Master of Public Health

Integrative Learning Experience Report

Enhancing nutrition program benefit utilization through targeted intervention strategies.

by

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MPH Candidate

submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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Summary

This report provides an in-depth review of my Applied Practice Experience (APE). This time was spent with the Women, Infants, and Children Program (WIC) at the Riley County Health Department in Manhattan, Kansas. WIC is a national public health nutrition program designed to improve nutrition and food security for some of the most vulnerable populations. This includes early intervention focused on pregnant individuals, the resulting infants, and children up to the age of five. The program is also income-based, meaning to qualify, household income must be at or below 185% of the Federal Poverty Guidelines. A focus on nutrition makes WIC unique from other food-based programs. Items must meet specific USDA guidelines to be allowed to be purchased using WIC benefits. Therefore, only particular food items are considered “WIC Approved.” While this format helps guide food choices with nutrition in mind, it does make purchasing at local grocery stores more complex to meet the requirements. This can lead to client frustrations and potentially less-than-optimal benefit purchasing habits.

While working with my preceptor, information about potentially accessible data about the local office was recently confirmed. My preceptor was very interested and open to finding out what information could be gathered and how it could be utilized. Our focus began with redemption percentages and realizing that many participants weren’t using their full benefits. An idea was formed to create an intervention which could improve utilization. Ideally, this would help meet the ideals of the WIC program: decrease food insecurity, improve health outcomes, and sustain demand for the program. From this, I created a logic model evaluating what resources, activities, and outcomes could be possible with the project, which was used to refine the focus of the intervention.

Based on preliminary data, I was able to evaluate which benefit categories were least redeemed and which households used little to no assigned benefits. This information was then shared with local staff so they could understand the scope and timeline of the project, along with potential involvement expectations. I believe it was vital to include staff in the process since their participation would expand the reach of the project to as many clients as possible. Handouts were created and distributed along with guidance. Low and non-redeemers were individually contacted to assess barriers and troubleshoot issues. Store guided tours and purchasing trips were offered but never utilized.

Following the intervention, the data was analyzed to assess the success of our intervention. Results were reported to local staff and offered to state-level contacts with the

intention of reporting them at the next agency conference. Along with the outcome, local policy recommendations and future directions were shared.

Subject Keywords: Women, Infants and Children, WIC Program, benefit utilization, nutrition education, food insecurity,

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Chapter 1 - Literature Review

Food insecurity and diet quality are issues that plague many individuals, specifically those in poverty. These topics tend to go hand and hand with lower-income households often purchasing lower-quality foods as compared to higher-income households (French et al., 2018). Food insecurity then tends to affect other areas: stress, quality of life, health concerns, and many others (Ejiohuo et al., 2024). Many public health programs aim to improve these specific areas, with one in particular aimed at both the availability of food and its nutritional value: The Women, Infants, and Children Program (WIC). This program began in 1974 after a two-year pilot program. The aim was to improve the nutritional status of many vulnerable individuals. To qualify, households must meet certain income guidelines. Currently, those who are at or below 185% of the Federal Poverty Guidelines are eligible based on their household size. Next, participants must meet categorical eligibility. As the name suggests, this includes women, specifically those who are pregnant or have recently delivered, infants, and children under the age of five. Lastly, to receive program benefits, participants are assessed and must be deemed to be at nutritional risk (Caulfield et al., 2022).

The benefit packages have changed throughout the years. Originally, there was a focus on specific nutrient deficiencies. This included areas like protein, calcium, and iron. The foods offered included milk, eggs, cereal, juice, beans, and peanut butter. While this covered a lot of staple foods, it lacked variety. The biggest complaint was the exclusion of produce and whole grains. In the early 2000s, there was a large revision aimed at aligning with the Dietary Guidelines for Americans. This included the addition of whole grains and expansion of produce, along with expanding dairy options. Revision refinement was also aimed at increasing benefit flexibility for cultural and personal preferences. Items must meet specific guidelines based on nutritional content to be an allowable purchase using program benefits. While this allows for the aim of nutrition content to be met, this, unfortunately, creates a barrier for purchasing habits, since these aren't just generic food dollars to be used how ever the client prefers. They are only allowed to redeem those that meet the requirements (Rasmussen et al., 2016).

Along with progressing benefit packages, redemption processes have also evolved. Early on, written and eventually printed paper checks were issued to clients and given in monthly increments. Those individuals were then able to use the vouchers at approved stores to purchase the ascribed items. Unfortunately, there were many barriers to this method. First, misplacing vouchers was a common issue, often with them unable to be replaced. Next, clients had to purchase all items on a given voucher, or those remaining items would be lost and could

not be purchased later. To minimize this issue, clients were given multiple vouchers at one time, depending on how many clients are actively receiving benefits. Consequently, it became a lot to manage for many. Additionally, checking out tended to be a struggle, with extended time needed to appropriately redeem the items at the register. Many income-eligible families already hesitate to join the program due to the stigma associated with program participation, with this issue specifically being a factor. Added pressure from cashiers and other store patrons only exacerbated this barrier to benefit redemption. Thankfully, in more recent years, the program expanded to electronic benefits. This made for quicker, more discreet purchasing habits and even allowed for self-checkout registers to be utilized at certain stores. No longer were clients required to purchase multiple items they didn't need or want at a given time. They could follow the month-to-month renewal schedule with the ability to purchase items as needed, with increased flexibility. This also benefited the program, allowing easier tracking of habits and trends of participant redemption. (Hanks et al., 2018)

Even with these revisions, expansions, and advancements, full benefit redemption is rare, with specific categories being especially underutilized. Clients' ability to understand which specific items are approved continues to be a barrier to benefit redemption. Additionally, if these foods aren't typical items households are familiar with, possibly from an educational or cultural standpoint, that would decrease their likelihood of redeeming and utilizing them. Even with the purchasing advancements, stigma continues to be a barrier to program participation. Universal struggles like transportation and store availability plague these clients as well (Rasmussen et al., 2016).

The impact of participation in the WIC program has been well documented. Of note, program participation leads to improvements in birth outcomes, including infant birth weights as compared to non-participating counterparts (Kowaleski-Jones & Duncan, 2002). For children, longer program participation showed marked improvements in diet quality as compared to those who only utilized the first year (Borger et al., 2022). This was found especially true after the 2009 benefit revisions when comparing the diet quality of children to those who were program-eligible but non-participating (Li et al., 2022). Continuing to promote participation and benefit redemption is vital to the success of the program.

The Riley County WIC Program of Kansas chose to make this a project focus. This local agency is comprised of two stand-alone clinics and three mobile clinic locations. The stand-alone locations are in Manhattan and Fort Riley, KS, which is a military base. The mobile clinics cover Wamego, St. Mary's, and Onaga, KS, all located in the adjacent county of Pottawatomie. Over the span of this project, the average caseload includes about 2,600 participants. The

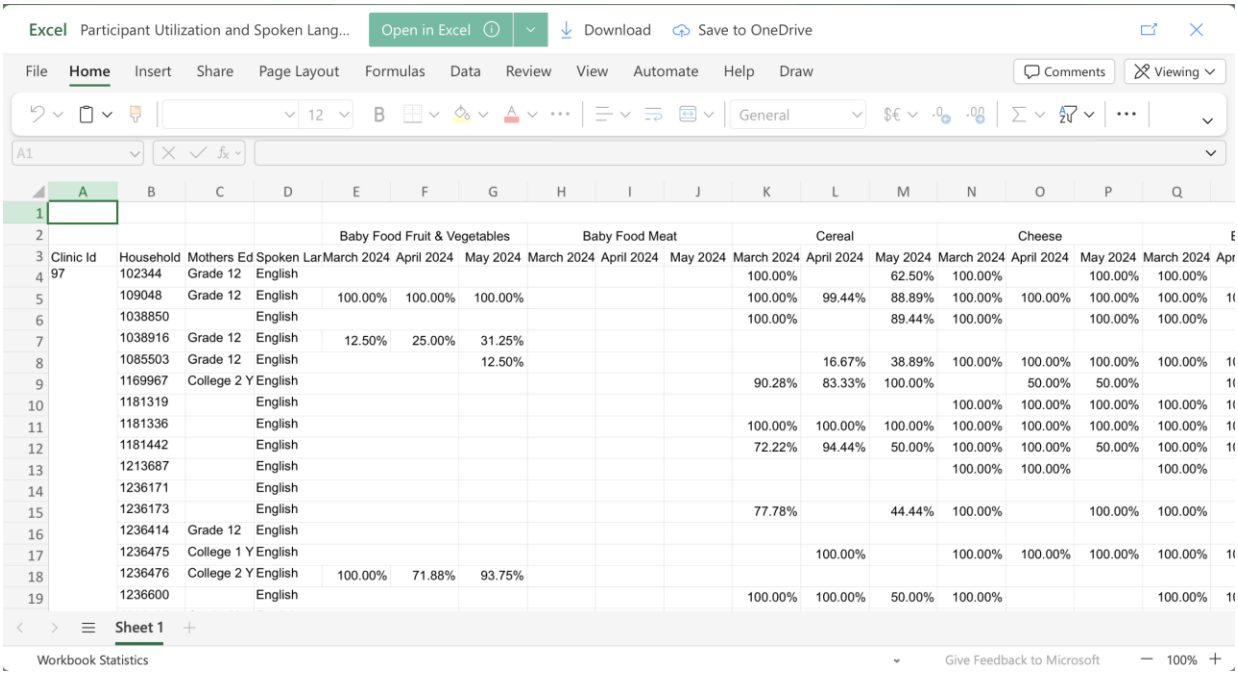
current coordinator and preceptor for this project is Kaylyn Speth. Kaylyn has worked for the program since 2015, starting at Riley County in 2016 and then becoming the coordinator in 2020. Kaylyn holds a Bachelor's and Master of Science Degree in Dietetics. For this project, I was tasked to review current utilization data, develop an intervention, and evaluate its effectiveness.

Chapter 2 - Learning Objectives and Project Description

During initial conversations with my preceptor, she explained that she was recently made aware of data that could potentially be accessed, which contained information about the local clinic. Specifically, reports detailing demographic information, benefit issuance, and benefit utilization. Early on, it was decided my task would be to evaluate the data, determine redemption habits, and then create an intervention to improve these figures.

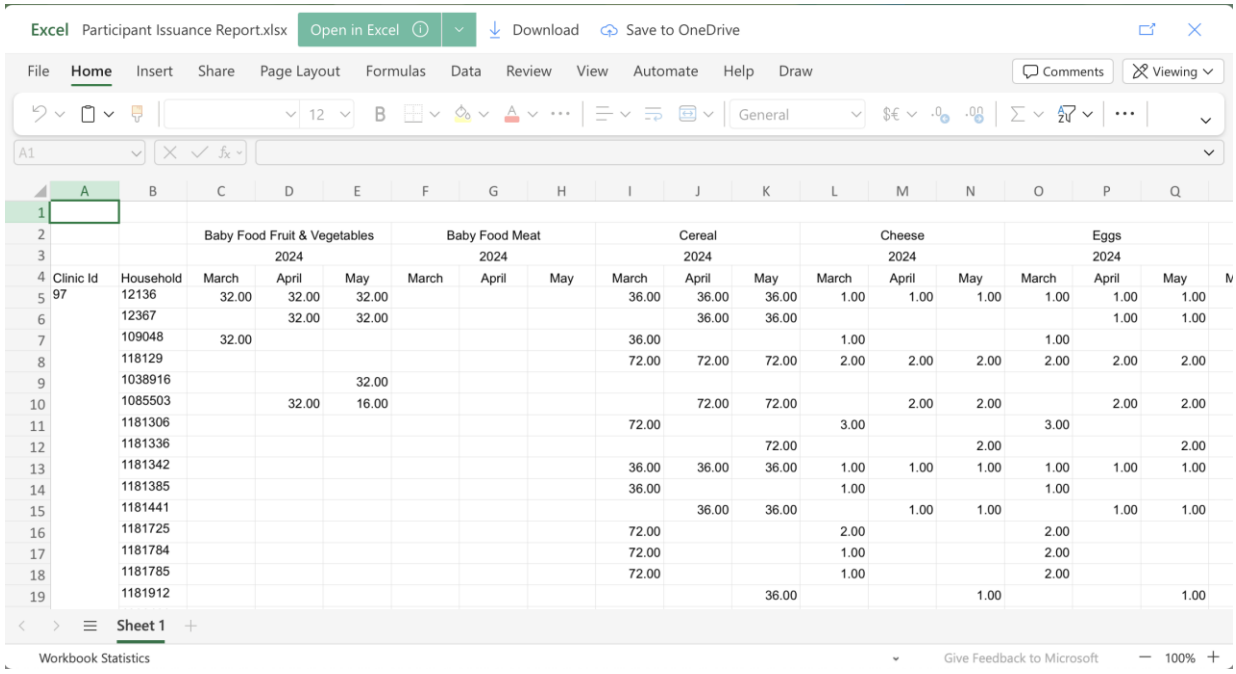
Preliminary data covers the months of March, April, and May of 2024. The reports were in Excel Spreadsheets and included clinic, household identification number, education level of the mother, benefit category, and percentage use based on the month (see Figure 2.1). Quickly, when reviewing information in the agency database, I realized an empty cell meant possibilities: that benefit was never issued, or it was issued but never used. Therefore, any non-redeemed items were not accounted for in this data set. My preceptor then gave me a secondary spreadsheet account for issuance (see Figure 2.2). Using this second set, I was able to cross-reference and accurately account for zero redemption. From the combined spreadsheet, I was then able to assess and categorize which benefits were low, moderate, and highly redeemed (see Figure 2.3). Notably, I found that Baby Food Meats are the least redeemed, followed by Concentrate Juice and Infant Cereal. Formula and their subsequent types had the highest redemption rates followed by Eggs and Fruits and Vegetables.

Figure 2.1 March – May 2024 Utilization Spreadsheet



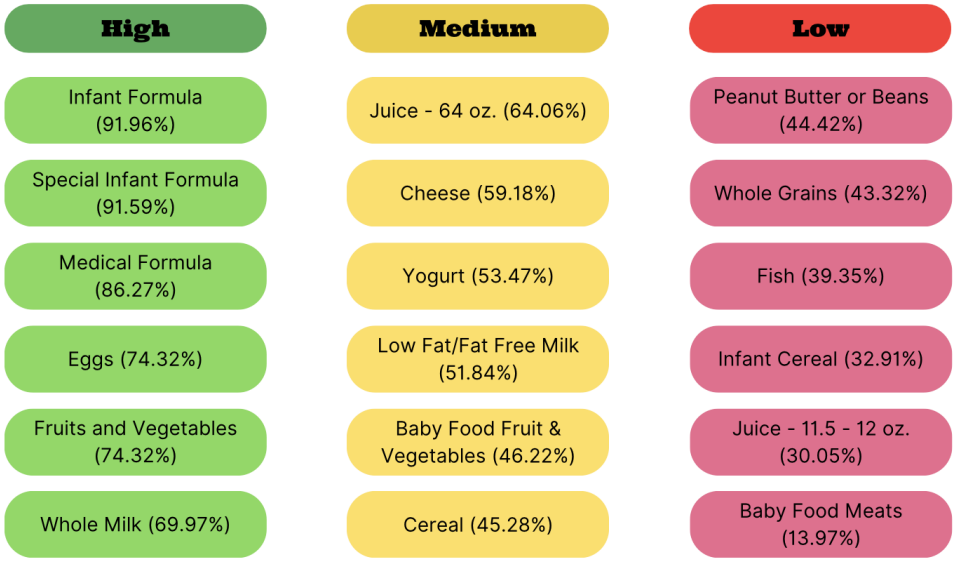
				Baby Food Fruit & Vegetables			Baby Food Meat			Cereal			Cheese				
Clinic Id	Household	Mothers Ed	Spoken Lar	March 2024	April 2024	May 2024	March 2024	April 2024	May 2024	March 2024	April 2024	May 2024	March 2024	April 2024	May 2024	March 2024	Apr
97	102344	Grade 12	English							100.00%		62.50%	100.00%		100.00%	100.00%	
	109048	Grade 12	English	100.00%	100.00%	100.00%				100.00%	99.44%	88.89%	100.00%	100.00%	100.00%	100.00%	1
	1038850		English							100.00%		89.44%	100.00%		100.00%	100.00%	
	1038916	Grade 12	English	12.50%	25.00%	31.25%											
	1085503	Grade 12	English			12.50%					16.67%	38.89%	100.00%	100.00%	100.00%	100.00%	1
	1169967	College 2 Y	English							90.28%	83.33%	100.00%		50.00%	50.00%		1
	1181319		English										100.00%	100.00%	100.00%	100.00%	1
	1181336		English							100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	1
	1181442		English							72.22%	94.44%	50.00%	100.00%	100.00%	50.00%	100.00%	1
	1213687		English										100.00%	100.00%		100.00%	
	1236171		English														
	1236173		English							77.78%		44.44%	100.00%		100.00%	100.00%	
	1236414	Grade 12	English														
	1236475	College 1 Y	English								100.00%		100.00%	100.00%	100.00%	100.00%	1
	1236476	College 2 Y	English	100.00%	71.88%	93.75%											
	1236600		English							100.00%	100.00%	50.00%	100.00%			100.00%	1

Figure 2.2 March – May 2024 Issuance Spreadsheet



		Baby Food Fruit & Vegetables			Baby Food Meat			Cereal			Cheese			Eggs			
		2024			2024			2024			2024			2024			
Clinic Id	Household	March	April	May	March	April	May	March	April	May	March	April	May	March	April	May	M
97	12136	32.00	32.00	32.00				36.00	36.00	36.00	1.00	1.00	1.00	1.00	1.00	1.00	
	12367		32.00	32.00					36.00	36.00					1.00	1.00	
	109048	32.00						36.00			1.00			1.00			
	118129							72.00	72.00	72.00	2.00	2.00	2.00	2.00	2.00	2.00	
	1038916			32.00													
	1085503		32.00	16.00					72.00	72.00		2.00	2.00		2.00	2.00	
	1181306							72.00			3.00			3.00			
	1181336									72.00			2.00			2.00	
	1181342							36.00	36.00	36.00	1.00	1.00	1.00	1.00	1.00	1.00	
	1181385							36.00			1.00			1.00			
	1181441								36.00	36.00		1.00	1.00		1.00	1.00	
	1181725							72.00			2.00			2.00			
	1181784							72.00			1.00			2.00			
	1181785							72.00			1.00			2.00			
	1181912									36.00			1.00			1.00	

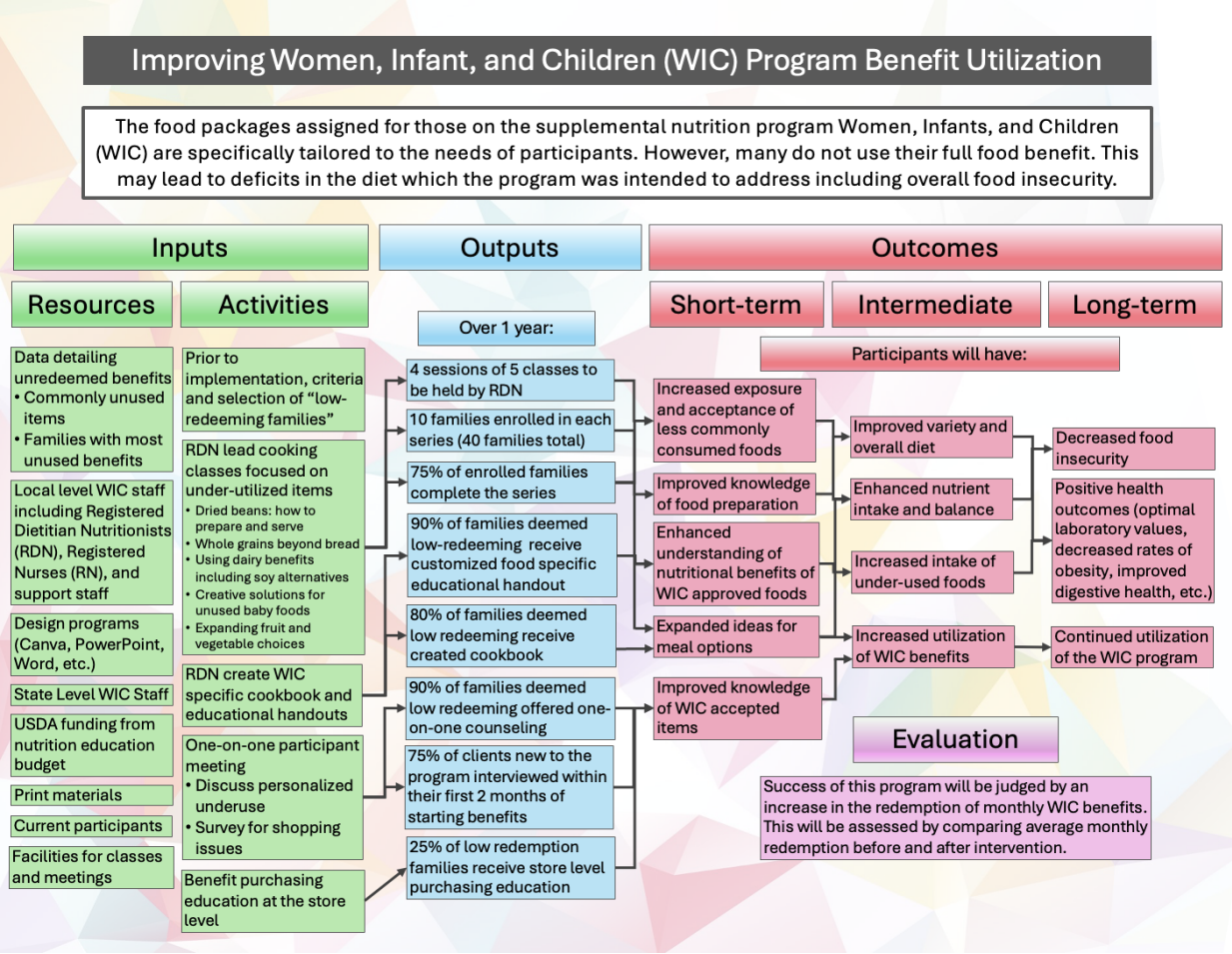
Figure 2.3 Benefit Category Redemption Levels



First, it was decided that infant category products would not be part of my focus. Formula, as discussed previously, is already highly redeemed and does not need extra emphasis. Baby food categories (Baby Food Meats, Baby Food Fruits and Vegetables, and Infant Cereal), while some have lower redemption rates, these products impact only a small number of participants and for a short time (only infants from 6-to-11 months). Therefore, when taking time and resources into account, other low redeemers (Juice Concentrate, Fish, Whole Grains, and Peanut Butter or Beans) would be the focus.

Next, I created a logic model detailing inputs, outputs, and outcomes (see Figure 2.4). This was used as a brainstorming exercise. From interviews and knowledge of the program, I determined that the initial data, local and state staff, software, printing budget and materials, participants, and facilities were all valuable resources. Potential activities included cooking classes, cookbooks, handouts, participant meetings, and store visits. I assessed short-term, intermediate, and long-term goals, with increased benefit redemption being the main objective and marker for evaluation of success.

Figure 2.4 Logic Model Brainstorming



Using this model, I continued conversations with my preceptor. It was decided that I would create an educational handout for those items least redeemed, which would be accessible to staff to provide to participants as necessary. I would also personally contact those who were not using any benefits at all during the measured time period. I would use this time to interview the clients, assess barriers, and potentially rectify any issues within the scope of the program. Lastly, staff would be made aware that I was available to do store-guided visits for those who seemed to want extra assistance. Our project hypothesis was that providing this expanded education would improve benefit utilization.

At this point, I was asked to present to the local staff at a clinic-wide meeting. I provided information about my preliminary findings, along with the scope and timeline of my project and what potential role staff would play in its execution. After the information was shared, I opened the floor for input, questions, and concerns. I received suggestions for the handouts and what they should contain. Also, learning what previous students had done while at the office could improve outcomes as well. This includes calling clients new to the program one month after

certification to evaluate and assess any benefit utilization issues. It was also discussed that store visits in the past have not been successful or well-received. Still planned to offer it as an alternative, but understood it would most likely be a low probability of attendance.

Next, I began working on the education materials. I determined my focus for information would be in three different areas. This included usage ideas (including recipes), expanded purchasing guidance following program regulations, and nutrition education information. Using the online program Canva, with which the Riley County Health Department has a subscription, I created the layout for the handout derived from a designed template. I began with the least redeemed items, but ultimately made a handout for all categories except for infant products, fruits, and vegetables. As previously discussed, infant products are a very limited issuance and therefore deemed a lower priority. I was able to find other resource materials (a baby food cookbook) in case there were some clients who requested further information. Fruits and vegetables were determined to be a high-redeemer and also a very broad category. A one-page handout would most likely not do this category justice. Previously, produce-focused instructional videos have been created and available online for staff to direct clients if needed.

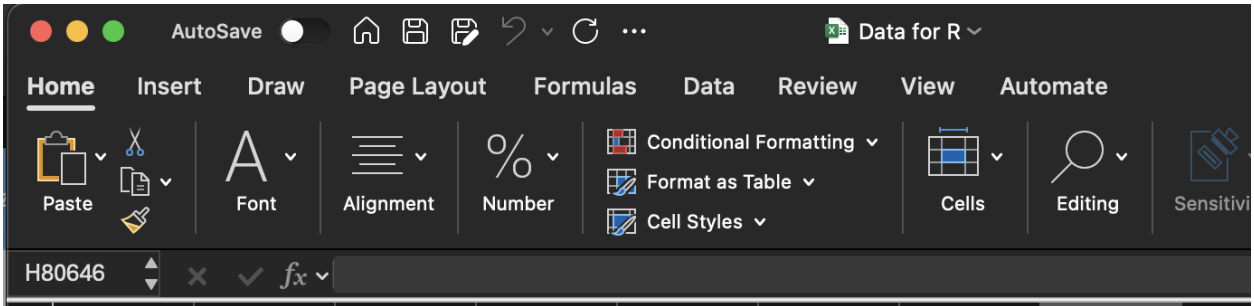
Once I created the initial prototype, I provided it to my preceptor and the local WIC dietitians for evaluation and approval. I used the same template to make all others, with 14 being created in total (see Appendix 1 for the complete set). Once complete, I provided both print and digital copies to all staff, along with guidance on promoting the redemption behavior conversation. This included suggesting talking points such as “Are you having any issues using your WIC benefits?” or “Are there any benefits you aren’t using or aren’t sure what to do with?” To assist in creating these conversations naturally, I created a bulletin board titled “WIC Benefit Ideas” to be displayed in counseling offices (see Appendix 2).

During the time staff were to be offering these materials, I called clients who did not use any of their benefits during the assessed months. When pulling up individual information, if I found the client had recently left our program (expired or moved), they were not called. Those who were still current participants, I contacted via phone. First, I explained who I was and why I was calling, noting that our records show they hadn’t used benefits in the past three months. I then asked if there was any particular reason they weren’t being used. The responses ranged greatly but fit into three categories: no issues, WIC issues, or outside issues. Some admitted they chose not to or had forgotten about benefits, with no specific issue being reported. Others stated program issues, such as not knowing they had benefits or incorrect benefits being issued. Lastly, some specified issues are outside of the program’s scope. This included transportation issues, including those having to do with weather concerns, and also frustrations

at the store level, including product availability. For those I was able to assist, I corrected their issues or errors as appropriate. For others, we attempted to brainstorm ways to eliminate barriers, such as speaking to a store manager with questions about item stock and variety. I continued to do this each month during the intervention, which lasted about three months.

Finally, once able, I requested the data reports for the same three months from the initial dates, but a year later. I followed the same process for combining the data sheets for utilization and issuance. Next, I reviewed recent activity for each household. If the family had recently left our program, they were removed from the data set. In cases where a client moved out of state but still technically had benefits issued, it would skew the numbers when they weren't technically active participants. At this point, I met with a data analyst, Aiden Kerns, who advised me on the next steps. The first main hurdle was the format of the report. Since we would be using R Studio, each percentage would need to have its own line on a separate spreadsheet to do the comparison. While there are some shortcuts to assist, the majority of this process had to be done manually. Over the course of a few months, I reconfigured the data to make it usable (see Figure 2.5). Once done, the information was put into R Studio, and again, with the assistance of Aiden, able to evaluate the outcome of the intervention, which will be discussed in the next chapter. The methods for this are as follows: all clients were included in demographic assessments, but only those in both the 2024 and 2025 data sets were included in the comparison results. I then presented this information using a PowerPoint Slideshow and handout at a local staff meeting, citing results and conclusions along with future directions and recommendations.

Figure 2.5 Spreadsheet Reconfigured for R Studio



	A	B	C	D	E	F	G	H
1	Client	Education	Language	Year	Benefit	Month	Response	
2	11814	n/a	English	2024	Cereal	February	0.4667	
3	11814	n/a	English	2024	Cereal	March	0	
4	11814	n/a	English	2024	Cereal	April	0	
5	11814	n/a	English	2024	Cheese	February	1	
6	11814	n/a	English	2024	Cheese	March	0	
7	11814	n/a	English	2024	Cheese	April	0	
8	11814	n/a	English	2024	Eggs	February	1	
9	11814	n/a	English	2024	Eggs	March	1	
10	11814	n/a	English	2024	Eggs	April	0	
11	11814	n/a	English	2024	Fruit/Veg	February	0.3687	
12	11814	n/a	English	2024	Fruit/Veg	March	0.4875	
13	11814	n/a	English	2024	Fruit/Veg	April	0.8438	
14	11814	n/a	English	2024	Juice	February	0.75	
15	11814	n/a	English	2024	Juice	March	0	
16	11814	n/a	English	2024	Juice	April	1	
17	11814	n/a	English	2024	Lowfat Milk	February	0.3333	
18	11814	n/a	English	2024	Lowfat Milk	March	0.3333	
19	11814	n/a	English	2024	Lowfat Milk	April	0	

Chapter 3 - Results

There was no marked improvement in benefit utilization between the two years reviewed. In this first table, we see that there was actually a statistically significant decrease in overall benefit usage between the two data sets.

Table 3.1 Overall Usage Change

Usage Change from March-May 2024 to 2025

	Mean Difference	t-statistic	p-value
All Categories	-0.0227935	-2.9705	0.003051*
All Categories Except Infant	-0.02152328	-2.6836	0.007422*

Next, individual benefit categories were reviewed. For the majority, there was no significant change. However, for Cereal, Cheese, Juice, Whole Grains, and Yogurt, there was actually a decrease in usage, which was determined to be statistically significant. The only category that improved significantly was Fruits and Vegetables, which was not a featured benefit in this intervention.

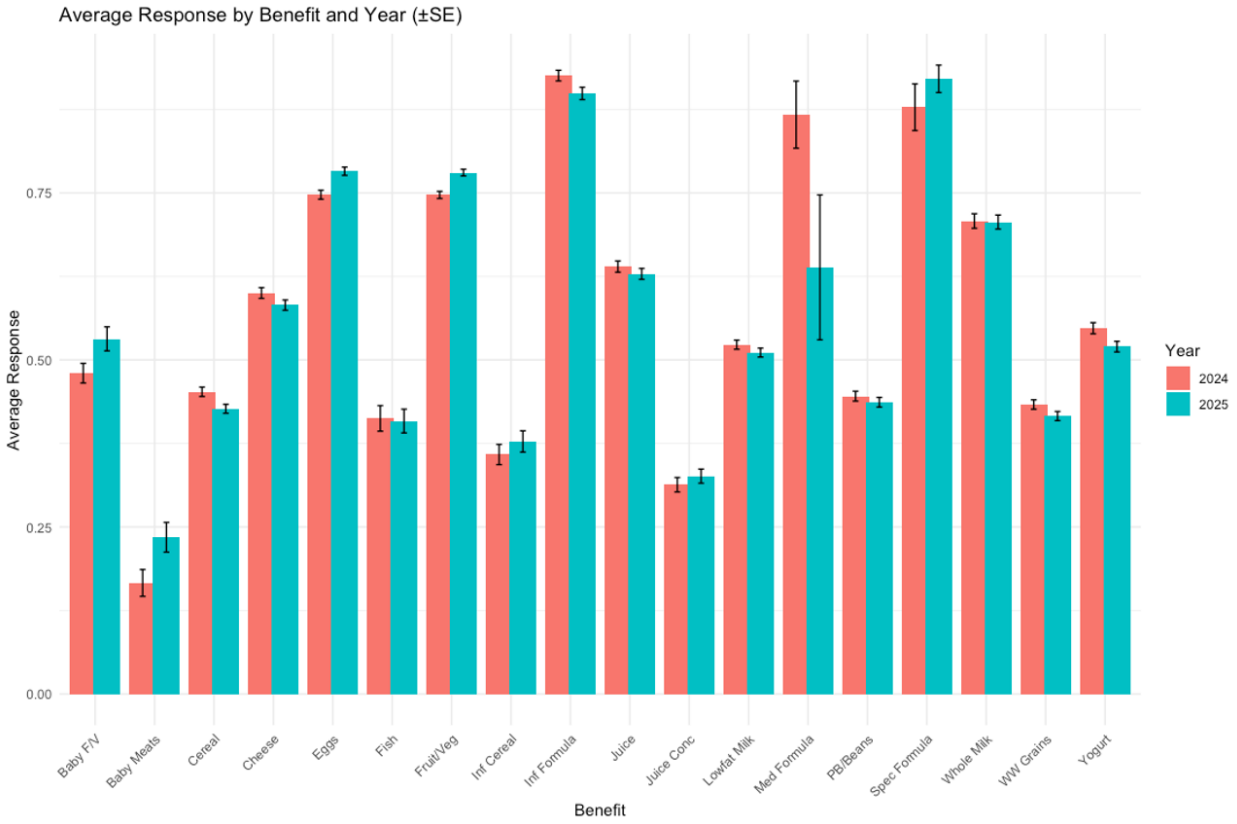
Table 3.2 Change by Benefit Category

Usage Change from March-May 2024-2025 by Benefit

Benefit Category	Mean Difference	t-statistic	p-value
Baby Food Fruits and Vegetables	0.00608	0.0661	0.948
Cereal	-0.0736	-6.36	0.0000000003*
Cheese	-0.0446	-2.98	0.00295*
Eggs	0.00343	0.278	0.781
Fish	-0.0598	-0.821	0.418
Fruits and Vegetables	0.0247	2.57	0.0104*
Infant Cereal	0.0468	0.389	0.702
Infant Formula	-0.0471	-0.877	0.385
Juice	-0.0309	-2.02	0.0439*
Juice Concentrate	0.0276	0.958	0.339
Lowfat Milk	-0.0067	-0.515	0.607
Medical Formula	-0.117	-0.972	0.403
Peanut Butter or Beans	-0.0233	-1.79	0.0743
Special Formula	0.1	0.916	0.456
Whole Grains	-0.0496	-4.21	0.0000285*
Whole Milk	-0.0308	-0.748	0.457
Yogurt	-0.0778	-4.63	0.00000448*

Next, we have the same data in graph form. This visual also allows us to understand which items are most and least popular overall.

Figure 3.1 Change by Benefit Category Graph



While the intervention was not deemed successful, this opportunity was used to evaluate overall trends with purchasing compared to certain demographic information. First, we compared utilization to education level. This data shows that those with higher education, whether that be advanced degrees or attainment of a high school diploma, utilization is found to be higher and to a statistically significant degree.

Table 3.3 Usage Trends Based on Education Level

Usage Comparison Based on Education Level

	Mean Difference	t-statistic	p-value
Advanced Education vs. High School and Below	0.09553	7.413	0.0000000002*
Highschool Diploma vs. Without	0.0559691	2.498	0.01355*
Highest Levels (College/Graduate Level) vs. Lower	0.1497686	4.8055	0.0000106*

Primary household language was also evaluated. The data below shows that those who note a primary language other than English have higher redemption rates to a significant degree.

Table 3.4 Usage Trends Based on Primary Language

Usage Comparison Based on Primary Language

	Mean Difference	t-statistic	p-value
English vs Spanish Speaking Households	-0.0400848	-2.0418	0.04288*
English vs Non-English Speaking Households	-0.075765	-4.7229	0.0000032*

Chapter 4 - Discussion

Unfortunately, the intervention did not impact utilization as hypothesized. However, there is still knowledge to be gained from this experience. First, this issue is very complex. Grocery shopping, food choices, nutrition, and meal preparation are all multifaceted experiences. In speaking to many of these clients individually, their answers varied greatly. Some were issues that could easily be resolved, but others were more complex and outside of the scope of the program. This includes issues with transportation and store-level grievances. Local grocery stores are vital for the implementation of this program. However, the program is not their only focus. While stores have minimum requirements to participate as a WIC vendor, they ultimately choose what food items are ordered and offered. So unfortunately, we don't have as much control over this part of the program.

Continuing to evolve the purchasing process is vital. Clients previously redeemed benefits using vouchers. Multiple items would be on a single one and require them all to be purchased, or else they would be unavailable. A few years ago, the program evolved into the electronic benefit transfer, allowing for a debit-card-like system for benefits. This made the check-out experience quick and more discreet without the "use it or lose it" benefit model. I believe the next step is online shopping. I think this solves many issues with transportation and difficulty knowing what items are approved. Items can be marked and deducted in real-time, allowing the process to be simplified. This process is being piloted in a couple of states, but I think it will be beneficial once rolled out completely.

Along with evolving the purchasing process, I believe expanding benefit options will also be helpful. This specifically includes more culturally appropriate items. Often, there are complaints that the items that are approved aren't the type of things families normally use. Researching items that are popular in different households, which also meet nutrient guidelines, could only help improve utilization. This could also include expanding milk options. Right now, the only alternatives are lactose-free and soymilk varieties. There are currently no viable options for those who have both a milk and a soy allergy. Those with celiac disease or gluten intolerance also complain about limited choices. It's important to include alternatives for those who need options beyond personal preference but actual medical need.

Unfortunately, food insecurity is a reality for so many. Programs like WIC help improve that status, but barriers still exist even when using the benefits provided by assistance programs. The ongoing evaluation and evolution of the purchasing process is vital. This can

help eliminate as many barriers as possible. Perpetually expanding food options, specifically those with cultural and medical considerations, will only continue to help the program be as effective as possible.

Chapter 5 - Competencies

The following chapter will connect the competencies I attained throughout my coursework to activities utilizing them throughout my Applied Practice Experience (APE).

Student Attainment of MPH Foundational Competencies

Table 5.1 Summary of MPH Foundational Competencies

Number and Competency		Description
22	Apply systems thinking tools to a public health issue	Shortly after understanding preceptor expectations, I created a logic model detailing different aspects of the project. This allowed me to assess what resources were available, suggest possible activities, review potential outputs, and note expected outcomes. This was used to brainstorm with my preceptor about potential directions for the project.
9	Design a population-based policy, program, project or intervention	Upon understanding my preceptor's intentions for the project, I created an intervention in the form of an educational handout. This handout was to be given to clients at counseling sessions to assist in improving their understanding of nutrition, usage ideas, and purchasing guidance.
3	Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	Using data reports provided by the state agency, I reviewed and reformatted them so they could be used in the program R Studio to be analyzed to evaluate the intervention's effect.
4	Interpret results of data analysis for public health research, policy or practice	Based on the outcomes of the data, I was able to determine if the intervention was successful and then make recommendations based on the results.
19	Communicate audience-appropriate public health content, both in writing and through oral presentation	I reported the findings and recommendations to the local staff through a PowerPoint presentation and summary handout at a staff meeting. I also reached out to state staff with an offer to present at the next state-held conference.

Competency 22 – Apply systems thinking tools to a public health issue

Systems thinking applies to a variety of situations and has been interwoven throughout the curriculum of classes. It is a helpful strategy with many applicable options depending on the circumstances. When evaluating a system, it allows a deeper look at the different parts and their interconnections. This can be used for brainstorming, understanding the various components, and how they connect, but also assessing priorities and evaluating efficacy.

In MPH 754, Epidemiology, I expanded my knowledge about relationships between variables and how to evaluate their connection. This includes understanding correlation enough to assess what we need to test to make conclusions, and thus lead to appropriate decision-making. Health outcomes are especially complex with many intersecting variables. It's important to account for how they interact before making any conclusions. The visuals we gain from systems thinking are unmatched in helping understand the complexity of a situation and hopefully ease communication to a wider audience.

In the same vein, MPH 802, Environmental Health Sciences, also requires systems thinking for larger-scale effects. Ecosystems, environments, and human behavior all intersect and influence each other. It allows for the intersection of multiple disciplines, evaluating benefits but also consequences, and allows for prediction. These ideologies can be used on both small and large scales. It allows our influence to be impactful, dynamic, and ideally, sustainable.

In my APE, I used this understanding to apply it to the current situation. I took the time to understand my options, expectations, and limitations. I feel this made the best use of my time and resources. This allowed me to communicate efficiently with my preceptor and the appropriate staff. I was able to answer questions and adapt as needed. I then used the same model to assess the outcomes of the project and whether it was successful in its aim.

Competency 9 – Design a population-based policy, program, project, or intervention

Population-based design seems essential to the public health process. The WIC Program is an obvious example of this at work and how it can be used to create positive outcomes on a large scale. For my project, I was able to do this, but in a smaller capacity. With the desire to create change in our participants, I chose an education-based intervention. Driven by preliminary data and feedback from staff, I determined the focus, content, and execution of

my intervention. I had to keep realistic expectations based on budgets and resources. I also had regulations at multiple levels. These are local county regulations, such as branding. Then state-level regulations such as a required non-discrimination statement on all outgoing documents. It also included considering my audience with things like participant reading level, so health equity is taken into consideration. I had to see my process through from inception, utilization, and evaluation. Then, based on our outcomes, recommend to adopts, adjust or cease.

As discussed previously, classes like MPH 754, Epidemiology, enriched me with tools to help analyze and evaluate the project. I applied the knowledge gained to help me design and consider outputs and outcomes.

Competency 3 – Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming software, as appropriate.

In MPH 701, Biostatistics, I acquired knowledge about the program R Studio. This was my first experience working with this type of software, and I found it rather challenging at first. However, once I began to understand the basics through the class structure and assignments, along with help from our teaching assistant, I found I was able to apply what I had learned to future requirements and then my project.

Initially, I was a bit frustrated with the data collection and refinement process in my Applied Practice Experience. When I first determined this project, I wrongfully assumed data analysis would be the simplest part of the entire project. My first hurdle was realizing that the reports were incomplete by not assessing those who didn't use any benefits. I couldn't understand why it would report partial data and skew any metrics so greatly. Then, once I finished that, I immediately heard it must be completely reformatted. In class, the data was already to this point when we had to analyze it, so this gave me another insight into the process. Thankfully, when it came time to assess, I had the help of an analyst, Aiden, to ensure I was coding for the correct results for what we were researching.

Competency 4 – Interpret results of data analysis for public health research, policy or practice.

Again, I pulled from data-driven classes like MPH 701, Biostatistics, and MPH 754, Epidemiology. In both sessions, not only did we have to correlate the data to find our answers, but you then also had to understand what those answers were telling us. Through multiple

assignments and exams, I gained and utilized these skills, which then translated into my project. Understanding change, but also statistically significant change, I think, is a huge marker. When handling such a large pool of figures, change is most likely going to happen, whether that be increasing or decreasing. However, where the real meaning comes into play is if that change is large enough to show a true shift. Unfortunately, my data did not show improvement, as hypothesized. Instead of being discouraged, I understand these are very complex systems with many factors and variables affecting behaviors.

Competency 19 – Communicate audience-appropriate public health content, both in writing and through presentation

Someone can have the most groundbreaking and impactful research, but if they cannot communicate that to an audience or stakeholders, it loses its potential for impact. Classes such as FNDH 880, Professional Communication in FNDH, helped to hone my presentation skills. First, it is knowing your audience. Understanding what they already know, such as background information and terminology, and then what they most want to know. It isn't always about what is most important to you, the presenter, but ultimately what is impactful to those you're sharing the information with. Next, the little things are so important. Layout, colors, pace, and attire are all things that can impact your message. Your audience is human, so they can be affected by things you didn't even intend. It's important to minimize distractions to allow those retaining your information to avoid any extra input.

I presented my project to the staff at its initiation and conclusion. It's already interesting to see the improvements just from what I've learned through my curriculum. Since my project is so data-driven, it is easy to get lost in all the details. While I may think certain things are interesting, it's important not to overwhelm. Speaking to my preceptor about her interests and expectations from at the beginning helped keep me focused on the true intention of the project and what is to be gained from it.

Table 5.2 MPH Foundational Competencies and Course Taught In

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	x	x	x		

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy or practice	x		x		
Public Health and Health Care Systems					
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings		x			
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels					x
Planning and Management to Promote Health					
7. Assess population needs, assets and capacities that affect communities' health		x		x	
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs					x
9. Design a population-based policy, program, project or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		
11. Select methods to evaluate public health programs	x	x	x		
Policy in Public Health					
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence		x	x	x	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes		x		x	
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations		x			x
15. Evaluate policies for their impact on public health and health equity		x		x	
Leadership					
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					
18. Select communication strategies for different audiences and sectors	DMP 815, FNDH 880 or KIN 796				
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	DMP 815, FNDH 880 or KIN 796				
20. Describe the importance of cultural competence in communicating public health content		x			x
Interprofessional Practice					
21. Perform effectively on interprofessional teams		x			x
Systems Thinking					
22. Apply systems thinking tools to a public health issue			x	x	

Student Attainment of MPH Emphasis Area Competencies

Table 5.3 Summary of MPH Emphasis Area Competencies

MPH Emphasis Area: Public Health Nutrition		
Number and Competency		**Description**
1	Information literacy of public health nutrition	Inform public health practice through analysis of evidence-based policy, systems, and environmental change.
2	Compare and relate research into practice	Examine chronic disease surveillance, policy, program planning and evaluation, and program management, in the context of public health nutrition.
3	Population-based health administration	Critically examine population-based nutrition programs.
4	Analysis of human nutrition principles	Examine epidemiological concepts of human nutrition in order to improve population health and reduce disease risk.
5	Analysis and Critique of Functional Foods, Nutraceuticals, and Dietary Supplements	Analyze and evaluate nutritional research studies related to the relationship between diet and chronic disease prevention.

Competency 1 – Information literacy of public health nutrition

The WIC program has continued to make changes over the years. A revamp of changes in 2009 made the biggest impact in aligning with the Dietary Guidelines for Americans. Choices such as adding and eventually increasing fruit and vegetable benefits, along with replacing

refined grains with whole wheat options. My project promoted some of the original ideals and updated changes by highlighting these important impacts.

Competency 2 – Compare and relate research into practice

Using what I learned from my emphasis curriculum, I was able to create and implement a program designed to improve benefit utilization. Systems thinking taught me to evaluate all inputs, outputs, and goals. It's important to see how they intersect and affect each other. This also allows us to create the framework by which we can evaluate the intervention. Then, from that analysis, decide to continue its progress, adjust what we're doing, or scrap it completely. With large-scale programs, it's important to evaluate on a wider scale and not just the individual level. That will give us our best view of its impact.

Competency 3 – Population-based health administration

As stated in the literature review, there is a measurable impact on vulnerable populations as a result of participation in the WIC program. However, even a successful program is not without its drawbacks. The very design of the program, which is to improve intake of nutrient-rich foods, is also what creates many barriers to its execution. By limiting what clients are able to purchase, it unfortunately creates store-level conflicts that can keep clients from using all of their benefits, and in some cases, participating with the program at all. For those with personal, medical, and cultural preferences, it can be difficult to find ways to utilize the benefits. By continuing to expand and evolve the food package, clients have a greater chance of utilizing the benefits to their full potential. My program aimed to bridge some of this gap with the current processes. That includes usage ideas, including recipes, along with expanded instructions for those struggling to make appropriate purchases at the store level.

Competency 4 – Analysis of human nutrition principles

The foundation of WIC is guided by the principles of improving diet quality to reduce disease risk. Specifically, anemia and obesity are focal points in both the food benefit design and counseling strategies. At most appointments, anthropometric measures are taken, including height, weight, and hemoglobin. Packages including low-fat dairy products and iron-rich cereals aim to improve these metrics. This project was created in alignment with these ideals: to

increase utilization of benefits and therefore continue to reap the benefits of their intentional design.

Competency 5- Analysis and Critique of Functional Foods, Nutraceuticals, and Dietary Supplements.

Being a nutrition-focused public health program, WIC continues to align with ideals promoting functional foods. The adjustment from refined grains to whole wheat is one example. The importance and disease prevention effects of whole grains have been heavily documented. Offering iron fortified cereals or vitamin D-enriched milk are both examples of foods allowed on the program that are aimed at preventing and eliminating nutrient deficiencies. My project aimed to highlight these benefits through education. Clients may not always understand why certain food items are a part of the benefit packages. Ideally, as clients better understand the how and why of the program guidelines, they will improve utilization as a result.

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Appendix

Appendix 1 – Benefit Specific Handouts

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

100% WHOLE WHEAT BREAD, ROLLS, THINS, AND BUNS

12, 16, 20, or 24 oz packages

USAGE IDEAS

Along with sandwiches, consider trying:

- Bread crumbs
- Croutons

Remember, your benefits also include whole wheat buns or sandwich thins.

Check out the back of this handout for recipes!

PURCHASING

Usually bread and buns are on their own aisle. They are not brand specific but labeling is important. The product should say 100% whole wheat, have whole wheat flour as the first ingredient and match an approved size.

The WIC Shopper App and WIC Approved Food List can be helpful tools when shopping at the store

More details are on the reverse side.

BENEFITS

1. Source of fiber

Getting enough fiber is important for digestive health! Along with improving digestion, it helps lower cholesterol and increase fullness.

2. Important nutrients

Whole wheat includes important nutrients like B vitamins, iron, magnesium, and zinc.

3. Versatile

Trying new flavors and recipes can be fun. Get creative!

This institution is an equal opportunity provider.

MORE QUESTIONS?

Call your WIC office!

Manhattan - 785-776-4779 ext 7661
Fort Riley - 785-240-7019
Email - WIC@rileycountyks.gov

HOMEMADE BREADCRUMBS

- whole wheat bread, not fresh baked

1. Grind down bread in food processor or tear into smaller pieces.
2. Spread in a single layer on a baking sheet.
3. Bake at 300° for 10 minutes
4. Stir and bake longer if needed, should be lightly toasted and dry.
5. Remove from oven and allow to cool completely.
6. Place in an airtight container at room temperature for up to 1 month (if frozen, good for 3 months)

Optional: for Italian bread crumbs add salt, garlic powder, onion powder, and Italian seasoning.

Adapted from Cook Smarter

AVOCADO TOAST

- 2 slices whole wheat bread
- 2 eggs
- 1 small avocado
- 1 tomato

1. Spray frying pan with cooking spray and place over medium heat.
2. Crack each egg into pan.
3. While eggs are cooking, usually 2-3 minutes on first side, toast the bread.
4. Cut avocado in half. Spread each half on each piece of toast and top with sliced tomato.
5. Flip egg and cook to desired firmness, usually 1-2 minutes more then place on top of tomato.
6. Serve and enjoy!

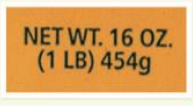
Adapted from Wisconsin WIC Cookbook

THINGS TO LOOK FOR WHEN SCANNING WHOLE WHEAT BREAD

STEP 1: ***Check the Label***
Label says "100% Whole Wheat".

STEP 2: ***Check the Ingredient List***
Whole Wheat flour is the first ingredient listed.

STEP 3: ***Check Ounces in Product***
Make sure to not go over the ounces listed on the current benefits.



WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

BROWN RICE

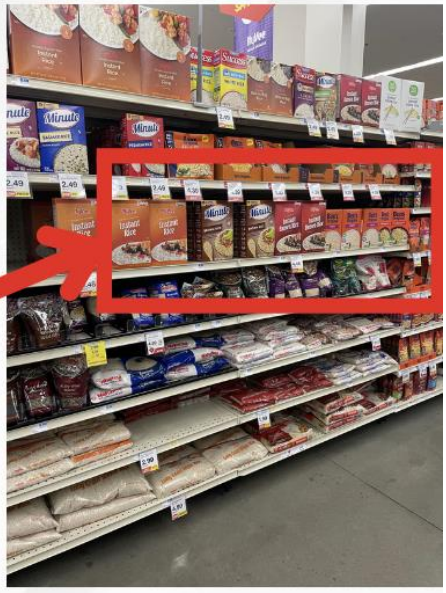
14, 16 or 32 oz containers

USAGE IDEAS

Rather than just as a side, here are some creative ideas:

- Stir fry
- Soup
- Casserole

Check out the back of this handout for recipes!



PURCHASING

Brown rice is not brand specific but more about the type and the sizing. You should find them with other rice products.

Use the WIC Shopper App or WIC Approved Food List to verify which products are eligible.

Current guidelines are on reverse side.

BENEFITS

1. Source of fiber

Getting enough fiber is important for digestive health! Along with improving digestion, it helps lower cholesterol and increase fullness.

2. Long shelf life

Rice doesn't spoil easily and therefore can be more convenient and flexible.

3. Versatile

Trying new flavors and recipes can be fun. Get creative!

MORE QUESTIONS?

Call your WIC office!

Manhattan - 785-776-4779 ext 7661
Fort Riley - 785-240-7019
Email - WIC@rileycountyks.gov

FRIED RICE

- 1 cup brown minute rice
- 2 tbsp vegetable oil
- 1 cup frozen mixed vegetables
- 3 eggs
- cooked, chopped chicken breast (optional)
- soy sayce

1. Cook the rice according to instructions and set aside
2. Put the oil in a skilled on medium heat. Add vegetables and cook 3-5 minutes; then put aside.
3. Whisk the eggs and then scramble them in the skillet next to the veggies
4. Add rice and chicken breast. Stir all ingredients together. Heat for 2 minutes.
5. Drizzle with soy sauce and serve.

Adapted from Wisconsin WIC Cookbook

BEAN AND RICE BURRITOS

- 2 cups instant brown rice
- 1 small onion, chopped
- 1 (15oz) low sodium kidney beans, drained
- 8 (10-inch) whole wheat tortillas
- 1/2 cup salsa
- 1/2 cup shredded cheese

1. Cook rice according to package
2. Preheat oven to 300°
3. Mix cooked rice, chopped onion, and beans in a bowl.
4. Put 1/2 cup of mixture onto each tortilla and roll into a burrito.
5. Put burritos into a baking pan and cook for 15 minutes
6. Once cooked, pour salsa and sprinkle cheese over top
7. Server warm and enjoy!

Adapted from MyPlate

BROWN RICE

Any brand

16 or 32 oz containers

- Regular
- Quick

14 oz containers

- Instant

NOT APPROVED: products with added sugar, salt, flavoring, fat, or oil.

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

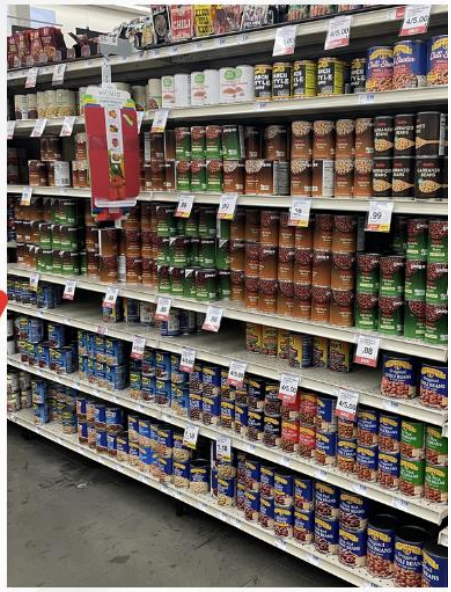
CANNED BEANS

15 - 16 oz can

USAGE IDEAS

- Soup or chili
- Side dish
- Salad
- Dip

Check out the back of this handout for recipes!



PURCHASING

Canned beans are not brand specific. Green beans and those with extra flavoring like baked beans are not approved. Beans should have their own section in canned goods.

Use the WIC Shopper App or WIC Approved Food List to verify which are eligible.

Current guidance is on reverse side.

BENEFITS

1. Protein packed

Beans are a wonderful source of protein especially those seeking plant-based alternatives.

2. Long shelf life

Canned beans don't spoil easily and therefore can be more convienent and flexible.

3. Iron rich

Iron is important to our bodies and making sure we eat enough helps prevent anemia.

MORE QUESTIONS?

Call your WIC office!

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HUMMUS

- 1 can (15 oz) garbanzo beans, drained
- 2 tbsp lemon juice
- 2 tbsp water
- 1 tbsp olive oil
- 1 tsp garlic, minced
- 1 tsp cumin
- 1/4 tsp oregano (optional)

1. Blend all ingredients together
2. Mash or puree until smooth, adding more water as desired.
3. Use as a dip for cut fresh vegetables
4. Cover and store leftovers in the refrigerator for up to 3 days.

Adapted from Kansas WIC Cookbook

CORN & BEAN SALAD

- 1 can (15 oz) black beans, rinsed and drained
- 1 jar (13 oz) corn relish
- 1/2 cup canned kidney beans
- 1/2 cup quartered cherry tomatoes
- 1/2 cup chopped celery
- 1/4 cup chopped sweet orange pepper
- 1/4 cup sliced pimiento-stuffed olives
- slided red onions 9optional)
- 2 tsp minced fresh parsley

1. In a large bowl, combine all ingredients
2. Cover and refrigerate until ready to serve.

Adapted from Wisconsin WIC Cookbook

CANNED BEANS

15 – 16 oz can

Any brand

- Black or Red Beans
- Black-Eyed, Crowder or Purple Hull Peas
- Fat-Free Refried Beans
- Garbanzo Beans (Chick Peas)
- Great Northern Beans
- Kidney Beans
- Lentils
- Lima or Butter Beans
- Navy Beans
- Pinto Beans
- Split Peas

NOT APPROVED: green beans, baked beans, flavored beans, pork and beans or chili beans, soups, beans containing added sugars, fats, meats, or oils.

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

CEREAL (HOT OR COLD)

11 - 36 oz containers

USAGE IDEAS

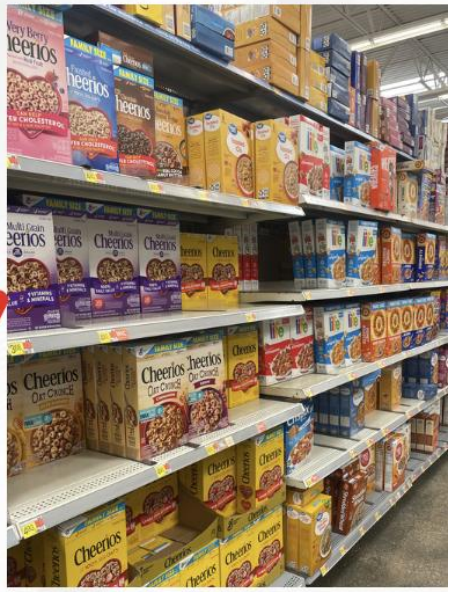
Rather than just in a bowl, try:

- Cereal bars
- Parfait
- Trail mix

Check out the back of this handout for recipes!

PURCHASING

Cereal is brand specific. It does include options for both hot and cold cereals. There should be an aisle in the store dedicated to cereal. Be aware of sizing to get full benefits and try not to leave less than 11 oz since that's the smallest size allowed.



Use the WIC Shopper App or WIC Approved Food List to verify product eligiblity.

Size guidance is on reverse side.

BENEFITS

1. Important nutrients

Cereal can be a good sources of whole grains and iron which are important to a healthy diet.

2. Low sugar

Many cereals on the market are very high in sugar but WIC requires limitations on those in high added and total sugars.

3. Versatile

Trying new flavors and recipes can be fun. Get creative!

MORE QUESTIONS?

Call your WIC office!

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Email - WIC@rileycountyks.gov

FRUIT YOGURT PARFAIT

- 1/2 cup fruit-flavored yogurt
- 1/4 cup raspberries
- 1/4 cup blueberries
- 1/4 cup dry crunchy cereal (ex. Grape Nuts)

1. Rinse and dry fresh berries
2. Spoon raspberries in a tall cup
3. Add a few spoonfuls of yogurt in cup
4. Place blueberries on top of yogurt.
5. Add remainder of yogurt.
6. Top with dry cereal.

Feel free to experiment with different flavors of yogurt and fruit!

Adapted from MyPlate

MALT O' MEAL MADNESS

- 1 serving chocolate Malt-O-Meal
- 2 slices whole wheat bread
- spread of honey
- 1 tbsp peanut butter
- sprinkle of cinnamon sugar
- 1/2 cup milk

1. Make Malt-O-Meal according to directions.
2. Toast both pieces of bread.
3. Once toasted, apply thin layer of honey to both pieces.
4. Allow to sit then apply layer of peanut butter to both.
5. Place one piece of toast in a bowl then some Malt-O-Meal.
6. Repeat with last piece of toast and the remaining Malt-O-Meal.
7. Sprinkle some cinnamon sugar on top, then pour milk.

Adapted from Wisconsin WIC Cookbook

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

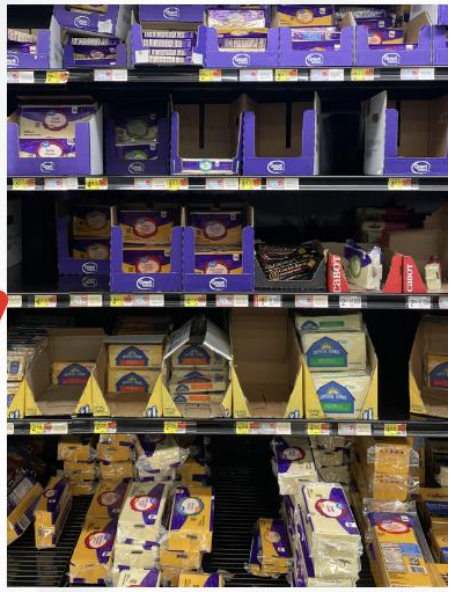
CHEESE

8 oz or 16 oz packages

USAGE IDEAS

- Snack
- Soup
- Sandwich
- Topping

Check out the back of this handout for recipes!



PURCHASING

A variety of flavors are approved. However, it is not brand specific. String and shredded cheese are not approved. It will be found in the refrigrated section of the grocery store.

Use the WIC Shopper App or WIC Approved Food List to verify product eligiblity.

Current guidance is on reverse side.

BENEFITS

1. Important nutrients

Cheese is a wonderful source of many nutrients including calcium which is important for bone health.

2. Source of protein

Protein is an important part of our diet which helps our body stay strong and us feel full.

3. Versatile

Trying new flavors and recipes can be fun. Get creative!

MORE QUESTIONS?

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BROCCOLI & CHEESE SOUP

- 1 1/2 cups broccoli, chopped
- 1/4 cup celery, diced
- 1/4 cup onion, chopped
- 1 cup low-sodium chicken broth
- 2 cups low-fat milk
- 2 tbsp cornstarch
- 1/4 tsp salt
- 1/2 cup Swiss cheese, grated

1. Place vegetables and broth in a saucepan and bring to a boil.
2. Reduce heat, cover, and cook until vegetables are tender.
3. In a bowl, mix milk, cornstarch, salt, and pepper. add to cooked vegetables.
4. Cook, stirring constantly, until soup is lightly thickened and mixture just begins to boil.
5. Remove from heat and add cheese. Stir until melted.

Adapted from Kansas WIC Cookbook

HOMEMADE MAC & CHEESE

- 8 oz elbo macaroni
- 1/2 cup all purpose flour
- 2 tbsp butter
- 2 cups milk
- 2 cups shredded chedder cheese

1. Preheat oven to 350 degrees
2. Prepare pasta according to package and drain.
3. In a saucepan over low heat, combine flour and butter, whisking for 2 minutes.
4. Slowly add milk, whisking until well combined.
5. Add half the cheese, small amounts at a time, until melted. Remove from heat.
6. Prepare casserole dish with nonstick spray. Add pasta and then pour cheese mixture over and stir.
7. Top with remaining cheese.
8. Bake for 30 minutes or until melted and bubbly.

Adapted from Wisconsin WIC Cookbook

CHEESE

8 oz or 16 oz packages

Choice of:

- Pasteurized Processed American (sliced)
- Cheddar
- Colby
- Monterey Jack
- Mozzarella
- Swiss
- Combination of any of the cheeses listed above

NOT APPROVED: imported cheese, cheese food, product or spread, shredded cheese, sliced cheese (except American), cheese with added flavors, individually wrapped slices, or organic.

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

DRIED BEANS, PEAS, OR LENTILS

1 lb (16 oz) or 2 lb (32 oz) bag

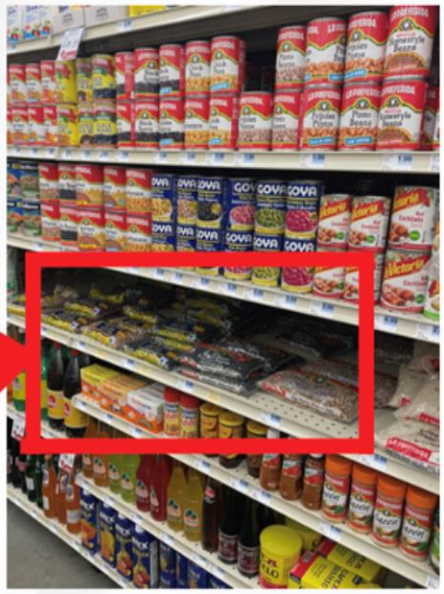
USAGE IDEAS

- Soup or chili
- Side dish
- Salad
- Dip

Check out the back of this handout for recipes!

PURCHASING

Dried beans are not brand specific. You can choose between beans, peats or lentils. In the grocery store, they could be with other beans or in the international section.



Use the WIC Shopper App or WIC Approved Food List to verify which are eligible.

Current guidance is on reverse side.

BENEFITS

1. Protein packed

Beans are a wonderful source of protein especially those seeking plant-based alternatives.

2. Long shelf life

Canned beans don't spoil easily and therefore can be more convienent and flexible.

3. Iron rich

Iron is important to our bodies and making sure we eat enough helps prevent anemia.

MORE QUESTIONS?

Call your WIC office!

Manhattan - 785-776-4779 ext 7661
Fort Riley - 785-240-7019
Email - WIC@rileycountyks.gov

This institution is an equal opportunity provider.

COOKED BEANS

- 2 cups dried beans
- 10 cups water
- Optional additions such as seasoning, vegetables, or meat

1. Sort beans by removing damaged beans and debris
2. Soak beans in a large pot. Option 1: use cold water and allow them to soak overnight (at least 8 hours). Option 2: use hot water and heat to a boiling, boil for 2 to 3 minutes then set aside for 1-4 hours.
3. Drain water and rinse beans. Cover beans with fresh water and simmer for 1.5 to 2 hours until tender.
4. Add seasoning during the last half hour of cooking such as minced onion, garlic, diced carrots, tomatoes or meat.

Adapted from MyPlate

LENTIL TACOS

- 1 tsp canola oil
- 2/3 cup onion, finely chopped
- 1 small clove garlic, minced
- 2/3 cup dried lentils, rinsed
- 1 tbsp taco seasoning
- 1 2/3 cups chicken broth
- 2/3 cup salsa
- Taco shells or tortillas

1. Heat oil in a skillet over medium heat. Add onion and garlic, cook and stir until tender, about 5 minutes. Add lentils and taco season; cook and stir 1 minute.
2. Add chicken broth and bring to a boil. Reduce heat to low, cover, and simmer until lentils are tender, 25 to 30 minutes.
3. Uncover and cook until slightly thickened, 6 to 8 minutes. Mash lentils slightly and stir in salsa.
4. Serve about 1/4 cup lentil mixture into each taco shell or tortilla. Garnish as desired.

Adapted from Allrecipes

DRIED BEANS / PEAS

1 lb (16 oz) or 2 lb (32 oz) bag

Any brand

- Dried Beans
- Peas
- Lentils

NOT APPROVED: soup mixes.

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

EGGS

One dozen

USAGE IDEAS

- Hard boiled eggs
- Breakfast burrito
- Omlette
- Casserole

Check out the back of this handout for recipes!

PURCHASING

Eggs are not brand specific. You are free to choose the type, grade, and size egg you prefer except organic. Be sure to choose only a 12-count. Eggs are in the refrigerated section of the grocery store.

Use the WIC Shopper App or WIC Approved Food List to verify which products are eligible.

Current guidance is on reverse side.

BENEFITS

1. Important nutrients

Eggs are packed with nutrients, including choline, which are important to our bodies.

2. Source of protein

Protein is an important part of our diet which helps our body stay strong and us feel full.

3. Versatile

Trying new flavors and recipes can be fun. Get creative!

MORE QUESTIONS?

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BREAKFAST CASSEROLE

- 1 cup shredded cheddar cheese
- 6 eggs
- 3 tbsp milk
- 1 cup broccoli florets, chopped
- 1/3 of a red bell pepper, diced
- 2 green onions, chopped
- 1 cup cubed potatoes
- salt and pepper to taste

1. Preheat the oven to 350 degrees and spray a 9x13 pan.
2. Chop and dice all vegetables.
3. In a bowl, crack eggs and add milk; whisk together.
4. Add diced vegetables to egg mixure and stir together.
5. Pour mixture in to pan and sprinkle cheese on top. Place in oven and bake for 20-25 minutes.
6. Remove casserole and allowe to cool for 5 minutes.
7. Serve and enjoy!

Adapted from Wisconsin WIC Cookbook

SPINACH, EGG & CHEESE BITES

- 7 eggs
- 1/4 tsp. salt
- 1/4 cup milk
- 1 cup grated cheddar cheese
- 1 cup roughly chopped spinach
- 3/4 cup parmesan cheese.

1. Preheat oven to 350 degrees
2. Grease a 12-count muffin tin with cooking spray.
3. In a medium bowl, whisk the eggs until smooth.
4. Add salt, milk, cheddar cheese, and spinach; mix well.
5. Spoon the mixture into the muffin tins and fill each about 2/3 full.
6. Top with parmesan cheese.
7. Bake for 20-22 minutes or until the edges become golden. Serve and enjoy!

Adapted from Wisconsin WIC Cookbook

EGGS

ANY BRAND

One Dozen

Choice of:

- Small, medium, large, extra large, or jumbo
- Grade A and AA white and brown eggs
- Organic, free range or cage free
- Specialty eggs (including pasteurized or fortified/enriched with vitamin E, DHA or omega 3)

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

FISH

3 - 15 oz. containers

USAGE IDEAS

- Tuna/salmon casserole
- Salmon patties
- Addition to salad
- Tuna/salmon melt

Check out the back of this handout for recipes!

PURCHASING

Fish is not brand specific and generally found in cans and pouches. It is normally in the isle with other canned meats. It's packed in oil or water but those with added flavoring are not approved.

Use the WIC Shopper App or WIC Approved Food List to verify which are eligible.

Current guidance is on reverse side.

BENEFITS

1. Important nutrients

Fish is a good source of omega-3 fatty acids. Omega-3s have many benefits including improving heart health.

2. Long shelf life

Canned fish doesn't spoil easily and therefore can be more convenient and flexible.

3. Versatile

Trying new flavors and recipes can be fun. Get creative!

MORE QUESTIONS?

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SALMON PATTIES

- 14.5 oz can of pink salmon, with bones
- 3 pieces whole wheat bread
- 2 large eggs
- 1 tsp olive oil

1. Remove the bones from the salmon and place in a bowl.
2. Rip up the bread into small pieces and add to salmon.
3. Beat eggs and add to the salmon-bread mixture. Mix well. Form into 2-inch patties
4. Place olive oil in a skillet and heat to medium high. Cook patties for 2-3 minutes. Flip and cook for another 2-3 minutes or until both sides are light brown.
5. Serve warm.

Adapted from Wisconsin WIC Cookbook

EASY TUNA PASTA

- 2 cups spiral noodles
- 2 tbsp olive oil
- 1/2 cup red onion, chopped
- 2 garlic cloves, finely chopped
- 1 can tuna, drained
- 1 cup tomato sauce
- 1 cup cherry tomatoes, sliced
- salt and pepper, to taste
- 1 tbsp basil leaves, chopped
- 1/4 cup parmesan cheese, shredded

1. Bring a large pot of lightly salted water to a boil.
2. Add the noodles and cook according to package directions then drain.
3. Heat the oil in a frying pan and add onion, sauteing until golden brown.
4. Add garlic and cook until fragrant
5. Flake the tuna and add to onion-garlic mixture and heat
6. Add the tomato sauce and cherry tomatoes to the tuna mixture. Stir well for 1 minute or so.
7. Serve with salt and ground pepper, chopped basil leaves, and parmesan cheese.

Adapted from Wisconsin WIC Cookbook

FISH

3 – 15 oz containers

- Any brand packed in water or oil
- Light Tuna, Chunk
- Pink Salmon

NOT APPROVED: albacore tuna, tuna spreads, smoked salmon or any other type of salmon, lunch packs, or fish with added flavoring.

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

JUICE CONCENTRATE

11.5 - 12 oz containers

USAGE IDEAS

Rather than just as juice, here are some creative ideas:

- Popsicles
- Flavored ice cubes
- Smoothies

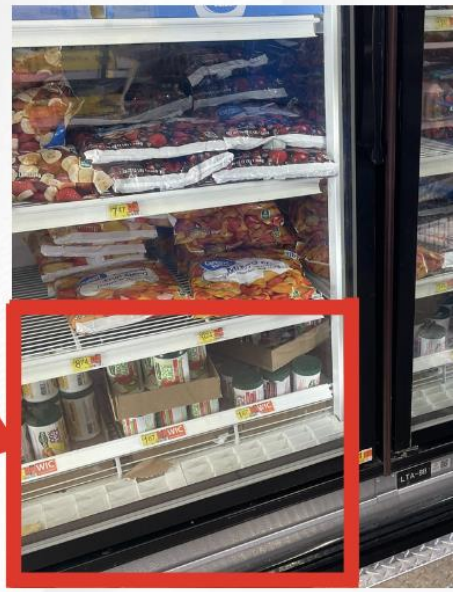
Check out the back of this handout for recipes!

PURCHASING

Concentrate juice is brand specific. The majority of options will be located in the freezer section of the grocery store near the frozen fruits.

Use the WIC Shopper App or WIC Approved Food List to verify which brands are eligible.

Current list is on reverse side.



BENEFITS

1. Important nutrients

Approved options are 100% fruit juice without added sugars. They can help provide nutrients like vitamin C!

2. Long shelf life

This type of juice doesn't spoil easily and therefore can be more convienent and flexible.

3. Versatile

Trying new flavors and recipes can be fun. Get creative!

MORE QUESTIONS?

Call your WIC office!

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Fort Riley - 785-240-7019
Email - WIC@rileycountyks.gov

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FRUIT SMOOTHIE

- 1 can (11.5-12 oz) frozen fruit juice concentrate
- 2 cups yogurt
- 1 cup milk
- Optional: other frozen fruits/vegetables

1. Add all ingredients to blender
2. Mix until smooth
3. Serve immediately and enjoy!

Feel free to experiment with different flavored juices, yogurt and produce!

Adapted from MyPlate

FROZEN FRUIT POPS

- 1 (16 oz) bag frozen strawberries (thawed)
- 1 (12 oz) frozen orange juice concentrate (thawed)
- 2 (20 oz) cans crushed pineapple
- 1 (15 oz) can mandarin oranges
- 6 bananas (peeled and sliced)
- 1 lemon juiced (optional)

1. Optional: place fruit in a food processor. Blend longer for smoother and less for chunks.
2. Combine all ingredients together.
3. Pour into paper cups or molds. If using cups, allow cups to freeze for a couple hours, then place popsicle sticks in each cup as a handle.
4. Allow popsicles to freeze overnight.

Adapted from MyPlate

JUICE CONT.

FROZEN CONCENTRATE

11.5 - 12 oz only

ORANGE JUICE

Any brand

Food Club
- Apple

Kroger
- Apple
- Grape
- Pineapple Orange

Old Orchard
- Any flavor with a green lid (100% Juice)

Tipton Grove
- Apple

Always Save
- Apple

Great Value
- Apple
- Grape

Langers
- Apple
- Grape
- Pineapple

Our Family
- Apple

Tree Top
- Apple

Best Choice
- Apple

Hy-Vee
- Apple

Market Pantry
- Apple
- Grape

Seneca
- Apple

Welch's
- Any flavor with a yellow band (100% Juice)

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

MILK

Quarter, half-gallon, gallon

USAGE IDEAS

More than in a glass, consider trying:

- Smoothies
- Oatmeal
- Soup

Check out the back of this handout for recipes!

PURCHASING

Milk is not is brand specific. However, your benefits will specify the type of milk you can purchase. Milk is in the refrigerated section of the grocery store except dry or canned milk.

Use the WIC Shopper App or WIC Approved Food List to verify which are eligible.

Current guidance is on reverse side.

BENEFITS

1. Important nutrients

Milk is a wonderful source of many nutrients including calcium and vitamin D!

2. Source of protein

Milk is a complete protein which means it contains all 9 essential amino acids.

3. Versatile

Trying new flavors and recipes can be fun. Get creative!

MORE QUESTIONS?

Call your WIC office!

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HOMEMADE MAC & CHEESE

- 8 oz elbo macaroni
- 1/2 cup all purpose flour
- 2 tbsp butter
- 2 cups milk
- 2 cups shredded chedder cheese

1. Preheat oven to 350 degrees
2. Prepare pasta according to package and drain.
3. In a saucepan over low heat, combine flour and butter, whisking for 2 minutes.
4. Slowly add milk, whisking until well combined.
5. Add half the cheese, small amounts at a time, until melted. Remove from heat.
6. Prepare casserole dish with nonstick spray. Add pasta and then pour cheese mixture over and stir.
7. Top with remaining cheese.
8. Bake for 30 minutes or until melted and bubbly.

Adapted from Wisconsin WIC Cookbook

OVERNIGHT OATMEAL

- 3/4 cup low-fat vanilla yogurt
- 3/4 cup old-fashioned oats
- 2/3 cup low-fat milk
- 1 tbsp peanut butter
- 3/4 cup banana, diced
- 1/2 cup strawberries, sliced (optional)

1. In a medium bowl, combine all ingredients except for the banana and strawberries.
2. Gently mix in the banana. Cover and chill overnight.
3. To serve, stir well and divide into 3 small bowls.. If desired, top each serving with strawberry slices.

Adapted from Kansas WIC Cookbook

MILK

Product type and size as listed on the current benefits.

FLUID MILK

- Lowfat (1/2%, 1%) or Fat Free (skim)
- Reduced Fat (2%)
- Whole Milk

SPECIALTY MILK

- Evaporated (12 oz)
- Lactose Free (quart or half-gallon
- Nonfat Dry

NOT APPROVED: buttermilk, flavored milk, goat's milk, raw unpasteurized milk, non-dairy milk substitutes, rice milk, almond milk, coconut milk, organic milk, milk in glass containers.

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

PEANUT BUTTER

16 - 18 oz jars

USAGE IDEAS

Rather than just in a sandwich, consider:

- Compliment fruits and vegetables
- Smoothies
- Oatmeal

Check out the back of this handout for recipes!

PURCHASING

Peanut butter is not brand specific. You can choose smooth, crunchy, or natural. Anything labeled as a "spread" is not allowed.

Use the WIC Shopper App or WIC Approved Food List to verify product eligibility.

Current guidance is on reverse side.

BENEFITS

1. Important nutrients

Peanut butter is a wonderful source of protein especially for those seeking plant-based alternatives.

2. Long shelf life

Peanut butter doesn't spoil easily and therefore can be more conveinent and flexible.

3. Versatile

Trying new flavors and recipes can be fun. Get creative!

MORE QUESTIONS?

Call your WIC office!

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PEANUT BUTTER PROTEIN BALLS

- 2 cups old-fashioned oats
- 1 cup peanut butter (creamy recommended)
- 1/4 cup honey
- 1/2 cup chocolate chips (optional)

1. Pour oats into medium mixing bowl.
2. Add peanut butter and honey. Mix until not sticky and will form into a ball. If too sticky, add more oats.
3. Add chocolate chips (if desired)
4. Form into 1-inch balls.
5. Keep in refrigerator for up to 2 weeks.

Adapted from Wisconsin WIC Cookbook

ULTIMATE PB&J

- 3 slices of whole wheat bread
- 2 tbsp peanut butter
- 1 tbsp raw, unsalted peanuts
- 2 tbsp strawberry preserves
- 1/4 cup fresh strawberries, washed and sliced

1. Toast bread until golden brown.
2. Spread one piece of toast with peanut butter and sprinkle with peanuts.
3. Top with the second piece of toast.
4. Spread the second piece of toast with strawberry preserves and cover with fresh sliced strawberries.
5. Top with the third piece of toast and serve.

Adapted from Wisconsin WIC Cookbook

PEANUT BUTTER

16 - 18 oz jars

- Any brand
- Creamy, Crunchy, or Natural

NOT APPROVED: peanut butter spreads, reduced fat peanut butter, peanut butter with added flavors, fortified peanut butter, or organic.

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

WHOLE WHEAT PASTA

16 oz package

USAGE IDEAS

- With a variety of sauces
- Pasta salad
- Casserole

Check out the back of this handout for recipes!

PURCHASING

Pasta is brand specific. Whole wheat variety will be found with other pastas in the store. Both whole wheat and whole grain are options.

Use the WIC Shopper App or WIC Approved Food List to verify which brands are eligible.

Current list is on reverse side.

BENEFITS

1. Source of fiber

Getting enough fiber is important for digestive health! Along with improving digestion, it helps lower cholesterol and increase fullness.

2. Long shelf life

Dried pasta takes a while to expire and therefore can be more convienent and flexible.

3. Versatile

Trying new flavors and recipes can be fun. Get creative!

MORE QUESTIONS?

Call your WIC office!

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Fort Riley - 785-240-7019
Email - WIC@rileycountyks.gov

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PASTA PRIMAVERA

- Whole wheat pasta (shape of choice)
- 1 tbsp olive oil
- 4 cups fresh veggies, chopped (ex carrots, bell peppers, zucchini, spinach, cherry tomatoes)
- 2 tsp dried Italian seasoning
- 2 tbsp fresh lemon juice
- 2 tbsp fresh chopped parsley
- 1/2 cup shredded parmesan or Italian blend cheese

1. Boil pasta according to package, reserve 1/2 c pasta water
2. Sautee onion, garlic, and carrots in olive oil over medium heat for about 2 minutes. Add broccoli and peppers cooking about 2 more minutes. Add squash, spinach and any other vegetables until softened. Add tomatoes and seasoning; blend well. Turn off heat.
3. In a large bowl, add sauteed vegetables to the drained pasta. Add lemon juice and small amounts of pasta water, if needed, to loosen pasta.
4. Toss with fresh parsley and cheese Serve and enjoy.

Adapted from Wisconsin WIC Cookbook

PASTA SALAD

- 2 cups whole grain pasta (ex. rotini)
- 3 tbsp vegetable oil
- 3 tbsp lemon juice
- 2 1/2 tsp Italian seasoning
- 1/8 tsp red pepper flakes
- 1 1/2 cups cucumber, chopped
- 1/2 cup cherry tomatoes, halved
- 1/2 cup carrots, sliced
- 1/4 cup red onion, minced
- 3 tbsp parmesan cheese

1. Cook pasta according to the package directions; drain and set aside.
2. In a large bowl, whisk oil, lemon juice, Italian seasoning and red pepper flakes.
3. Add cooked pasta, vegetables, and cheese.
4. Mix well and chill 2 hours before serving.

Adapted from MyPlate

WHOLE WHEAT OR WHOLE GRAIN PASTA
16 oz only

NOT APPROVED: any other brand or products that have added sugars, fats, oils, or salt.

Barilla

Our Family

Food Club

Full Circle

Hodgson Mill

Racconto

Ronzoni Healthy Harvest

Simple Truth

Kroger

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

WHOLE WHEAT OR SOFT CORN (YELLOW OR WHITE) TORTILLAS

8, 12, 16, 20, 24, or 32 oz packages

USAGE IDEAS

Tortillas can be used in a variety of dishes like:

- Tacos
- Tostadas
- Burritos
- Quesadillas
- Enchiladas

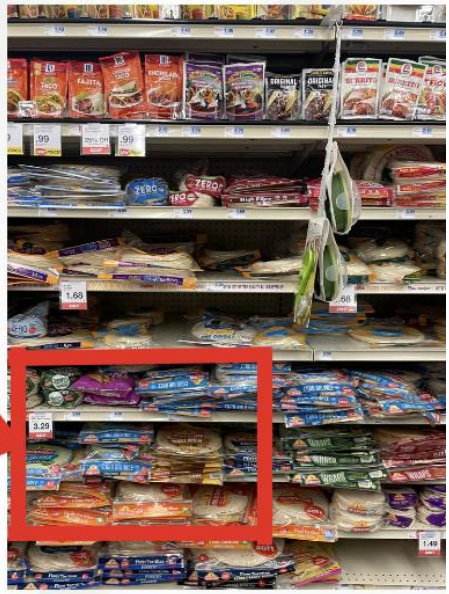
Check out the back of this handout for recipes!

PURCHASING

Tortillas are brand specific. They are normally found with other bread products or on their own tortilla display possibly at the end of an aisle

Use the WIC Shopper App or WIC Approved Food List to verify which are eligible.

Current list is on reverse side.



BENEFITS

1. Source of fiber

Getting enough fiber is important for digestive health! Along with improving digestion, it helps lower cholesterol and increase fullness.

2. Important Nutrients

Whole wheat includes important nutrients like B vitamins, iron, magnesium, and zinc.

3. Versatile

Trying new flavors and recipes can be fun. Get creative!

MORE QUESTIONS?

Call your WIC office!

Manhattan - 785-776-4779 ext 7661
Fort Riley - 785-240-7019
Email - WIC@rileycountyks.gov

This institution is an equal opportunity provider.

BREAKFAST BURRITO

- 1 can black beans
- 12 whole wheat tortillas
- 1 1/2 cups shredded cheddar cheese
- 2 tbsp vegetable oil
- 1/2 cup green pepper, diced
- 1/2 cup onion, diced
- 8 eggs
- 1 16-oz jar salsa

1. Pour rinsed black beans into a small saucepan and cook over medium-low heat until heated through
2. In a large skillet, sauté green peppers and onions in vegetable oil until tender.
3. In a large bowl, whisk the eggs until smooth. Add to green peppers and onions and cook until done.
4. Heat the tortillas in microwave or oven until soft. Spoon beans onto each tortilla. Top with eggs, cheese and salsa.
5. Roll into burritos and serve warm.

Adapted from Wisconsin WIC Cookbook

TORTILLA PIZZA

- 4 tortillas (whole wheat flour or corn)
- 1 can tomato sauce
- 1/4 red onion, sliced
- mixed bell peppers, sliced
- 1 glove garlic, minced
- 2 cups mozzarella cheese
- fresh basil, chopped finely

1. Preheat oven to 375°, including a grill rack or tray.
2. Top tortillas with 2-3 tbsp tomato sauce
3. Heat a frying pan to medium heat with olive oil. Lightly cook onion, bell peppers and garlic.
4. Arrange vegetables on tortilla and top with cheese
5. Transfer pizzas to oven using a spatula
6. Cook for 10-12 minutes, rotating if necessary, until edges are golden brown.
7. Top with fresh basil and cut into slices.

Adapted from Wisconsin WIC Cookbook

WHOLE GRAINS

SOFT CORN (YELLOW OR WHITE) OR WHOLE WHEAT TORTILLAS

8, 12, 16, 20, 24, or 32 oz packages

NOT APPROVED: any other brand or size.

Best Choice, ChiChi's, Don Pancho, Food Club, Guerrero, Hy-Vee, Kroger, La Banderita, La Burrita, Mama Lupe's, Market Pantry, Mi Casa, Mission, Ortega, Santa Fe, Tio Santi

WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY KANSAS

YOGURT

32 oz containers

USAGE IDEAS

- Smoothies
- Parfait
- Fruit dip
- Popsicles

Check out the back of this handout for recipes!

PURCHASING

Yogurt is brand specific. Your benefits will specify the fat content of the product you can purchase. You will find yogurt in the refrigerated section with other yogurts. Individual containers are not approved so look usually towards the bottom.

Use the WIC Shopper App or WIC Approved Food List to verify which are eligible.

BENEFITS

1. Important nutrients

Milk is a wonderful source of many nutrients including calcium which is important for bone health.

2. Source of protein

Protein is an important part of our diet which helps our body stay strong and us feel full.

3. Versatile

Trying new flavors and recipes can be fun. Get creative!

This institution is an equal opportunity provider.

MORE QUESTIONS?

Call your WIC office!

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POWER SMOOTHIE

- 1/2 cup plain yogurt
- 1 orange
- 1 cup spinach
- 1 cup frozen strawberries or mixed berries
- 1 small, ripe banana
- 1 tbsp honey
- 1/2 cup of milk (or water)

1. Scoop the yogurt and place in a blender
2. Peel the orange and pull apart into two half. Place into blender with yogurt.
3. Add the spinach, berries, banana and honey.
4. Add the milk over top.
5. Blend the ingredients until smooth.
6. Serve and enjoy.

Adapted from Wisconsin WIC Cookbook

OVERNIGHT OATMEAL

- 3/4 cup low-fat vanilla yogurt
- 3/4 cup old-fashioned oats
- 2/3 cup low-fat milk
- 1 tbsp peanut butter
- 3/4 cup banana, diced
- 1/2 cup strawberries, sliced (optional)

1. In a medium bowl, combine all ingredients except for the banana and strawberries.
2. Gently mix in the banana. Cover and chill overnight.
3. To serve, stir well and divide into 3 small bowls.. If desired, top each serving with strawberry slices.

Adapted from Kansas WIC Cookbook

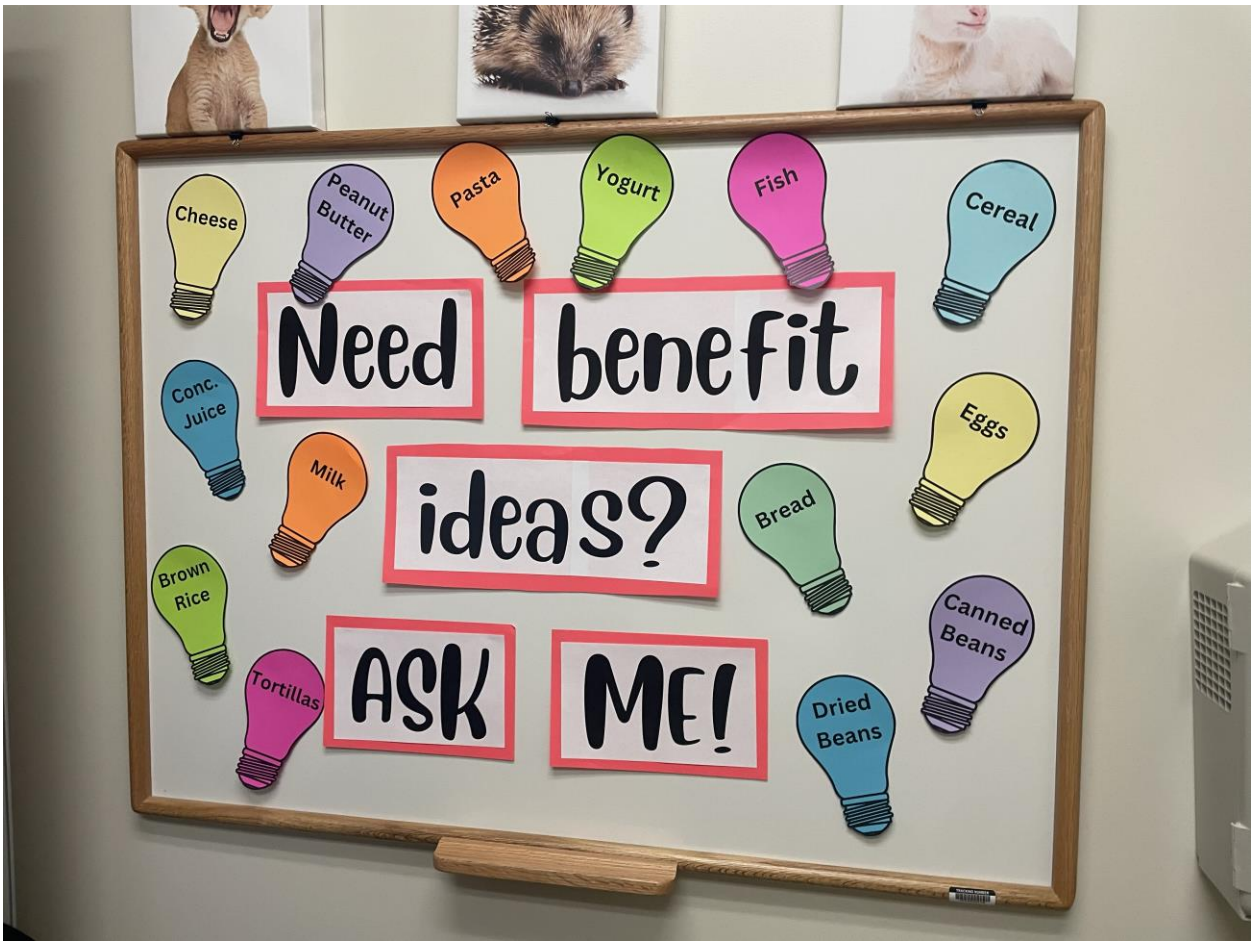
YOGURT POPS

- 1 cup low-fat strawberry yogurt
- 6 large strawberries, fresh or frozen
- 1 ice cup tray or paperclips

1. Cut strawberries into small pieces
2. Mix fruit and yogurt
3. Divide mixture ito ice cube tray or 4 small paper cups.
4. Freeze completely and enjoy!

Adapted from MyPlate

Appendix 2 – "WIC Benefit Ideas" Bulletin Board



Appendix 3 – Results Presentation Handout

MPH Student
Rebecca Potvin
RDN, LDN, CLC

RILEY COUNTY KANSAS

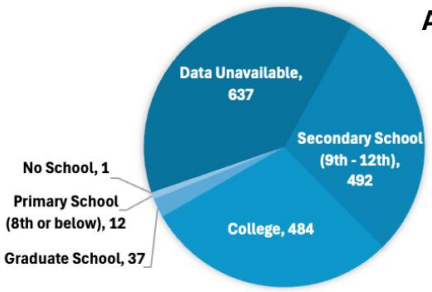
WIC WOMEN, INFANTS, & CHILDREN

RILEY COUNTY WIC DATA REPORT

MARCH-MAY 2024/2025

Spring 2024 Demographic Information

Highest Level of Education

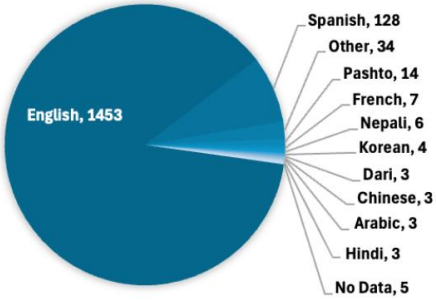


Average Caseload

2534
Participants per Month

1663
Households

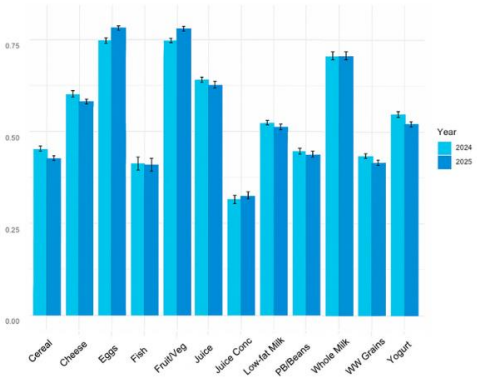
Primary Language Spoken



General Project Overview

In an effort to improve participant benefit utilization, educational handouts were created and distributed. Households which didn't use any benefits during the initial review were contacted individually to educate and assist. Redemption changes were then compared between the two years.

Benefit Redemption Percentage Change by Food Category



Usage Change from March-May 2024 to 2025

	Mean Difference	t-statistic	p-value
All Categories	-0.0227935	-2.9705	0.003051*
All Categories Except Infant	-0.02152328	-2.6836	0.007422*

Usage Comparison Based on Primary Language

	Mean Difference	t-statistic	p-value
English vs Spanish Speaking Households	-0.0400848	-2.0418	0.04288*
English vs Non-English Speaking Households	-0.075765	-4.7229	0.0000032*

Usage Comparison Based on Education Level

	Mean Difference	t-statistic	p-value
Advanced Education vs. High School and Below	0.09553	7.413	0.0000000002*
Highschool Diploma vs. Without	0.0559691	2.498	0.01355*
Highest Levels (College/Graduate Level) vs. Lower	0.1497686	4.8055	0.0000106*

Main Take Aways

- Overall, the intervention was not successful
- There is a positive correlation between benefit usage and higher education
- There is a positive correlation between benefit usage and languages other than English