**Supplemental Table 1**. Codebook including codes, subcodes, definitions, and examples of concepts to include and exclude

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code/subcodes** | | **Definition** | **Inclusion** | **Exclusion** |
| **Cash Value Benefit** | | | | |
| Awareness | | Notified by WIC of changes to CVB amount including initial increase and subsequent changes | Participant received a notification (email, text, phone call) from their local WIC agency about the initial CVB increase or any future changes | Participant found out about CVB increase from checking WIC app for benefit balance |
| Lack of awareness | | Not notified by WIC of changes to CVB including initial increase and subsequent changes | Participant found out about CVB increase or future changes through some method other than local WIC agency | Participant found out about CVB change from local WIC agency |
| Information source | | Resources identified by participants that inform them of changes within WIC, including CVB changes | Communication from WIC, websites, letters, flyers, emails, social media | Preferred information sources |
|  | BNFT App | Finding out about the CVB changes through the BNFT app | Mentions finding out about CVB changes through the BFNT app | Finding out about the change through another source |
|  | Receipt | Finding out about the CVB changes on their grocery store receipts | Mentions finding out about CVB changes by looking at grocery store receipt | Finding out about the change through another source |
|  | Call | Finding out about the CVB changes from a phone call from WIC staff | Mentions finding out about CVB changes by receiving a call from local WIC agency | Finding out about the change through another source |
|  | Text | Finding out about the CVB changes from a text from WIC staff | Mentions finding out about CVB changes by receiving a text from local WIC agency | Finding out about the change through another source |
|  | Email | Finding out about the CVB changes from an email from WIC staff | Mentions finding out about CVB changes by receiving an email from local WIC agency | Finding out about the change through another source |
| Preferred information source | | Favorable communication channels and platforms for changes within WIC, including CVB changes | Methods of communication that WIC participants prefer for updates from WIC about changes | Method of communication used for CVB change |
|  | Call | Preferring to receive a call from WIC when there are changes | Preferring to receive a call from WIC when there are changes | Preferring other sources |
|  | Text | Preferring to receive a text from WIC when there are changes | Preferring to receive a text from WIC when there are changes | Preferring other sources |
|  | Email | Preferring to receive an email from WIC when there are changes | Preferring to receive an email from WIC when there are changes | Preferring other sources |
|  | App | Preferring a BNFT app notification when there are changes | Preferring to get a BNFT app notification when there are changes | Preferring other sources |
| Timing met needs | | The CVB increase in June 2021 met the households’ needs at that time and they did not need other components of the food package changed at that time | References to the CVB increase in June 2021 meeting households’ needs at that time | References to using CVB first each month, saying CVB is the most valuable part of the WIC food package |
| Timing did not meet needs | | Needing some other WIC food package component (other than CVB) increased in June 2021 | References to needing some other WIC food package component (other than CVB) increased in June 2021 | General references to desired changes to other components of the WIC food package |
| Challenges of temporary CVB decrease | | Difficulties associated with the CVB decrease from $35 to $9-11/person/month in October 2021 | Any difficulties with planning, shopping, or meeting household food needs experienced in October 2021 when the benefit decreased temporarily or negative feelings about this decrease | Lack of awareness of the CVB decrease in October |
| Benefits or positive perceptions of CVB increase | | Positive aspects of larger CVB amounts (either $35/month or NASEM amounts) | General positive perceptions of the CVB increase at the initial $35/month or NASEM amounts | Positive perceptions of other WIC food package components or COVID-related changes to WIC |
|  | Variety | Perceived changes in the types of fruits and vegetables purchased and consumed | New types of fruits and vegetables, different forms (i.e., fresh instead of frozen) of fruits and vegetables | Purchasing or eating more (volume not types) of fruits and vegetables generally |
|  | Family/mother/ caregiver diet | Perceived improvements in the eating habits of family members other than the child enrolled in WIC | Mentions of parents or the whole family eating healthier because of the increase in fruits and vegetables | Mentions of eating more variety |
|  | Child diet | Perceived improvements in the eating habits of children enrolled in WIC | Mentions of the child eating healthier because of the increase in fruits and vegetables, child snacking on fruit or eating fruit for breakfast, eating more fruits and vegetables | Mentions of the child eating more variety |
|  | Engaging children in shopping | Mentions of children selecting new fruits and vegetables or talking about fruits and vegetables in the grocery store environment | Descriptions of child helping parent select new fruits and vegetables in the grocery store after the CVB increase | General references to increase in variety of fruits and vegetables or eating new fruits and vegetables |
|  | Achieve family’s/culture’s dietary preferences | Being able to access foods that meet families preferred dietary behaviors/patterns (e.g., vegan, Latina, organic) | Describing being able to provide meals in line with preferred diet after the CVB increase such as vegan diets, purchasing organic, having more money to purchase more expensive, WIC ineligible foods such as meat | Other components of the WIC food package that do/do not align with household’s food culture |
|  | Food waste | Being less afraid to waste food when offering new fruits and vegetables to kids | Being less afraid after the CVB increase to waste food when offering new fruits and vegetables to kids | References to wasting foods other than fruits and vegetables or wasting components of the food package other than fruits and vegetables |
| Uncertainty about CVB amounts | | Feeling uncertain about how long the CVB increase will remain in effect or changes in the CVB amount over time creating uncertainty | Lack of clarity about how long the CVB change will remain in place, uncertainty about the CVB amount participants should be receiving currently | Negative aspects of the October dip in benefits in NC |
| Amount of CVB used | | The amount in terms of dollars or percentage etc. of the total CVB value that each participant uses each month and/or how many trips to the store the CVB lasts for | Any reference to the amount of the monthly CVB allotment used by participants and/or how many trips to the grocery store the CVB lasts for | Mentions of the amount or percentage of the total WIC food package used each month |
| Satisfaction with CVB amount | | General approval or appreciation of having CVB for fruits and vegetables | Approval or satisfaction of either the old or new CVB amounts | Not liking the old or new CVB amounts |
|  | Old CVB | Contentment with and acceptance of $9-11 CVB pre-COVID | Approving of the $9-11/person/month CVB | Approving of the $35/person/month or NASEM amounts |
|  | New CVB | Contentment with and acceptance of new CVB amounts | Approving of the $35/person/month or NASEM amounts | Approving of the $9-11/person/month CVB |
| Dissatisfaction with CVB amount | | General disapproval of having CVB for fruits and vegetables | Disapproval or dissatisfaction of either the old or new CVB amounts | Approving of the old or new CVB amounts |
|  | Old CVB | Discontentment with or disapproval of $9-11 CVB pre-COVID | Disapproving of the $9-11/person/month CVB | Negative aspects of the October dip in benefits in NC |
|  | New CVB | Discontentment with or disapproval of NASEM CVB amounts compared to the initial $35/month | Mentions of challenges associated with or disapproval of decreasing from $35/month to the NASEM amounts | Negative aspects of the October dip in benefits in NC |
| Facilitators of using CVB | | Factors that make it easy to redeem the full CVB amount each month | Variety of fruit and vegetables options within CVB, supply in stores, preferences for fruits and vegetables, or other facilitators that make it easy to spend the full CVB amount | General facilitators to using WIC while grocery shopping |
|  | Variety of products offered/accepted | The variety of products that are approved through WIC CVB being a facilitator to spending CVB | Mentioning the many options for fruits and vegetables that can be purchased with CVB | Increasing variety of fruits and vegetables purchased or consumed after the CVB increase |
|  | Retail type | Access to sufficient fruits and vegetables in the store environment being a facilitator to spending CVB | Types of retail (either specific stores or formats) where it is easier to use and redeem CVB and sufficient supply of fresh and appealing fruits and vegetables | Store types where WIC participants generally like to use WIC benefits, mentions not specific to using CVB |
|  | Household preferences | Household preferences for consuming fruits and vegetables being a facilitator to spending CVB | Mentions of families liking fruits and vegetables or that being part of their food culture and those things making it easy to use the full CVB amount | Mentions of household preferences related to other foods than fruits or vegetables or other WIC food package components |
| Barriers to using CVB | | Factors that make it hard to redeem the full CVB amount each month | Unclear fruit and vegetable labeling, issues identifying eligible fruits and vegetables in the app, issues at checkout, insufficient supply or time to prepare fruits and vegetables, having too much for fruits and vegetables in combination with other incentive programs, or other barriers to using the full CVB amount | General barriers to using WIC while grocery shopping |
|  | Unclear labeling | Unclear labeling of WIC eligible fruits and vegetables | Only references to unclear labeling of fruits and vegetables | Unclear labeling of other WIC approved items |
|  | BNFT app | Inability to use the BNFT app to determine if some fruits and vegetables are WIC approved | References to the BNFT app not working well for fruits and vegetables | Other mentions of issues with the BNFT app not specific to fruits and vegetables |
|  | Issues at checkout | Issues at the checkout stage with purchasing seemingly WIC approved fruits and vegetables | References to issues at checkout specifically related to fruits and vegetables and the CVB | Other issues at checkout related |
|  | Retail type | Insufficient access or supply of appealing fruits and vegetables at certain stores or store types that participants like to purchase fruits and vegetables at not accepting WIC | Mentions of stores or retail types where people like to buy produce that do not accept WIC (e.g., ALDI) or mentions of stores they do shop at not having sufficient supply of appealing fruits and vegetables | Store types where WIC participants generally do not like to use WIC benefits, mentions not specific to using CVB |
|  | Time to prepare food | Having insufficient time to prepare fruits and vegetables in meals due to other demands | Insufficient time to prepare fruits and vegetables as a barrier to fully utilizing the CVB | Mentioning time to prepare food as barriers to using other WIC food package components other than the CVB |
| Proposed changes to CVB | | Recommendations for different amount for CVB, eligibility for CVB, or to improve use of CVB amount | Allowing 6+month olds to receive CVB instead of baby foods, statements about needing more than the current CVB amount | Proposed changes to other aspects of the WIC food package |
| Strategies to stretch CVB | | References to using certain strategies or buying certain types of fruits or vegetables to maximize the amount of CVB available | Mentions purchasing bags of apples or oranges because of low cost and shelf life, only purchasing bananas because of low cost per oz | Mentions of increased variety now that the CVB is higher |
| Value of the CVB relative to other WIC food package components | | Stating that the CVB is the most valuable component of the WIC food package, a reason for remaining in the WIC program, or that participants use their CVB first before other components of the WIC food package | Mentioning the CVB as a reason to remain enrolled in WIC, mentioning using CVB first before other WIC benefits, CVB being favorite component of food package | General benefits of participating in the WIC program |
| **WIC Benefit Utilization Behaviors** | | | | |
| Utilization Facilitators | | Aspects that make it easy for WIC participants to use WIC benefits while grocery shopping | Clear labels, BNFT app working well | Poorly labeled items, issues at checkout, BNFT app not working |
|  | Clear labeling | Clearly and accurately labeled WIC approved products | Products accurately and clearly labeled as WIC approved | Discussion about poorly labeled products |
|  | Store preferences | Specific stores that participants prefer to redeem WIC benefits in for a variety of reasons | Stating the participant prefers to use WIC at a specific store because they have accurate labeling of WIC products, easy checkout, friendly staff, etc. | Stores that WIC shoppers do not like because of labeling, staff, environment. Discussion of stores participants wish were WIC approved. Preferring a store because it is close to home or has lower prices (things not related to using WIC). |
|  | WIC BNFT App | Use of the WIC BNFT app to know which products are WIC eligible or overall benefit amounts | App functioning well to help participants identify WIC eligible products or know how many benefits they have left | Issues with the app not working |
|  | EBT transition | Transitioning from paper vouchers to EBT cards facilitating use of WIC benefits | Mentions of how the process of using WIC is easier now after the transition to EBT from paper | Mentions of EBT meaning SNAP, issues or negative aspects of WIC EBT |
| Utilization Barriers | | Aspects that make it difficult for WIC participants to use WIC benefits while grocery shopping | Issues at checkout, poorly labeled products, store environment, mental or time burden of using WIC compared to other forms of tender | Facilitators to using WIC benefits in the store, changes participants want to see in the food package |
|  | Unclear labeling | Lack of clear labels for WIC approved products | Unclear, inaccurate, or nonexistent labels for WIC approved products | Clear and accurate labels for WIC approved products |
|  | Checkout experience | Issues at checkout with using WIC benefits | Mentions of items participants thought were eligible not being eligible, having to pay out of pocket or with SNAP for products participants thought were WIC approved, having to wait a long time to use WIC benefits because they cannot use the self-checkout lines | Issues at checkout during the October dip, self-checkout |
|  | Store preferences | Specific stores that participants do not like to use their WIC benefits at for a variety of reasons | Stores that do not have clear labels, easy checkout, friendly staff | Mentions of these topics without reference to a specific store. Discussion of stores participants wish were WIC approved. |
|  | WIC BNFT app | Issues with using the WIC app to identify approved products or benefit levels | BNFT app not working in store, BNFT app not accurately identifying WIC eligible products | BNFT app not working for fruits and vegetables specifically |
|  | Mental or time burden | Having to think about which products are approved and using coping strategies to avoid this or having to go to multiple outlets to redeem WIC benefits | Strategies used in store to remember which items are WIC approved, mentions of the challenges of identifying WIC approved items in store, traveling to more than one store to find WIC approved items | Inaccurate or nonexistent labels of WIC approved products, general mentions of food shortages |
|  | Stigma | Feelings of shame or social unacceptability of receiving WIC benefits or services | Being embarrassed using WIC benefits, not wanting other shoppers to have to wait for them using WIC benefits | Other issues at checkout not related to feeling embarrassed or ashamed |
|  | Desire for new technologies | Wanting to use WIC benefits at self-checkout, using WIC during online grocery shopping, new systems in place at checkout | Mentions of how using self-checkout or being able to use WIC online would make it easier to use WIC benefits, changing grocery store systems to be able to use WIC to leverage deals like buy one get one free | Discussions about using other tender types online or at self-checkout |
| Desired stores | | Stores participants would like for WIC benefits to be accepted | Mentioning other stores like ALDI or Sam’s club where WIC benefits cannot be redeemed but participants would like to use WIC | Stores that already accept WIC that participants like or dislike |
| Frequency | | How many trips participants take to use their WIC benefits | Mentions of how many trips participants take to use their WIC benefits | Changes in frequency due to COVID |
| **WIC Food Package** | | | | |
| Favorable perceptions of component other than CVB | | Any positive or favorable perception expressed about components of the WIC food package except for the CVB | Aspects of the WIC food package participants like, references to food preferences, using more of certain components, how these components fit into family’s diets | CVB fruits and vegetables |
|  | Juice | Approved 100% juice products | 100% juice | Fruits or vegetables |
|  | Dairy products | Items derived from cow’s milk or non-dairy milk alternative | Milk, cheese, yogurt, soy milk |  |
|  | Grains/cereal | Approved grains in WIC food package | Breads, hot and cold cereals, rice, pasta, tortillas | Infant cereals |
|  | Protein foods | Foods high in protein that are part of WIC food package | Beans, lentils, tofu, fish, eggs, peanut butter | Chicken, beef, pork, seafood other than fish, infant meats |
|  | Eggs | Eggs approved in the WIC food package | Eggs |  |
|  | Infant foods | Specially formulated products for infants a part of WIC food package | Formula, infant fruits and vegetables, infant cereals, infant meats |  |
| Unfavorable perceptions of component other than CVB | | Any negative or unfavorable perception expressed about components of the WIC food package except for the CVB | Aspects of the WIC food package that participants do not like, references to food preferences, how these components do not fit into family’s diets | Negative feelings about the CVB, desired changes to the WIC food package, saying they get too much or too little of something (should go under amount) |
|  | Juice | Approved 100% juice products | 100% juice | Fruits or vegetables |
|  | Dairy products | Items derived from cow’s milk or non-dairy milk alternative | Milk, cheese, yogurt, soy milk |  |
|  | Grains/cereal | Approved grains in WIC food package | Breads, hot and cold cereals, rice, pasta, tortillas | Infant cereals |
|  | Protein foods | Foods high in protein that are part of WIC food package | Beans, lentils, tofu, fish, eggs, peanut butter | Chicken, beef, pork, seafood other than fish, infant meats |
|  | Eggs | Eggs approved in the WIC food package | Eggs |  |
|  | Infant foods | Specially formulated products for infants a part of WIC food package | Formula, infant fruits and vegetables, infant cereals, infant meats |  |
| Amount of full benefit | | How long WIC benefits last each month and whether the amount offered is sufficient | References to the adequacy of the entire WIC food package to meet households’ needs | References to the adequacy of the CVB component |
| SNAP EBT usage | | Discussion of using SNAP/EBT in addition to WIC or as a supplement to WIC | Any reference to the role that SNAP/EBT provides in households meeting their grocery shopping needs | References to the WIC EBT card |
| Desired changes to WIC food package other than changes to CVB | | Items participants would like more or less of in WIC food package, items that participants would like to be included in package, and changes in the administration of the WIC food package | Items to reduce or increase in the food package, items to add, differences in how benefits are administered | Unfavorable perceptions of the existing food package, desired changes to the CVB |
|  | Household dietary preferences | More flexibilities in foods received to meet families’ eating patterns (vegan, lactose intolerant, organic) | Flexibilities or changes to meet households’ diverse dietary preferences, dietary restrictions, or needs related to food allergies or intolerances | Foods in the WIC food package households like generally, saying they want more or less of some component without additional context related to household preferences |
|  | Substitutions | Substitutions within and across categories to meet needs not related to family’s cultural patterns of eating or family’s food restrictions | Discussion of substitutions like yogurt instead of milk or bottled water instead of juice | Substitutions related to fruits and vegetables (i.e. more CVB instead of baby food) |
|  | Rolling over benefits | Allowing WIC benefits remaining at the end of the month to roll over to the next month | Rolling over WIC benefits from one month to the next to meet households’ needs | Changes in benefit amounts, fear of forgetting to use benefits |
|  | Package sizes | Flexibility in existing allowable package sizes for certain components of the food package and allowing different formats like juice boxes, individually packaged yogurts etc. | Using WIC for different package sizes to make it easier to find products or different serving styles (i.e., individually packaged items) | Shortages of package sizes during COVID |
|  | Eligibility | Desired changes to who is eligible to receive food through WIC | Desired changes to WIC eligibility for the WIC food package e.g., people who breastfeed longer than 1 year, people whose children are on WIC | Barriers to enrollment |
|  | Amount | Statements about desired changes to the amount of specific components of the WIC food package received | Wanting more formula for partially breastfeeding moms, wanting less milk | Statements about wanting different package sizes or formats (e.g., flexibility in package sizes or offering multipacks) |
|  | Disconnect with nutrition advice | Feeling that the food package or components of the food package do not align with the nutrition education delivered by WIC | Nutrition advice given by WIC nutritionists being unattainable given the components of the WIC food package or the foods beings received from WIC not aligning with advice given by nutritionists | General mentions of nutrition advice from WIC |
| **COVID-19** | | | | |
| Change in frequency | | Any general changes to shopping frequency pre-pandemic to during pandemic | Changes due to the pandemic in the frequency of grocery shopping | General discussions of shopping frequency |
|  | More frequently | Increase in how often participants went grocery shopping | Mentions of increasing the frequency of shopping during COVID | Mentions of change in frequency not related to COVID |
|  | No change | No change in how often participants went grocery shopping | Mentions of no change the frequency of shopping during COVID | Mentions of change in frequency not related to COVID |
|  | Less frequently | Decrease in how often participants went grocery shopping | Mentions of decrease the frequency of shopping during COVID | Mentions of change in frequency not related to COVID |
| Barriers to food access | | Factors that made certain foods, WIC approved or not, more difficult to buy during the COVID-19 pandemic | Shortages, prices, fear, loss of income | General barriers to using WIC benefits not related to the pandemic |
|  | Shortages | Limited or no availability of specific food products in grocery stores/food retail outlets during the COVID-19 pandemic | Lack of availability of foods, WIC approved or not due to the pandemic or during the time of the focus groups (which was during the pandemic) | General discussions of limited availability of foods like fresh produce |
|  | Inflation | Increases in food prices during the COVID-19 pandemic | Discussion of the cost of food increasing during the pandemic | General comments about food cost, not relating to cost increasing |
|  | WIC online shopping | Issues with accessing food or fear of accessing food related to WIC not being accepted for online grocery shopping | Any comments about wanting to be able to use WIC for online shopping during COVID and any issues/increased risk of exposure related to that | Comments about online shopping with other tender types such as SNAP |
|  | Difficulties coordinating childcare | Having to find someone to watch their children to go grocery shopping or the inconvenience and/or fear of taking small children grocery shopping during the pandemic | Mentions of challenges related to finding someone to watch children when parents needed to go grocery shopping in person or the fear of taking their small children in a grocery store to redeem WIC benefits | Other mentions of non-shopping related grocery challenges |
|  | Food insecurity related to job loss/change | Job loss or underemployment leading to food or nutrition insecurity | Experiencing food insecurity or job loss during the pandemic that made it hard to get sufficient food | Experiences with food insecurity or job loss not during the pandemic |
| Facilitators to food access | | Factors that made certain foods easier to buy | Changes in WIC benefits and food package flexibilities, store inventory | General facilitators to using WIC, not specific to during COVID |
|  | WIC flexibilities | Flexibilities in the WIC food package implemented during COVID-19 | Changes to the sizes or varieties (e.g., organic) in foods that were WIC approved during the pandemic | Desired changes to the WIC food package or changes in package sizes or variety that occurred outside of the pandemic |
|  | Online shopping | Online grocery shopping using payment methods other than WIC during COVID-19 | Discussion of online grocery shopping during COVID using other forms of payment than WIC | Discussion of the desire to be able to use WIC for online grocery shopping |
|  | Try new retailers | Shopping at different stores or food retailers than pre-COVID to try to avoid food shortages or other COVID-related barriers to accessing food | Discussion of trying new grocery stores or farmers markets to find food during the pandemic | Discussion of preferred stores for using WIC or general references to stores that have better supply of fruits or vegetables for CVB |
| Enrollment process changes | | Perceptions, positive or negative, about changes to the process of WIC enrollment that occurred during COVID-19 | Statements about feelings about changes to enrollment or WIC appointments that happened during/as a result of COVID such as phone appointments | Statements about desired changes to the enrollment process or feelings about the enrollment process prior to COVID-related changes |
| **WIC Enrollment** | | | | |
| Enrollment process | | Participant experiences with enrolling, certification, and education when first enrolling in WIC | Perceptions, positive or negative, about the WIC enrollment process and desired changes to WIC enrollment processes | Desired changes to WIC eligibility |
|  | Facilitators to enrollment | Positive aspects that helped participants enroll in WIC, can include processes that existed pre- or post-COVID | Family referrals, visits while in the hospital postpartum, remote appointments | Changes that would make it easier to enroll |
|  | Barriers to enrollment | Challenges to enrolling in WIC or remaining enrolled in WIC pre- or post-COVID | Limited staffing, missing WIC contact information, no reminders, in person appointments | Changes that would make it easier to enroll |
|  | Desired changes to enrollment | Elements of enrollment process that participants would like to see added or changed | Screening questions about mothers’ weight, ways to improve discussions about household dietary preferences | Barriers to enrollment |
| Benefits of WIC enrollment | | Other positive perceptions of being enrolled in WIC beyond the food package | Relationships with WIC staff, education offered, providing pumps, financial support/being able to save money that would have been used on food for other household needs | Benefits associated with the foods received through WIC |
| Drawbacks of WIC enrollment | | Other negative feelings about being enrolled in WIC beyond the food package | Feeling judged by WIC staff, negative interactions with WIC staff, pressure to breastfeed | Drawbacks or negative perceptions about the food received through WIC, challenges that occur during the enrollment period |