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Select Food Group Intake of US Children Aged 2 to 4 Years by WIC Participation Status and Income

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ABSTRACT

Background Food group and nutrient priorities for Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Food Package IV for children aged 2 to 4 years were described in the 2017 review of the WIC Food Package. Research has evaluated priority nutrient intake, but priority food group intake remains unknown.

Objectives To compare mean intake of priority food groups/subgroups of WIC children to WIC-eligible nonparticipants and higher income children. Further, we hoped to assess differences in percent contribution of food subgroups to total food group intake by WIC participation status and income.

Design Cross-sectional study conducted using data from the 2011-14 National Health and Nutrition Examination Survey.

Participants/setting One thousand forty-seven children aged 2 to 4 years.

Main outcome measures Mean intake reported in cup equivalents and ounce equivalents. We also looked at mean percent that food subgroups contributed to total intake within a food group. Analyses were performed for high and low priority food groups/subgroups: high = seafood, total vegetables, dark green vegetables, red/orange vegetables, whole grains, and nuts/seeds/soy; low = total starchy vegetables, other vegetables, legumes computed as vegetables, total dairy, and total protein foods.

Statistical analyses performed Multivariable linear regression analysis was used evaluate the relationship between income/WIC participation and mean intake/percent food subgroups contributed to total food group intake.

Results Among low-income WIC-eligible children, participation in WIC was associated with greater mean intake of red/orange vegetables (0.18 ± 0.03 vs 0.01 ± 0.06 c equivalents; $P < 0.05$) and legumes (0.07 ± 0.01 vs 0.01 ± 0.02 c equivalents; $P < 0.01$). No differences in mean intake were observed between WIC children and higher income children. Grain intake of WIC children was composed of a higher percentage of whole grains (19.1% ± 1.6% vs 13.2% ± 1.5%; $P < 0.01$) compared with higher income children. The percent vegetable subgroups contributed to total vegetable intake varied by income; no differences were observed for dairy or protein subgroups.

Conclusions Among low-income children, participation in WIC was associated with greater intake of certain vegetables. Participation in WIC may also help close the diet quality gap between low-income and higher income children for priority foods targeted by the WIC food package. Future research should explore socioeconomic disparities in intake of nutrient-poor foods.

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THE SPECIAL SUPPLEMENTAL NUTRITION PROGRAM for Women, Infants, and Children (WIC) is a federal nutrition assistance program that serves pregnant, breastfeeding, and postpartum women, infants, and children up to their fifth birthday who are at nutritional risk and live in low-income households (<185% poverty-income ratio [PIR]).[1] The program provides nutrient-dense foods/beverages, nutrition education, and referrals to social and medical services. WIC foods for children aged 2 to 4 years include cereal, other whole-grain products (eg, bread and

tortillas), 100% juice, fruits and vegetables, milk or qualified milk substitutes, cheese, yogurt, or evaporated milk or buttermilk, eggs, and legumes.[2]

It is important to understand the influence of WIC foods and WIC participation on child diet quality. Research has shown that dietary intake of WIC participants has improved over time,[3] and these changes may be largely due to the 2009 WIC food package revisions. The revised food package was associated with improvements in WIC participant diet quality[4,5] and lower childhood obesity rates.[6] The 2017 Review of the WIC Food Package identified nutrient and food group/subgroup priorities for aligning the WIC food package with current dietary guidance,[7] and suggested potential actions for future food package revisions.[8]

Dietary intake of infants and toddlers younger than age 2 years has been the focus of recent WIC research due to the growing demand to address the relationship between early child nutrition and health outcomes throughout the life span,[9] and the expansion of the Dietary Guidelines to include recommendations for birth through age 24 months.[10] Recent WIC research has evaluated diet quality,[11] food/beverage intake,[12] and contribution of WIC foods to overall diet[13] among infants and toddlers younger than age 24 months.

WIC children aged 2 to 4 years are understudied, yet one-quarter of all US children aged 2 to 4 years participate in WIC.[1] Given that WIC coverage rates decline as children get older,[14] it is especially important to understand dietary intake of older WIC children, and how the 2- to 4-year old food package can support dietary behaviors. One study has assessed usual intake of priority nutrients for children younger than age 4 years,[15] but priority food group/subgroup intake of WIC children remains unknown. Therefore, this study explored priority food group/subgroup intake of US children aged 2 to 4 years by WIC participation status and income. The objectives were to compare mean intake of WIC children to WIC-eligible nonparticipants and higher income group children; and to assess differences in percent food subgroups comprised total intake within a food group by WIC participation status and income.

RESEARCH SNAPSHOT

Research Question: How does intake of priority food groups/subgroups among Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) children aged 2 to 4 years compare to WIC-eligible nonparticipants and higher income children?

Key Findings: Among low-income WIC-eligible children, participation in WIC was associated with greater intake of certain vegetables (red/orange and legumes). No differences in mean intake were observed between WIC children and higher income children. The percent that vegetable and grain subgroups contributed to total vegetable/grain intake varied by income.

MATERIALS AND METHODS

Study Design

This cross-sectional study was conducted using data from the National Health and Nutrition Examination Survey (NHANES). NHANES participants complete physical examinations and comprehensive questionnaires at NHANES Mobile Examination Centers that travel the country according to a complex, multistage probability cluster-sampling design. NHANES, and its related nutritional component, What We Eat In America, are designed to monitor the health and nutritional status of noninstitutionalized civilians in the United States.[16] The National Center for Health Statistics Research Ethics Review Board reviewed and approved all study protocols for NHANES. Because all NHANES data are de-identified and do not collect sensitive information, this study was exempt from further review by our institutional review board.

Dietary information was collected during NHANES interview by trained interviewers who performed 24-hour recall assessments using the US Department of Agriculture Automated Multiple Pass Method.[17] A parent or caretaker served as proxy respondent for children younger than age 6 years, so the present analysis represents child dietary intake reported via proxy. The NHANES collects 2 days of diet recall. The first recall is collected in-person at the mobile examination center, and the second is collected via telephone 3 to 10 days later.[16] The first day of dietary recall was used for this study. Dietary data were processed using the US Department of Agriculture Food Patterns Equivalents Database (FPED),[18] which converts reported food and beverage items into servings of disaggregated food pattern components (eg, total starchy vegetables and red and orange vegetables), allowing for assessment of subgroups consumed within a food group. Further information on the FPEDs can be found in the user guide.[19] The What We Eat In America-linked FPED Statstical Analysis System files containing the total amounts of each of the 37 components from foods and beverages reported by respondents on Day 1 were utilized.

Sample

Data from two cycles (2011-12 and 2013-14) of the NHANES were combined for the present study to create a sample of the most current national dietary estimates that included information on WIC participation status and were available during the time of analysis. Children with missing/incomplete dietary data (n = 89) or with unreliable Day 1 dietary recall status (n = 34), and children who consumed breast milk (n = 15), were excluded. Children were categorized into three groups based upon WIC participation status and income. WIC children were defined as answering yes to both of the following questions: "Did [child] receive benefits from WIC; that is, the Women, Infants, and Children program, in the past 12 months?" and, "Is [child] now receiving benefits from the WIC program?"[20] WIC-eligible nonparticipants were defined as children aged 2 to 4 years who lived in households that were income-eligible for WIC at the time of NHANES interview (≤185% PIR) but answered no to the question about receiving WIC benefits during the past 12 months. Higher income children were defined as children aged 2 to 4 years who lived in households that were not income-eligible for WIC at the time of NHANES interview (>185% PIR).

MAIN OUTCOME MEASURE

For the first study objective, the primary measure was mean intake of priority food groups/subgroups, reported in cup equivalents or ounce equivalents. For the second objective, the outcome was the relative proportion (reported as percentage

value) that food subgroups contributed to total intake within a food group. For both objectives, the variables analyzed represent food group/subgroup priorities for WIC Food Package IV for children aged 2 to <5 years, as described in the National Academies of Sciences, Engineering, and Medicine (NASEM) 2017 Review of the WIC Food Package.[8] High priority food groups and subgroups were defined as consumed below recommended levels in more than 75% of WIC children aged 2 to 4 years. These included total vegetables, dark green vegetables, total red and orange vegetables, whole grains, seafood, and nuts/seeds/soy.[8] Lower priority food group and subgroups were those for which intake was below the recommended amount in 50% to <75% of WIC children. These included total starchy vegetables, other vegetables, total dairy, total protein foods, and beans/peas computed as vegetables.[8] The food group priorities are summarized in Table 1, available at www.jandonline.org. Only the FPEDs corresponding to the priority food groups/subgroups outlined in Table 1, available at www.jandoinline.org, were analyzed.

Statistical Analysis

Sociodemographic characteristics (including age, sex, race/ethnicity, household income, and household size) were assessed by Wald χ^2 test. Race/ethnicity, age, sex, and total energy intake were included as covariates in the multivariable linear regression model. The NHANES Day 1 dietary sample weight was also included in the regression model. The same model was used for both objectives. For objective one, mean intake was assessed for all three groups (WIC children, WIC-eligible nonparticipants, and higher income group children) and estimates for WIC children were compared with WIC-eligible nonparticipants and higher income children. For objective two, the population proportion[21] that food subgroups contributed to total intake within a food group was calculated in accordance with the multistep National Center for Health Statistics Data Presentation Standards for Proportions.[22] Multivariable linear regression analysis was used to examine differences between WIC children compared with WIC-eligible nonparticipants and higher income children. All data were analyzed using SAS 9.4 survey procedures[23] with appropriate weighting and clustering to account for the differential probabilities of selection, nonresponse, and oversampling associated with the multistage, probability cluster-sampling design of the NHANES. Statistical significance was determined at $P < 0.05$.

Table 2. Characteristics of children aged 2 to 4 years (N = 1,047) in the 2011-14 National Health and Nutrition Examination Survey

	Higher income children (n = 360)			WIC[a]-eligible nonparticipants (n = 224)			WIC children (n = 463)		
Characteristic	**N**	**Weighted %**	**95% CI**	**N**	**Weighted %**	**95% CI**	**N**	**Weighted %**	**95% CI**
Sex									
Male	172	49.9	44.6-55.3	110	52.1	42.6-61.6	231	48.3	40.8-55.7
Female	188	50.1	44.7-55.4	114	47.9	38.4-57.4	232	51.7	44.3-59.2
Race/ethnicity									
Non-Hispanic White	121	69.3	61.5-77.0	59	53.6	40.5-66.7	64	26.7***	16.2-37.1
Non-Hispanic Black	56	6.5	4.5-8.4	74	17.6	10.3-24.8	152	21.5	14.2-28.8
Hispanic	76	12.3	7.8-16.9	63	22.6	13.2-32.1	202	43.9	34.2-53.7
Other/Mixed	107	11.9	7.0-16.8	28	6.1	3.4-8.9	45	7.9	4.9-10.9
Age (y)								*	
2	140	31.1	26.8-35.3	73	28.3	20.8-35.8	211	38.5	34.2-42.8
3	109	36.8	30.3-43.4	71	36.5	25.7-47.3	132	32.1	28.1-36.1
4	111	32.1	25.5-38.7	80	35.2	25.6-44.9	120	29.4	24.8-34.0
Family Income (PIR)[b]									
<130%	0	0	—	172	71.5	63.8-79.3	364	77.0	71.3-82.6
130%-185%	0	0	—	52	28.5	20.7-36.2	61	11.9	8.8-15.0
>185%	360	100	—	0	0	—	38[d]	11.1	5.8-16.4

[a]WIC = Special Supplemental Nutrition Program for Women, Infants, and Children. WIC-eligible nonparticipants were defined as children aged 2 to <5 years of age who were living in households with income <185% of the federal poverty-income ratio (PIR) but not participating in the WIC program at the time of NHANES interview.

[b]Family income reported as the PIR, which is the ratio of family income to poverty guidelines. PIR is provided in the NHANES based on self-reported income. Individuals living in households <185% PIR are income-eligible for WIC.[1]

[d]Thirty-eight WIC participants had self-reported income >185% PIR, which may be due to overestimation of income, change in income between WIC certification appointments, adjunctive eligibility (eg, participation in Medicaid), among other reasons.

*$P < 0.05$.

***$P < 0.001$.

RESULTS

In NHANES 2011-14, there were 1,047 children aged 2 to 4 years with complete, reliable Day 1 dietary recall status who did not consume breast milk. Of the 1,047 children, 360 (34.4%) lived in higher income households that were not eligible for the WIC program (>185% PIR). There were 224 children (21.4%) who were WIC-eligible but not participating in the program, and 463 (44.2%) who were participating in WIC at the time of NHANES interview. Additional sample characteristics are displayed in Table 2.

Table 3 displays reported intake of priority food groups/subgroups on a given day for US children aged 2 to 4 years by WIC participation status and income, shown as mean intake ± standard error. Among low-income WIC-eligible children, participation in WIC was associated with greater intake of certain vegetables. Compared with WIC-eligible nonparticipants, WIC children had significantly greater intake of red and orange vegetables (0.18 ± 0.03 vs 0.01 ± 0.06 c equivalents; $P < 0.05$) and legumes computed as vegetables (0.07 ± 0.01 vs 0.01 ± 0.02 c equivalents; $P < 0.01$). No differences in mean intake were observed between WIC children and higher income children, demonstrating comparable intake between the two groups for the priority food groups/subgroups analyzed.

Table 4 displays the percentage that food subgroups contributed to total intake within a food group. No differences were observed between WIC children and WIC-eligible nonparticipants. WIC children and higher income children differed in the percentage that vegetable subgroups contributed to total vegetable intake. Compared with higher income children, total vegetable intake of WIC children was composed of a lower percentage of red and orange vegetables (34.5 ± 3.2 vs 49.1 ± 3.5%; $P < 0.05$), larger percentage of total starchy vegetables (34.4 ± 3.5 vs 18.2 ± 3.8%; $P < 0.05$), and smaller percentage of other vegetables (24.8% ± 1.8% vs 30.5% ± 2.4%, $P < 0.05$). Differences were also observed for grain subgroups. Compared with higher income children, total grain intake of WIC children was composed of a higher percentage of whole grains (19.1% ± 1.6% vs 13.2% ± 1.5%; $P < 0.01$) and lower percentage of refined grains (81.0% ± 1.6% vs 86.9% ± 1.6%; $P < 0.01$). The percent contributions of dairy subgroups to total dairy intake, and the percent contributions of priority protein subgroups (seafood, nuts/seeds/soy) to total protein intake, were similar by WIC participation status and income.

Table 3. Mean intake among US children aged 2 to 4 years in the National Health and Examination Survey by Special Supplemental Nutrition Program in Women, Infants, and Children (WIC) Participation Status and Income, 2011-14 (N = 1,047)[a]

Food group category[b]	Higher Income Children (n = 360)	WIC-Eligible Nonparticipants (n = 224)	WIC Children (n = 463)	Recommended amount[c]
	←——————*mean ± standard error*——————→			
Higher priority				
Seafood (oz eq)	0.03 ± 0.07	< 0.01 ± 0.10	0.15 ± 0.06	0.71 oz eq/d
Total vegetables, excluding legumes (c eq)	0.52 ± 0.08	0.39 ± 0.13	0.55 ± 0.07	1.5 c eq/d
Dark green vegetables (c eq)	0.01 ± 0.05	< 0.01 ± 0.04	0.05 ± 0.03	0.14 c eq/d
Whole grains (oz eq)	0.53 ± 0.07	0.45 ± 0.09	0.62 ± 0.06	2.25 oz eq/d
Total red and orange vegetables (c eq)	0.23 ± 0.05	0.01 ± 0.06*	0.18 ± 0.03	0.43 c eq/d
Nuts, seeds, soy (c eq)	0.30 ± 0.14	0.16 ± 0.13	0.17 ± 0.08	0.36 oz eq/d
Lower priority				
Total starchy vegetables (c eq)	0.12 ± 0.05	0.23 ± 0.07	0.19 ± 0.05	0.50 c eq/d
Other vegetables (c eq)	0.17 ± 0.03	0.08 ± 0.02	0.13 ± 0.02	0.36 c eq/d
Total dairy (c eq)	1.93 ± 0.12	2.1 ± 0.26	1.8 ± 0.10	2.50 c eq/d
Total protein foods (oz eq)	1.96 ± 0.16	2.30 ± 0.23	2.13 ± 0.08	3.50 oz eq/d
Legumes computed as vegetables (c eq)	0.03 ± 0.02	0.01 ± 0.02**	0.07 ± 0.01	0.07 c eq/d

[a]Mean intake is reported as least-square means with standard error, representing the population's mean intake on a given day. Data are from one 24-hour recall reported for the child by a proxy. Estimates are reported in ounce equivalents and cup equivalents.

[b]Food categories represent higher and lower priority food groups/subgroups as described in Table 1, available at www.jandonline.org, and the 2017 Review of the WIC Food Package.[8] Food categories appear in priority order from highest priority (largest percentage of WIC-participating children consuming less than the recommended intake) to lowest priority (smallest percentage of WIC-participating children consuming less than the recommended intake).

[c]Recommendations represent Dietary Guidelines for Americans 2015-20 recommendations based on a 1,300 kcal food pattern, as presented in the 2017 Review of the WIC Food Package, Tables 5 through 10.[8] Recommendations made on a per-week basis have been converted to a per-day basis, to promote comparability between recommendations and the results from this study.

*$P < 0.05$; indicates statistically significance difference in mean intake compared with children receiving WIC benefits (WIC children).

**$P < 0.01$; indicates statistically significance difference in mean intake compared with children receiving WIC benefits (WIC children).

Table 4. Percent food subgroups contribution to total food group intake among US Children aged 2 to 4 years in the National Health and Examination Survey by Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) participation status and income, 2011-14 (N = 1,047)

Food group category[a]	Higher Income Children (n = 360)	WIC-Eligible Nonparticipants (n = 224)	WIC Children (n = 463)
	←——— *mean % ± standard error*[b] ———→		
Vegetable intake			
Dark green	3.3 ± 3.4	7.7 ± 5.4	6.4 ± 1.9
Total red and orange	49.1 ± 3.5*	35.8 ± 5.6	34.5 ± 3.2
Total starchy	18.2 ± 3.8*	37.5 ± 5.5	34.4 ± 3.5
Other vegetables	30.5 ± 2.4*	18.7 ± 4.2	24.8 ± 1.8
Dairy intake			
Milk	68.1 ± 3.5	70.4 ± 5.2	72.7 ± 2.2
Yogurt	8.1 ± 1.6	6.6 ± 2.1	5.1 ± 1.0
Cheese	22.5 ± 3.0	21.8 ± 4.9	20.1 ± 1.5
Grain intake			
Whole grains	13.2 ± 1.5**	14.6 ± 1.8	19.1 ± 1.6
Refined grains	86.9 ± 1.6**	85.4 ± 1.8	81.0 ± 1.6
Protein foods			
Seafood	1.9 ± 1.3	2.6 ± 2.4	3.5 ± 1.2
Nuts, seeds, soy	14.8 ± 2.8	9.8 ± 2.5	8.9 ± 1.5

[a]Food categories represent higher and lower priority food groups/subgroups as described in Table 1, available online at www.jandonline.org, and the 2017 Review of the WIC Food Package.[8]

[b]Least-square means are presented with standard error, representing the mean percent selected food subgroups contribute to total food group intake. Data are from one 24-hour recall reported for the child by a proxy.

*$P < 0.05$; indicates statistically significance difference compared to children receiving WIC benefits (WIC children).

**$P < 0.01$; indicates statistically significance difference compared to children receiving WIC benefits (WIC children).

DISCUSSION

Discussion of a social gradient in diet and health dates back to the Great Depression era,[24] and persists in the public health nutrition literature today. Socioeconomic inequalities in dietary intake are well documented,[25] although research continues to emerge demonstrating the positive role the WIC program plays in supporting diet quality of low-income children. Previous research has shown that, among WIC participants aged 24 months, continued participation in WIC is positively associated with Healthy Eating Index scores, including a higher component score for total vegetables.[26] The findings from the present study demonstrate that, among low-income WIC-eligible children aged 2 to 4 years, participation in the WIC program was positively associated with intake of certain vegetables (red/orange and legumes). Therefore, participation in WIC may support vegetable intake among older (aged 2 to 4 years) children as well, although additional research should be done to determine the relationship between length of WIC participation and intake.

Participation in WIC may also help close the diet quality gap between low income and higher income children. In this study, no differences were observed in mean intake between WIC children and higher income children, suggesting that participation in WIC may help neutralize socioeconomic disparities in intake of the priority food group/subgroups targeted by the WIC food package. Previous research[15] that explored the relationship between priority nutrient intake and WIC participation showed similar results. Among children aged 24 to 47.9 months, no differences were observed between WIC children and higher income nonparticipants for percent compliance with dietary guidelines for priority nutrients to increase (iron, vitamin D, fiber, potassium, calcium, and zinc).[15] However, WIC children had lower compliance with guidelines for certain nutrients to limit (added sugar and sodium) compared with higher income children.[15] It may be that participation in WIC is associated with greater intake of certain nutrient-dense foods, like vegetables, which translates to greater compliance with dietary guidance for nutrients to increase. Further research should explore the relationship between WIC participation status and intake of nonpriority food subgroups to better understand consumption of nutrient-poor foods not targeted by the WIC program. Such information would provide insight into how to neutralize differences between low and higher income children's compliance with dietary guidelines for nutrients to limit.

WIC benefits for produce are administered via cash value benefits (CVB), offering participants flexibility in fruit and vegetable selection. The fruit and vegetable CVB was

introduced with the comprehensive 2009 WIC food package revisions, and was associated with increased fruit and vegetable purchases.[27] The NASEM's 2017 Review of the WIC Food Package recommended increasing the CVB again, making it important to understand the produce varieties commonly acquired using the CVB. Although barriers to CVB redemption have been identified,[28] it is unknown how this translates to produce intake. This study evaluated differences in the percent contributions various vegetable types/subgroups make to total vegetable intake, and found differences between WIC children and higher income children. However, no differences between WIC children and WIC-eligible children were observed, suggesting that although WIC children have greater intake of certain types of vegetables (red/orange and legumes), the proportions of vegetable subgroups relative to total vegetable intake are comparable.

The NASEM report also recommended increasing the WIC whole-grain allowance or adding more whole-grain options.[8] When additional whole-grain products were added to the WIC food package in 2009, WIC households' purchase of whole grains increased,[29] as did intake of whole grains and related nutrients like fiber among children aged 2 to 4 years of age.[3] In this study, although no differences in mean whole-grain intake were observed, total grain intake of WIC children was composed of a greater percentage of whole grains, and lower percentage of refined grains, compared with higher income children. Increases to WIC whole-grain benefits may further support intake of whole grains and priority nutrients like fiber.

Limitations

Although this study was able to identify associations between income/WIC participation status and mean intake/food group percentages, the cross-sectional design precludes causal inferences. Reasons why income- and age-eligible children do not participate in WIC, and when previous WIC recipients stopped participating, are not captured in the NHANES dataset and remain unknown. Although 24-hour recalls are the standard protocol for collection of individual dietary data, there are known limitations, such as recall bias and social desirability bias.[30] Because the target sample for this analysis included children aged 2 to 4 years, recall data depended on the accuracy of reporting by a proxy respondent,[16] and may be especially prone to recall bias. The results reported here represent population mean intake on a given day, and are therefore not an estimation of long-term usual intake.

CONCLUSIONS

Among low-income WIC-eligible children, participation in WIC was associated with greater intake of certain vegetables (red/orange and legumes). No differences in intake of priority food groups/subgroups were observed between WIC children and higher income children, suggesting that participation in WIC may help neutralize socioeconomic disparities in intake of the priority food groups/subgroups targeted by the WIC food package. WIC children and higher income children differed in the percentage that vegetable subgroups contributed to total vegetable intake, though percentages were similar between WIC children and WIC-eligible children. Also, total grain intake of WIC children was composed of a greater percentage of whole grains and lower percentage of refined grains compared with higher income children.

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STATEMENT OF POTENTIAL CONFLICT OF INTEREST

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AUTHOR CONTRIBUTIONS

M. C. Zimmer contributed to study design, analyzed the data, and wrote the first draft of the manuscript. J. A. Venarelli conceptualized the study, and reviewed and commented on subsequent drafts of the manuscript. Both authors approved the final version of the manuscript.

Table 1. Food Group Priorities and Preliminary Actions for Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Food Package IV for children aged 2 to <5 years from the 2017 National Academies of Sciences, Engineering, and Medicine (NASEM) Review of the WIC Food Package[a]

Food group	% of WIC-participating children consuming less than the recommended intake	Potential action
Higher priority[b]		
Seafood	100	Consider adding canned fish
Total vegetables	99	Consider increasing the CVV[c]
Dark green vegetables	94	Consider increasing the CVV
Whole grains	93	Consider increasing the whole-grain allowance or adding grain options
Total red and orange vegetables	90	Consider increasing the CVV
Nuts, seeds, soy	77	Consider reducing the amount in the food package because it is more than supplemental
Lower priority[d]		
Total starchy vegetables	73	Consider increasing the CVV
Other vegetables	73	Consider increasing the CVV
Total dairy	73	Consider increasing the yogurt substitution; enhance nutrition education or use behavioral approaches to promote intake of milk already provided in the food package
Total protein foods	68	Consider adding canned fish
Beans and peas computed as vegetables	59	Consider reducing amount in the food package because it is more than supplemental and providing canned option to promote intake of legumes

[a]The information in this table is adapted from Tables 5 through 10 in the NASEM 2017 Review of the WIC Food Package.[8]
[b]The NASEM report defined higher priority food group and subgroups as those for which intake was below the recommended amount in 75% or more of children aged 2 to <5 years.[8]
[c]CVV = cash value voucher.
[d]The NASEM report defined lower priority food group and subgroups as those for which intake was below the recommended amount in 50% to <75% of children aged 2 to <5 years.[8]