** Milk-specific MMA tailoring was highest in Louisiana (more than 97% for all participant categories) and lowest in Nebraska for pregnant women, postpartum women, and children (85%, 80%, and 62%, respectively), and in Florida for breastfeeding women (78%).

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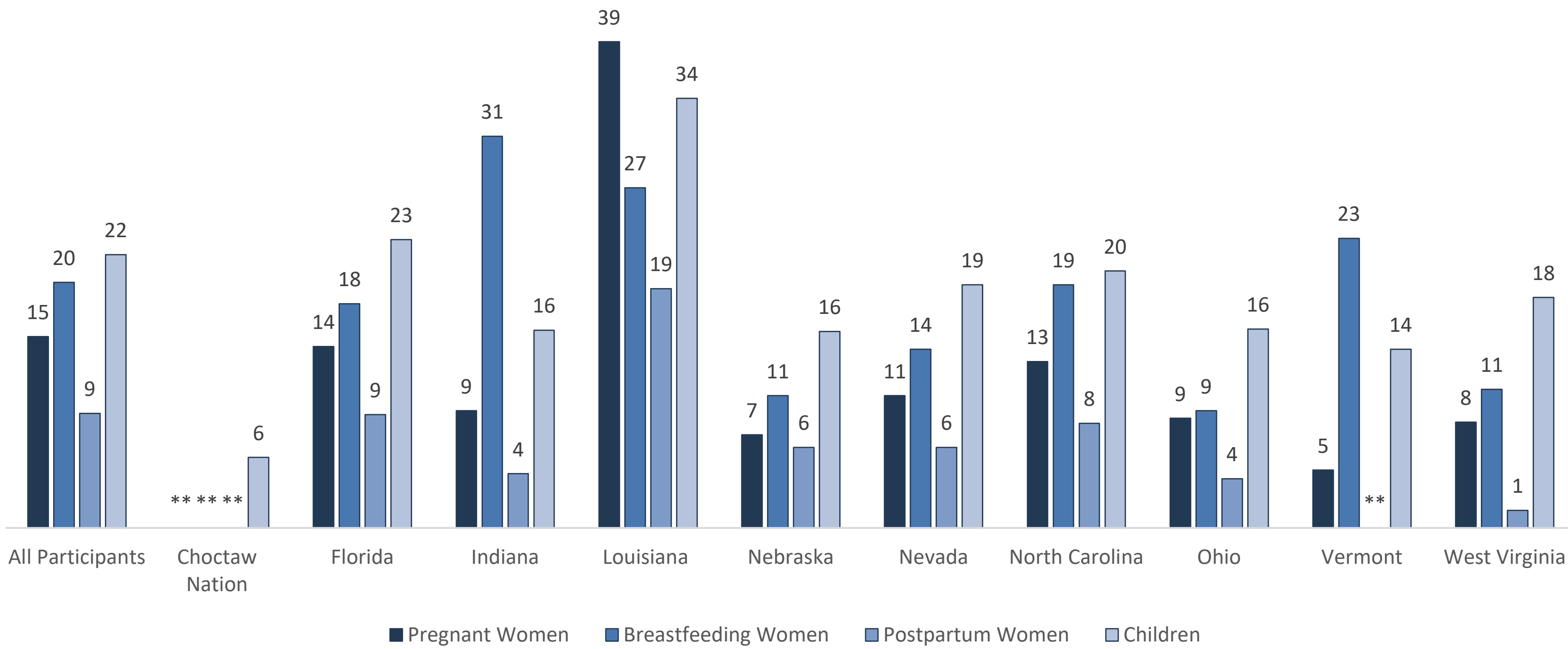
3 For more information, see 7 C.F.R. 246, Special Supplemental Nutrition Program for Women, Infants, and Children 1985.

Figure 2. Percentage of women and children with any food package tailoring, excluding milk MMA tailoring, overall and by State agency



Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Tables 13.1a-13.1k. Reference date: January-February 2020.
MMA = maximum monthly allowance.
Note: Ohio and Choctaw Nation did not provide sufficient Food Package Type data; therefore, any food tailoring is indicated only by milk type and homeless population substitutions.
** Data are not reported because of small cell size.

Rates of Food Package III assignment, WIC formula category (infant formula, exempt infant formula, and WIC-eligible nutritionals) tailoring and rates of infant formula assignment by breastfeeding status and infant age differed by State agency. Notable differences include:

- Nevada prescribed Food Package III assignment to infants at the highest rate (28%) and Louisiana had the lowest rate, with less than 1 percent of infants receiving a Food Package III assignment.

- Choctaw Nation had the highest rates of prescribed nonexempt infant formula at 88 percent and Vermont had the lowest at 63 percent.

- In Nebraska, Nevada, and Vermont, there were no 6- to 11.9-month-old infants prescribed fully formula-fed packages. All other State agencies (not including Choctaw Nation and Ohio, which did not have data for this analysis) had rates of approximately 75 percent.

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%). 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 old. These trends differed across State agencies as follows:

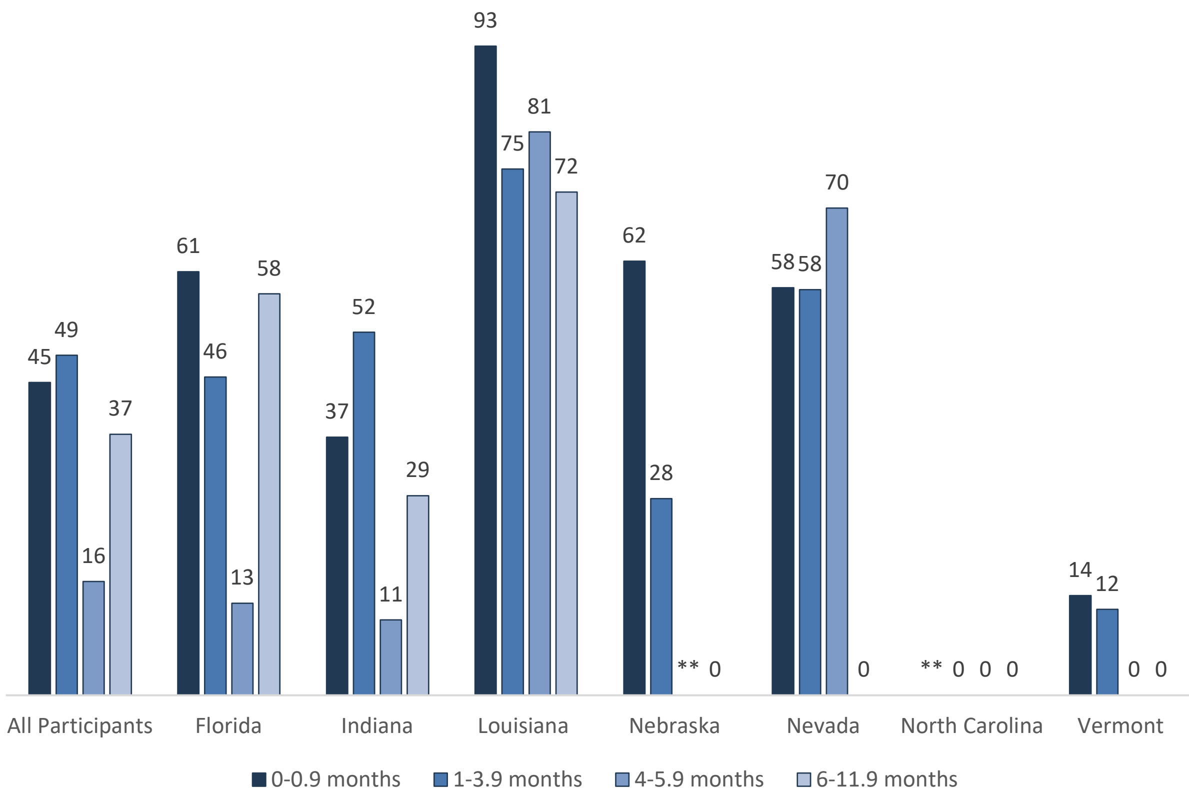
- North Carolina had nearly zero and West Virginia had zero MMA formula tailoring for fully formula-fed infants (see Figure 3). In contrast, more than 72 percent of all fully formula-fed infants had tailored MMA amounts in Louisiana.

- In Florida, Louisiana, Nebraska, and Vermont, 0- to 0.9-month-old infants had the highest rates of MMA formula tailoring.

- In Indiana, 1- to 3.9-month-old infants, and in Nevada, 4- to 5.9-month-old infants had the highest rates of MMA formula tailoring.

- In Nebraska, Nevada, North Carolina, Vermont, and West Virginia, 6- to 11.9-month-old infants had no MMA tailoring if they were fully formula-fed.

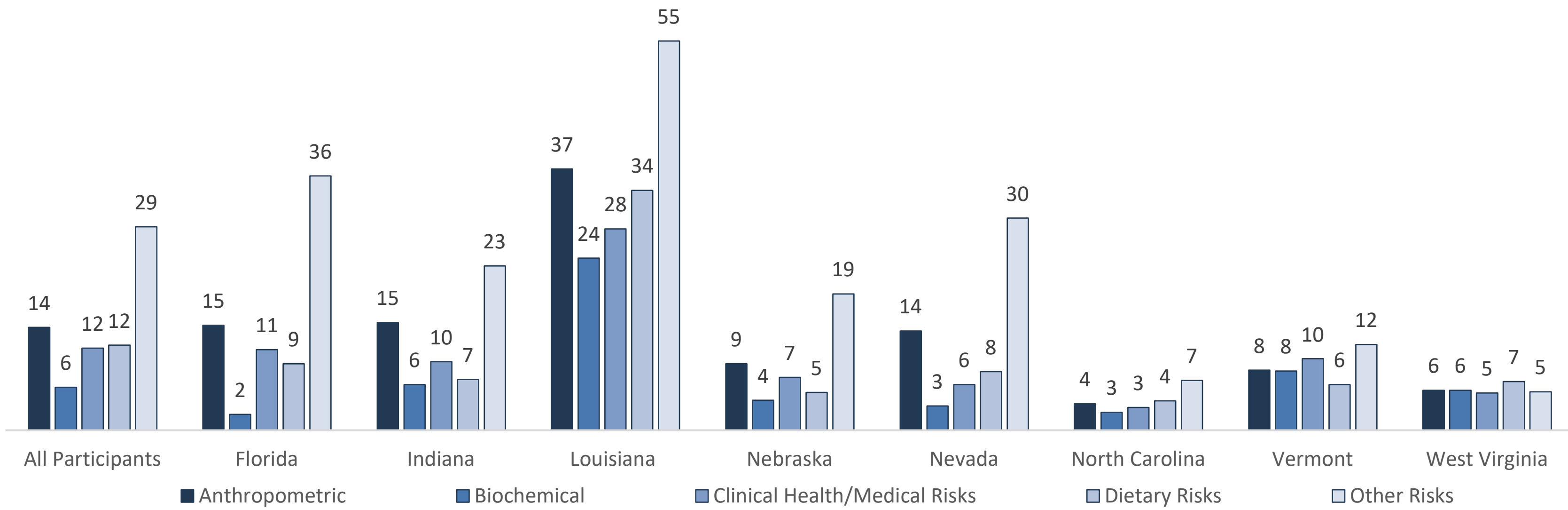
Figure 3. Percentage of fully formula-fed infants with MMA formula tailoring by infant age category, overall and by State agency



Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Tables 13.2a-13.2k. Reference date: January-February 2020.
Ohio and Choctaw Nation did not provide sufficient food package type data and are therefore excluded from this figure.
West Virginia did not have any infants with below FNB-MMA range tailoring.
FNB = full nutritional benefit; MMA = maximum monthly allowance.
** Data are not reported because of small cell size.

In West Virginia, those assigned a dietary risk (7%) had the highest rates of MMA tailoring followed by those with anthropometric and biochemical risks (both 6%; see Figure 4). In West Virginia and North Carolina, rates varied little by type of nutritional risk assignment, varying between 5 and 7 percent in West Virginia and between 3 and 7 percent in North Carolina.

Figure 4. Percentage of all participants with MMA tailoring (excluding milk) by nutritional risk assignment, overall and by State agency



Source: USDA. FNS, WIC NATS, State agency MIS data request. Appendix F, Tables 13.3a-13.3k. Reference date: January-February 2020.
Ohio and Choctaw Nation did not provide sufficient food package type data and are therefore excluded from 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.
MMA = maximum monthly allowance.

Education Topic Assignments

The WIC NATS State agency MIS data request asked State agencies to submit up to five assigned education codes. 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 Chapter 2, Table 2-5 in the main report for a definition of each code).[4]

All study State agencies except Ohio submitted education-related data. Nebraska, Nevada, and Vermont went beyond the request for 5 codes and provided 10 possible education codes.[5] All study State agencies except Florida, North Carolina, and Nevada included a code that identified "no training assigned"; other State agencies left all education fields blank if no training was assigned. The number of education codes assigned varied highly by State agency as follows:

- In Florida, Choctaw Nation, Indiana, Nebraska, Nevada, Vermont, and West Virginia, more than 90 percent of participants were assigned at least one education code (see Appendix F, Tables 8b-8k). In North Carolina, 87 percent were assigned at least one education code, but in Louisiana, only 13 percent of participants were assigned any education code.
- In Indiana, 63 percent of participants were assigned five education codes—the highest of all State agencies (see Figure 5).
- In North Carolina, 61 percent of participants were assigned just one or two education codes.
- The participant category assigned the most education codes varied highly by State agency. In Choctaw Nation and Vermont, pregnant women were most likely to receive five or more education codes (82% and 48%). In Indiana and Nevada, breastfeeding women were most likely to receive five or more education codes (74% and 28%). Children were assigned the most education codes in Florida, Nebraska, and West Virginia.

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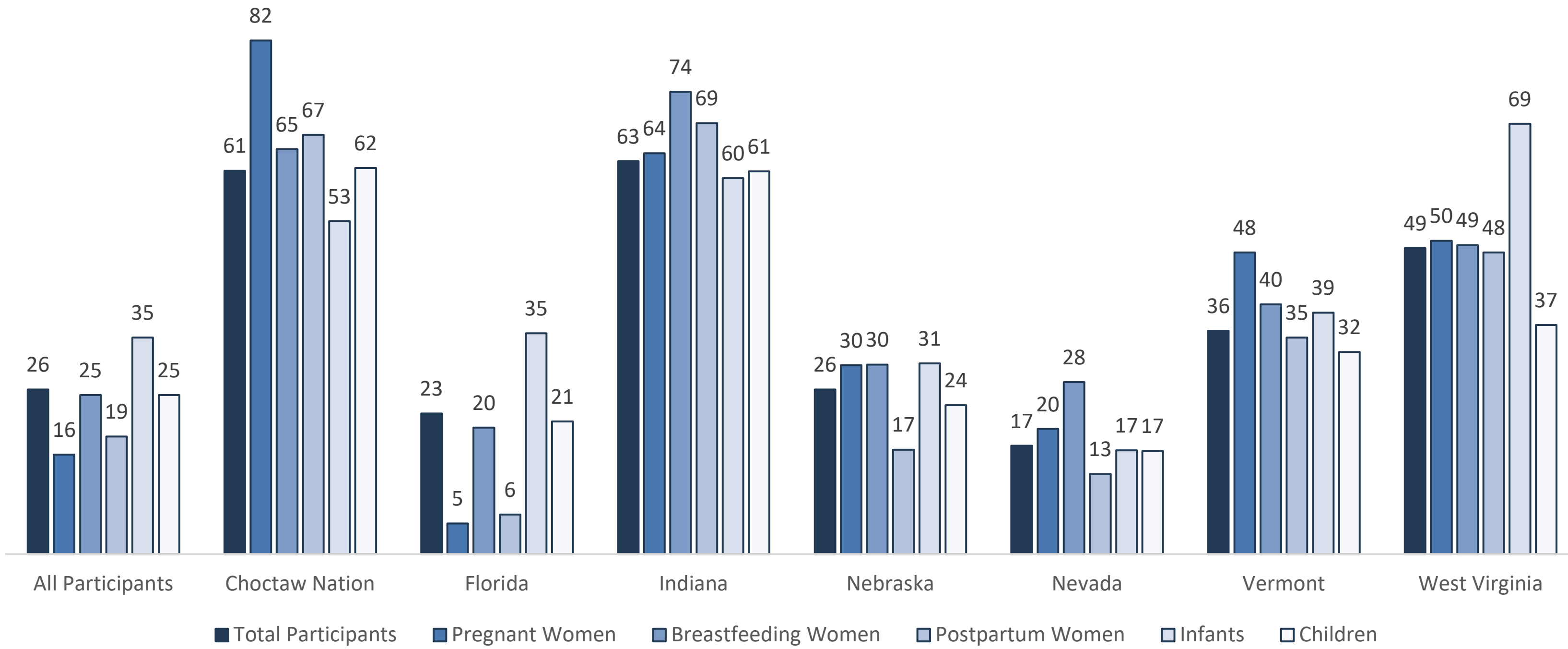
4 Not all State agencies provided codes that fit into each category. Indiana, Nebraska, and North Carolina did not assign WIC procedures training. Louisiana only assigned training on breastfeeding, feeding children/infants, and other training.

5 The study team retained a total of 10 training codes from Nebraska, Nevada, and Vermont. Under 1 percent of participants had over 10 training codes recorded.

Figure 5. Percentage of participants assigned five or more education codes by participant category, overall and by State agency



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

Ohio did not provide education data and Louisiana did not provide education codes for more than 80 percent of participants; both State agencies are excluded from this figure.

Nebraska, Nevada, and Vermont submitted over five education codes; the study team retained 10.

North Carolina reported 1 percent of breastfeeding women, 1 percent of children, and <1 percent of total participants, pregnant women, postpartum women, and infants having five or more education codes (not shown in figure).

Overall, participants most frequently received Good Food Choices education, but the most common type of education varied across the State agencies (Table 4). Choctaw Nation, Nevada, Vermont, and West Virginia assigned medical education most frequently. Indiana, Louisiana, and Nebraska assigned feeding children/infants education most frequently.

Table 4. Percentage of participants receiving education by type, overall and by State agency

Education type	Percentage of participants									
	All	Choctaw Nation	Florida	Indiana	Louisiana	Nebraska	Nevada	North Carolina	Vermont	West Virginia
Breastfeeding	18.4	5.8	14.3	36.9	2.5	18.4	7.2	31.8	17.5	12.6
Good Food Choices	57.4	61.3	75.3	47.6	0.0	10.5	23.8	59.8	44.6	28.3
Physical activity	3.6	0.0	4.0	4.1	0.0	3.9	5.0	2.9	5.1	4.7
Meal planning and prep	7.3	**	4.7	18.7	0.0	15.1	3.5	7.4	34.1	7.7
Medical	30.2	76.4	26.8	52.9	0.0	46.6	51.8	6.1	55.5	75.9
Feeding children/infants	34.1	34.3	21.8	84.6	6.7	56.0	50.5	16.9	44.7	69.6
WIC procedures	22.9	61.3	39.2	0.0	0.0	0.0	4.8	0.0	6.2	26.9
Other education	22.9	16.5	27.7	27.9	4.4	6.3	16.4	10.0	8.0	26.2

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

Ohio did not provide education data and is excluded from this table. Nebraska, Nevada, and Vermont submitted over five education codes; the study team retained 10.

** Data are not reported because of small cell size.

Good Food Choices education was also assigned the most frequently across all participant categories except for infants. In Choctaw Nation, Indiana, and North Carolina, pregnant women had the highest rates of Good Food Choices education (Table 5). In Florida, Nevada, Vermont, and West Virginia, children were most frequently offered Good Food Choices education of all participant categories. Nebraska was the only State agency in which postpartum women were most frequently offered Good Food Choices education.

Medical education is most frequently assigned to those with biochemical risks at 45 percent (see Appendix F, Tables 9a-9k). This rate was consistent in all study State agencies except for North Carolina, Choctaw Nation, Nevada, and West Virginia, where there was less clear correlation between nutritional risk and assigned education.

Table 5. Percentage of participants offered Good Food Choices education by participant category, overall and by State agency

	Percentage of participants								
	All	Choctaw Nation	Florida	Indiana	North Carolina	Nebraska	Nevada	Vermont	West Virginia
All participants	63.1	61.3	75.3	47.6	59.8	10.5	23.8	44.6	28.3
Pregnant women	70.9	82.1	69.6	88.7	86.7	31.7	15.9	28.9	24.7
Breastfeeding women	58.8	64.7	71.5	32.6	34.1	45.5	12.6	22.1	20.5
Postpartum women	56.5	67.0	72.1	40.9	52.2	73.7	14.4	30.1	22.0
Infants	47.6	53.2	65.7	23.2	13.4	**	6.5	23.2	22.4
Children	71.5	61.7	82.6	57.2	81.2	**	34.5	59.0	34.7

Source: U.S. Department of Agriculture, Food and Nutrition Service, WIC Nutrition Assessment and Tailoring Study, State agency MIS data request. See Appendix F, Tables 8a-8k. Reference date: January-February 2020.

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

** Data are not reported because of small cell size.

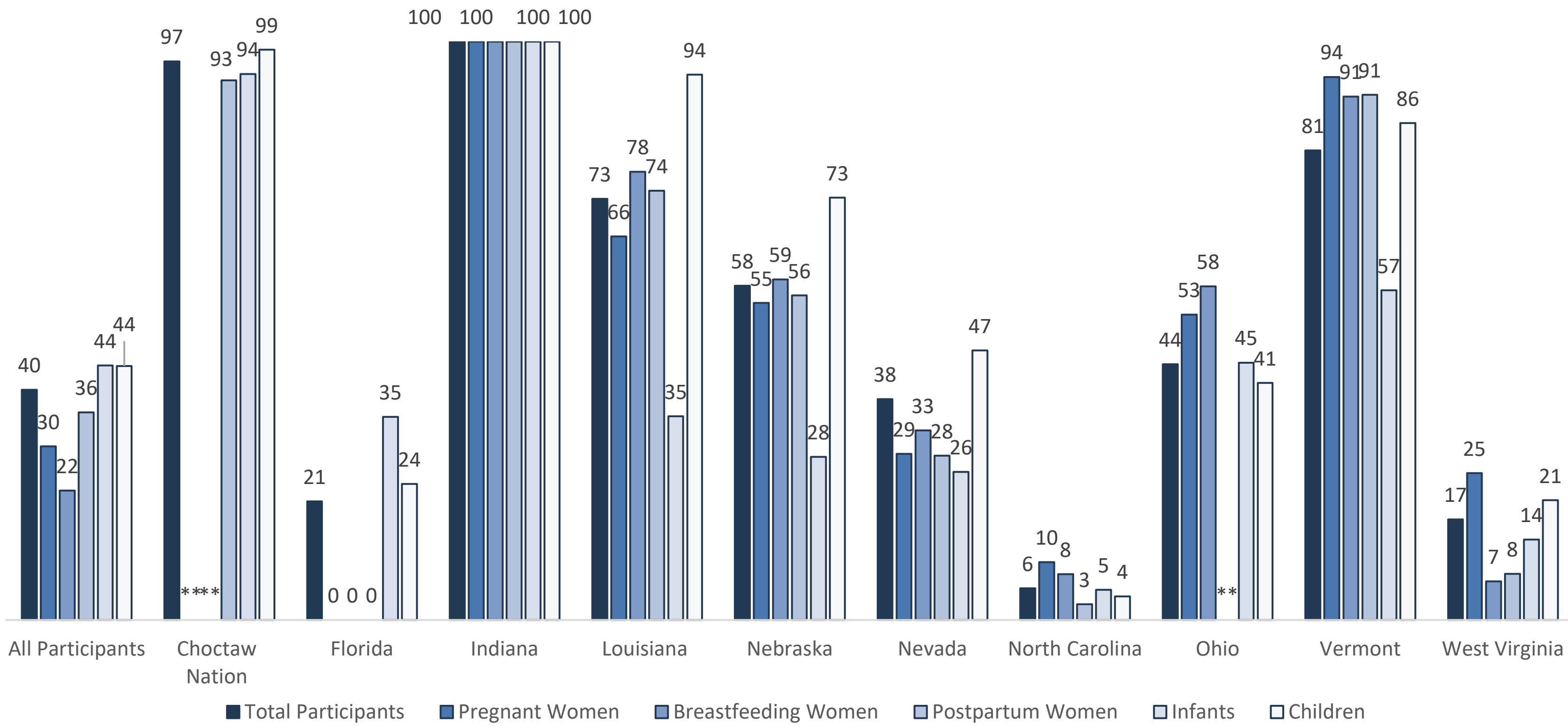
Referral Receipt

The WIC NATS MIS data request asked State agencies to submit up to five referral codes. 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 Chapter 2, Table 2.5 in the main report for a definition of each code). The number of referrals offered varied highly by State agencies as follows:

- In Indiana, all participants were offered at least one referral code (see Figure 6), and 85 percent were offered all five possible referral codes.
- In Choctaw Nation, 82 percent of participants received only one referral.
- More than 70 percent of participants in Florida, North Carolina, and West Virginia were missing referral codes.

Participants assigned biochemical or clinical/health/medical risks had lower rates of medical referrals than those assigned anthropometric, dietary, and other risks. This pattern was consistent in all study State agencies except in Indiana, Ohio, Vermont, and West Virginia where participants assigned clinical/health/medical or biochemical risks had the highest rates of receiving a medical referral relative to other nutritional risk groups (see Appendix F, Tables 12a-12k).

Figure 6. Percentage of participants with any referrals by participant category, overall and by State agency



Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Tables 11a-11k. Reference date: January-February 2020.
Nebraska, Nevada, and Vermont submitted up to seven referral codes. All other State agencies submitted up to five codes.
** Data are not reported because of small cell size.

G-5. Frequency of Tailoring by Selected Risk Factors

Previous sections of this appendix provided a high-level overview of the frequency with which food packages were tailored, specific types of nutrition education were provided, and participants were referred to other services. This section examines the links between specific nutritional risks and the provision of tailored benefits.

Anthropometrics, Nutritional Risk Assignment, and Benefit Tailoring

State agencies have the option to tailor certain benefits for child participants based on anthropometric nutritional risks (e.g., overweight, underweight). Tailoring options include variations in milk fat levels and certain types of nutrition education. Patterns of benefit tailoring based on anthropometrics for 2- to 4-year-old children are similar across State agencies, with a few notable exceptions (see Appendix F, Tables 18.2a-18.2k). In Nebraska, reduced-fat (2%) milk is commonly prescribed to children of all anthropometric statuses; 93 percent of overweight or obese children receive reduced-fat (2%) milk instead of the standard fat-reduced (skim or 1%) milk. There is also variation among the State agencies that report providing education on Good Food Choices based on anthropometric risks (see Appendix F, Tables 19.1a-19.1k); North Carolina most frequently provided this education to overweight or obese children, but Indiana, Nevada, Choctaw Nation, Vermont, and West Virginia most frequently provided this education to children who were underweight or at risk of underweight. All study State agencies that reported providing education related to physical activity most commonly provided this education to children who were overweight or obese (see Appendix F, Tables 19.2a-19.2k).

Lactose Intolerance and Benefit Tailoring

State agencies have several options for tailoring food packages to accommodate participants with the "lactose intolerance" nutritional risk: They may prescribe tofu or soy-based beverage in lieu of cow's milk or they may prescribe lactose-reduced or lactose-free milk.[6] Across State agencies, these patterns were similar for lactose-free or lactose-reduced milk and soy-based beverage but varied for tofu (see Appendix F, Tables 20a-20k). Five State agencies (Florida, Louisiana, Nebraska, Choctaw Nation, and West Virginia) did not prescribe tofu to any participants, and Vermont only prescribed lactose-free or lactose-reduced milk to very few children. In North Carolina, tofu prescriptions did not vary by "lactose intolerance" risk status.

[6] 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.

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. Patterns were similar among the State agencies that reported data on smoking cessation referrals or smoking-related education (see Appendix F, Tables 21.1a-21.1k). In the five State agencies that reported referring participants to smoking cessation programs (Indiana, North Carolina, Nevada, Ohio, and Vermont), these referrals were more common among participants with the "maternal smoking" nutritional risk. Six State agencies reported providing education related to smoking (Florida, Indiana, North Carolina, Nebraska, Vermont, and West Virginia). In five of these State agencies, education was more common for participants with the "maternal smoking" nutritional risk; the largest difference was in Florida where pregnant, breastfeeding, and postpartum women with this risk were 100 times more likely to receive such education than those without the risk. In contrast, two-thirds of women in North Carolina received smoking-related education, and the likelihood of receiving such education was not correlated with being assigned the "maternal smoking" risk.

G-6. Changes to the MIS Data across the Three Data Collection Periods

The study team collected three waves of MIS data: January-February 2020, June-July 2020, and January-February 2021. WIC administration changed substantially between the first and second waves due to the waivers of program regulations established in response to the COVID19 pandemic. This section summarizes the changes observed in the data that State agencies submitted over the study timeframe.

Comparison of Participant Characteristics

Half of the State agencies saw a decline in participation, while total participation in the other five State agencies (Choctaw Nation, Indiana, Louisiana, Nebraska, and Nevada) increased over the same period. Overall, the distribution of participants across participant categories did not change over time (Table 6). By State agency, trends over time in the distribution of participants across participant category were similar, with the following exceptions:

- In Choctaw Nation, the percentage of participants certified as children increased from 50 percent at baseline to 53 percent in June-July 2020 and 58 percent in January-February 2021 (8 total percentage points). The percentage of participants certified as infants decreased from 29 percent at baseline to 28 percent in June-July 2020 and 24 percent in January-February 2021 (5 total percentage points).

Table 6. Percentage of participants by participant category, overall and by State agency

Stage agency	Percentage of participants										
	Total	CN	FL	IN	LA	NC	NE	NV	OH	VT	WV
Jan-Feb 2020	n=615,403	n=3,839	n=323,169	n=100,442	n=53,425	n=53,131	n=11,368	n=24,864	n=5,080	n=3,702	n=16,383
Pregnant women	9.8	7.6	8.6	8.6	11.7	15.2	9.8	8.5	17.6	7.6	10.5
Breastfeeding women	9.7	4.1	11.4	7.5	5.1	10.9	7.4	6.8	11.3	9.7	4.1
Postpartum women	8.1	8.9	5.5	8.9	16.3	12.4	4.8	5.9	14.1	4.1	10.4
Total women	27.6	20.6	25.5	25.0	33.1	38.5	22.0	21.2	43.0	21.4	25.0
Infants	25.3	29.3	25.8	26.5	24.0	20.0	25.8	22.9	28.1	20.6	28.3
Children	47.1	50.1	48.7	48.4	43.0	41.5	52.1	55.9	28.9	58.0	46.7
June-July 2020	n=589,471	n=4,061	n=286,403	n=112,810	n=50,875	n=48,003	n=11,637	n=26,916	n=28,549	n=3,834	n=16,383
Pregnant women	9.6	7.2	8.5	7.5	12.3	15.6	8.6	8.7	15.3	9.6	9.2
Breastfeeding women	9.2	4.1	10.9	7.0	4.8	11.8	7.3	6.6	11.4	9.4	3.5
Postpartum women	7.6	7.6	4.9	8.5	13.4	13.1	4.5	5.9	13.7	3.5	9.1
Total women	26.4	18.9	24.3	23.0	30.5	40.5	20.4	21.2	40.4	22.5	21.8
Infants	25.9	28.4	26.1	24.6	31.8	22.0	25.4	22.5	27.8	20.1	27.4
Children	47.8	52.7	49.6	52.4	37.6	37.5	54.3	56.3	31.7	57.4	50.7
Jan-Feb 2021	n=570,119	n=4,411	n=272,600	n=106,323	n=56,636	n=49,942	n=11,449	n=25,393	n=23,844	n=3,589	n=15,932
Pregnant women	9.1	7.0	8.2	7.5	9.6	14.4	8.2	8.6	14.4	9.6	9.2
Breastfeeding women	8.7	3.6	10.5	6.7	5.0	10.1	7.0	6.1	10.5	8.9	3.5
Postpartum women	7.9	7.5	5.5	8.5	14.7	11.7	4.3	5.4	12.6	3.8	9.0
Total women	25.6	18.0	24.2	22.7	29.3	36.2	19.5	20.2	37.5	22.3	21.7
Infants	25.0	24.3	25.1	23.8	32.7	18.6	25.1	22.3	26.0	19.7	26.0
Children	49.4	57.7	50.6	53.6	38.0	45.2	55.5	57.5	36.5	58.0	52.2

Source: USDA, FNS, WIC NATS, State agency MIS data request. See Appendix F, Tables 1a-1k.
CN = Choctaw Nation.
Percentages may not add to 100 due to rounding.

- In Louisiana, the percentage of participants certified as children decreased from 43 percent at baseline to 38 percent in June-July 2020 and in January-February 2021 (5 total percentage points). The percentage of participants certified as infants increased from 24 percent at baseline to 32 percent in June-July 2020 and 33 percent in January-February 2021 (9 total percentage points).

- In Ohio, the percentage of participants certified as children increased from 29 percent at baseline to 32 percent in June-July 2020 and 37 percent in January-February 2021 (8 total percentage points).

- In West Virginia, the percentage of participants certified as children increased from 47 percent at baseline to 51 percent in June-July 2020 and 52 percent in January-February 2021 (5 total percentage points).

Overall, 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 (see Appendix F, Tables 1a-1k) with the following exceptions:

- In Florida, the percentage of WIC participants that reported also participating in Medicaid decreased by 8 percentage points from baseline to January-February 2021.

- In Indiana, the percentage of WIC participants that reported also participating in Medicaid increased by 10 percentage points from baseline to January-February 2021.

- In Louisiana, the percentage of non-Hispanic/Latino participants increased by 8 percentage points from baseline to January-February 2021.

Rates of breastfeeding initiation declined over time in four State agencies (Choctaw Nation, Florida, Nebraska, and Ohio), while rates increased in three State agencies (Louisiana, Vermont, and West Virginia) and remained the same in one (Nevada) (see Appendix F, Tables 1b-1k).[7]

Comparison of Assigned Risks

As State agencies shifted to remote operations with the physical presence waiver, the number of nutritional risks assigned to participants decreased. The number of participants assigned only one nutritional risk increased by more than 12 percentage points in June-July 2020 compared to baseline and increased by an additional 5 percentage points in January-February 2021 (see Chapter 6, Figure 6-1 in the main report). The number of participants assigned three to five risks decreased by 8 percentage points in June-July 2020 compared to baseline and decreased an additional 3 percentage points in January-February 2021. By State agency (see

[7] Two of the study State agencies did not provide sufficient breastfeeding data to support analyses of breastfeeding initiation.

Table 7), trends over time in the distribution of the number of nutritional risks assigned were similar, with the following exceptions:

- In Choctaw Nation, Indiana, Nebraska, Nevada, and Vermont, the distribution of the number of nutritional risks assigned to participants remained relatively consistent over time (i.e., remained within 5 percentage points).

Table 7. Distribution of the number of nutritional risks assigned, by State agency

		Percentage of participants				
State agency	Number	1	2	3-5	6 or more	Not reported
Jan-Feb 2020						
Choctaw Nation	3,839	27.8	30.9	37.2	3.6	0.4
Florida	323,169	40.3	30.5	27.0	2.2	-
Indiana	100,442	62.7	18.4	16.9	2.0	-
Louisiana	53,425	29.6	29.1	35.1	5.9	0.4
Nebraska	11,368	27.7	31.6	34.8	5.1	0.9
Nevada	24,864	35.1	28.7	30.7	3.1	2.4
North Carolina	53,131	36.0	25.4	34.4	4.2	-
Ohio	25,080	34.2	28.1	33.5	4.2	-
Vermont	3,702	30.3	26.3	35.8	6.9	0.7
West Virginia	16,383	32.6	25.2	36.4	5.7	-
June-July 2020						
Choctaw Nation	4,061	30.8	31.8	34.5	2.5	0.5
Florida	286,403	54.2	25.8	18.7	1.3	-
Indiana	112,810	66.7	16.5	15.1	1.8	-
Louisiana	50,875	48.2	27.2	22.1	2.5	-
Nebraska	11,637	26.0	31.3	37.2	4.6	0.8
Nevada	26,916	33.2	29.3	30.7	2.8	4.0
North Carolina	48,003	56.1	22.7	19.9	1.2	-
Ohio	28,549	46.2	24.7	26.3	2.8	-
Vermont	3,834	31.9	27.5	34.0	5.6	1.0
West Virginia	16,383	54.3	21.9	21.4	2.4	-
Jan-Feb 2021						
Choctaw Nation	4,411	32.4	31.4	34.4	1.5	0.3
Florida	272,600	62.8	22.1	14.3	0.8	-
Indiana	106,323	68.5	15.9	14.0	1.7	-
Louisiana	56,636	56.0	23.5	18.7	1.8	-
Nebraska	11,449	25.4	30.3	39.1	4.7	0.6
Nevada	25,393	33.7	29.5	31.7	2.4	2.8
North Carolina	49,942	54.8	24.1	20.0	1.1	-
Ohio	23,844	45.5	24.3	26.9	3.3	-
Vermont	3,589	33.9	28.6	32.2	4.7	0.7
West Virginia	15,932	58.9	23.0	17.1	1.1	

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Tables 1b-1k.

- In Louisiana, the number of participants assigned one nutritional risk nearly doubled (from 30% to 56%) and the number of participants assigned three to five risks decreased by nearly half (from 35% to 19%) from the pre-pandemic period to January-February 2021.
- In West Virginia, the number of participants assigned one nutritional risk nearly doubled (from 33% to 59%) and the number of participants assigned three to five risks decreased by more than half (from 36% to 17%) from the pre-pandemic period to January-February 2021.

Comparison of Assigned Risks

Overall, anthropometric and biochemical risk assignments decreased by 24 and 12 percentage points, and dietary risk assignments increased by 8 percentage points over time compared to the pre-pandemic period (see Table 8). Rates of assignment for clinical/health/medical and other risks remained the same over time. 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. By State agency, trends over time in nutritional risk assignments were similar to overall trends, with the following exceptions:

- In Choctaw Nation, rates of anthropometric and dietary risk assignments remained essentially the same and the rate of clinical/health/medical risk assignments decreased over time.
- In Indiana, rates of anthropometric, dietary, and biochemical risk assignments remained the same over time.
- In Louisiana, the rate of dietary risk assignments decreased from June-July 2020 to January-February 2021.
- In North Carolina, the rate of participants with no risks reported increased over time.
- In Nebraska and Nevada, the rate of anthropometric risk assignments increased, and the rate of dietary risk assignments remained the same over time.
- In Ohio, the rate of dietary risk assignments increased over time.
- In Vermont, rates of anthropometric and dietary risk assignments remained the same over time.

Table 8. Nutritional risk assignments by broad categories and State agency

State agency	Percentage of participants					
	Anthropometric	Biochemical	Clinical/ health/medical	Dietary	Other	Not reported
Jan-Feb 2020	n=334,836	n=80,288	n=154,162	n=290,623	n=141,923	n=4,326
Choctaw Nation	58.1	16.0	20.9	45.4	41.4	0.4
Florida	58.0	14.6	23.6	49.3	20.3	< 0.1
Indiana	36.8	2.0	24.0	50.4	22.1	< 0.1
Louisiana	40.8	23.5	28.8	70.7	13.0	4.7
North Carolina	73.0	17.2	28.9	14.0	28.2	1.8
Nebraska	52.4	13.5	28.1	48.2	35.2	1.0
Nevada	53.8	11.1	18.1	51.0	35.7	2.4
Ohio	57.9	8.6	34.1	38.2	38.9	< 0.1
Vermont	57.2	7.5	30.3	50.9	31.9	0.7
West Virginia	70.9	11.5	30.4	25.4	40.7	–
All participants	54.4	13.0	25.1	47.2	23.1	0.7
June-July 2020	n=221,169	n=29,572	n=139,259	n=313,137	n=133,448	n=8,003
Choctaw Nation	61.8	6.3	16.5	44.3	39.9	0.5
Florida	39.3	6.7	22.8	56.1	19.5	0.1
Indiana	33.1	1.2	23.0	52.8	20.5	< 0.1
Louisiana	21.1	9.4	21.5	71.4	13.8	7.2
North Carolina	30.0	1.9	30.4	31.8	29.9	5.6
Nebraska	62.6	5.1	26.0	48.6	34.5	0.9
Nevada	59.8	5.1	17.4	48.5	33.1	4.0
Ohio	44.6	2.5	30.4	41.4	39.0	–
Vermont	55.2	4.4	29.5	53.2	29.4	1.0
West Virginia	32.8	2.1	26.8	42.4	37.8	–
All participants	37.5	5.0	23.6	53.1	22.6	1.4
Jan-Feb 2021	n=172,401	n=6,189	n=138,379	n=314,592	n=125,601	n=8,606
Choctaw Nation	61.1	0.8	13.9	49.4	38.1	0.3
Florida	27.1	1.2	23.5	60.9	18.6	0.2
Indiana	32.1	0.4	22.9	51.7	20.3	< 0.1
Louisiana	8.4	1.4	25.3	66.5	19.7	6.3
North Carolina	34.8	1.1	28.9	32.7	25.7	7.4
Nebraska	68.0	2.0	25.5	47.8	33.6	0.6
Nevada	64.3	1.8	17.3	47.6	31.7	2.8
Ohio	40.8	0.6	32.8	45.9	38.1	–
Vermont	53.4	2.8	28.6	53.9	29.1	0.7
West Virginia	24.7	0.5	28.0	44.9	35.2	**
All participants	30.2	1.1	24.3	55.2	22.0	1.5

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Tables 1a-1k.
Percentages add to more than 100 because participants may be assigned up to 10 nutritional risks.
** Data are not reported because of small cell size.

Food Package Tailoring

Rates of food package tailoring were generally consistent over time, with notable differences among State agencies as follows (Table 9):

- Louisiana was the only State agency where the rate of food package tailoring decreased across all participant categories. The rate of food package tailoring across the different participant categories decreased by 4 to 6 percentage points over time—the largest changes in any State agency.
- West Virginia had the only other change greater than 4 percentage points—non-milk tailoring for children increased by 5 percentage points—the largest tailoring increase across all State agencies and participant categories.

Table 9. Percentage of women and children with any food package tailoring (excluding milk), overall and by State agency

	Percentage of participants										
	All participants	Choctaw Nation	Florida	Indiana	Louisiana	North Carolina	Nebraska	Nevada	Ohio	Vermont	West Virginia
Pregnant women											
Jan-Feb 2020	15.2	**	14.4	9.3	38.6	13.3	7.4	10.5	8.7	4.6	8.4
June-July 2020	15.4	**	14.2	8.3	43.0	12.9	7.7	10.7	7.3	5.4	8.3
Jan-Feb 2021	15.6	2.0	15.8	8.8	34.8	14.9	7.5	12.5	8.8	6.4	9.9
Breastfeeding women											
Jan-Feb 2020	19.5	**	17.8	31.1	27.0	19.3	10.5	14.2	9.3	23.0	11.0
June-July 2020	18.8	**	16.6	30.1	22.4	21.0	11.9	14.6	8.4	24.2	10.4
Jan-Feb 2021	19.1	**	17.3	29.8	20.9	20.6	13.6	15.0	8.5	20.1	9.8
Postpartum women											
Jan-Feb 2020	9.1	**	9.0	4.3	19.0	8.3	6.4	6.4	3.9	**	1.4
June-July 2020	8.5	**	9.8	4.4	17.0	8.0	4.2	7.1	3.8	**	1.8
Jan-Feb 2021	9.0	**	10.4	4.5	15.0	9.1	5.1	7.8	4.3	**	2.1
Children											
Jan-Feb 2020	21.7	5.6	22.9	15.7	34.1	20.4	15.6	19.3	15.8	14.2	18.3
June-July 2020	20.2	5.6	21.6	14.4	31.5	22.0	16.0	19.5	14.8	14.3	19.4
Jan-Feb 2021	20.0	5.7	21.6	14.2	28.0	20.2	15.7	19.3	15.9	12.7	22.8

Source: USDA. FNS, WIC NATS, State agency MIS data request. See Appendix F, Tables 13.1a-13.1k.
Note: Choctaw Nation and Ohio did not provide food package type data; therefore, any food tailoring is indicated only by milk type and homeless population substitutions.
** Data are not reported because of small cell size.