

# NATIONAL WIC ASSOCIATION APPLIED RESEARCH FRAMEWORK:

## A Guide to Creating Impactful WIC Research Projects and Collaborating with WIC Agencies



National WIC  
Association

# INTRODUCTION :::::

The National WIC Association (NWA) views the cycle of research, practice and policy to be reciprocal and encourages collaboration between researchers and practitioners to conduct high-quality research that supports WIC policy and program evaluation and identifies innovative approaches to program improvement. The Applied Research Framework aims to help external researchers (e.g., academic or nonprofit researchers) plan, communicate, execute and disseminate research related to the Special Supplemental Nutrition Program for Women, Infants and Children (WIC).

## About NWA

NWA is the nonprofit voice of the 12,000 public health nutrition service provider agencies and the more than 6 million mothers, babies and young children served by the WIC. NWA provides education, guidance and support to WIC staff; and drives innovation and advocacy to strengthen WIC as we work toward a nation of healthier families.

## NWA's Role in WIC

The National WIC Association (NWA):

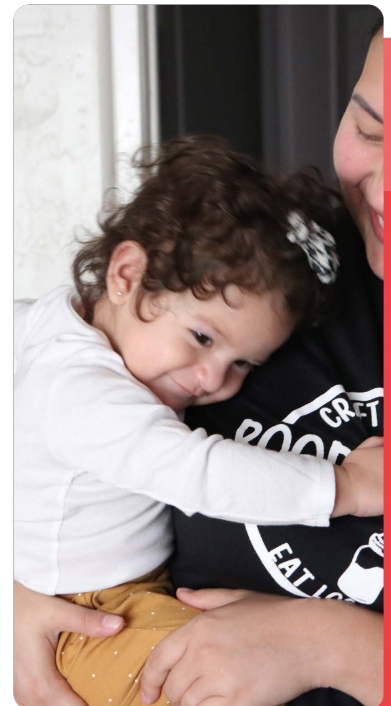
- is the nonprofit education arm and advocacy voice of WIC;
- is a membership association, with WIC agencies comprising most of its membership;
- does not administer the WIC program and is independent of the U.S. Department of Agriculture (USDA) Food and Nutrition Services (FNS).

## NWA's Role in WIC Research

NWA performs original research, both independently and in collaboration with external researchers (e.g., [The 2021 Multistate Participant Satisfaction Survey](#)). NWA also supports and convenes external researchers working on WIC-related projects. A key mechanism for facilitating this work is through NWA's conferences. NWA encourages researchers to submit abstracts to upcoming conferences; a list of upcoming conferences is [available here](#).

NWA also creates and houses resources for WIC researchers on the [WIC Hub](#), including Research Priorities that guide key thematic areas of research needed to inform WIC policy and practice. NWA disseminates research regularly to members through newsletters and webinars.

NWA also has a member-led Evaluation Committee, which includes evaluation experts and practitioners from local and state WIC agencies as well as representatives from the USDA Food and Nutrition Services (FNS) and Economic Research Services (ERS). The evaluation committee works with NWA staff to set research priorities, provides resources to WIC agencies in evaluation efforts and supports interdisciplinary collaboration and partnerships with external researchers. The Evaluation Committee facilitates the feedback loops of research, policy and practice.



NWA empowers and supports WIC staff to build collaborations with external researchers and enhance their capacity to use research and evaluation to inform program management and quality improvement. NWA staff may be available to serve as consultants, subject matter experts or co-investigators on WIC research. Please see Section B for details on how to connect with NWA.



External researchers from various health and social science disciplines can contribute to WIC agencies' operations, fill knowledge gaps in key program areas and support advocacy and policy evaluation efforts. For example, independent research on the impact of the 2009 WIC food package revisions was critical to demonstrating positive changes in diet quality, food access and various other health outcomes.<sup>1</sup> The Value-Enhanced Nutrition Assessment (VENA), WIC's participant-centered, health outcomes-based nutrition assessment, was also built from a large body of evidence on nutrition education and dietary measurement.<sup>2</sup>

This framework does not detail research topic areas; rather it is intended to serve as a tool for planning and conducting WIC-related research projects. Researchers looking for guidance related to research topics should consult the latest [National WIC Association Research Priorities](#).

This framework was developed by NWA staff, in collaboration with NWA's Evaluation Committee. The framework also underwent an extensive review process; see Section F for more information.

This framework provides:

- A. A brief background on WIC
- B. A checklist for planning, communicating, and disseminating research
- C. Recommendations for centering equity in WIC research
- D. An introduction to the type of data available for WIC research
  - 1. Publicly available datasets that contain WIC measures but are not housed within WIC agencies
  - 2. WIC Program Data
  - 3. Primary data collection
- E. Strategies for building successful partnerships with WIC agencies
- F. Acknowledgments
- G. Appendix
  - 1. Resources from the National WIC Association, United States Department of Agriculture Food and Nutrition Service (USDA, FNS), and partner organizations
  - 2. Sample of measures contained in WIC Program Data: WIC Minimum and Supplemental Dataset
  - 3. Sample data request process for state agencies
  - 4. Dictionary of Commonly used Terms in WIC
  - 5. Works Cited

# A. Brief Background on WIC :::::

[WIC](#) is a public health nutrition program funded by the USDA FNS providing nutritious foods, nutrition education, breastfeeding support and healthcare referrals for income-eligible people who are pregnant or postpartum, infants up to age 12 months and children up to age 5 years. In 2022, more than 6 million pregnant and postpartum women, infants and children benefited from WIC services every month. The WIC program contributes to improvements to participants' health outcomes across life stages, including reduced risk of inadequate gestational weight gain<sup>3</sup>, risk of infant mortality<sup>3</sup> and morbidity<sup>4</sup>; reductions in childhood obesity rates<sup>5</sup>; improvements in child diet quality<sup>6,7</sup> and higher cognitive development in early childhood.<sup>8</sup>

WIC provides a monthly benefit to purchase nutritious foods that supplement the diets of WIC mothers and young children, known as food packages. There are seven core food packages, based on life stage and breastfeeding status, which are prescribed by WIC nutrition professionals and tailored to meet participants' individual needs. WIC food packages are aligned with the Dietary Guidelines for Americans and prescribe specific quantities of healthful foods. WIC food packages may include infant cereals and jarred baby fruits, vegetables and meats; dairy products including milk, cheese and yogurt; protein foods including eggs, peanut butter and legumes; whole grains, including breakfast cereal and an assortment of whole-grain foods (e.g. whole wheat bread, corn or whole wheat tortillas,



and fresh fruits and vegetables. The majority of WIC foods are issued as a total amount (e.g., 1 pound, 1 gallon) such that the WIC participant can continue to buy the full recommended amount regardless of cost fluctuations in the marketplace. The exception is the cash value benefit (CVB) for the purchase of fruits and vegetables for which the CVB is set at a specific dollar amount. All food benefits are now issued to the participating family on a WIC card that functions much like a debit card for the purchase of the specified WIC foods at WIC-authorized food retailers.

The USDA FNS branch administers WIC at the federal level. In contrast to entitlement programs like Medicaid and SNAP, WIC is a discretionary program receiving funding through annual appropriations. This type of administration means that the total number of people WIC can serve annually is limited by the amount of funding Congress allocates to the program each fiscal year. State WIC agencies receive funding from USDA FNS to administer the WIC program in their states. There are 89 State Agencies that administer WIC: 50 geographic states, 33 Indian Tribal Organizations, the District of Columbia, and 5 U.S. territories. State WIC agencies receive funding and policy guidance from USDA and distribute those funds to their local agencies, which provide WIC services to participants. Some local agencies are run by county or local governments, while others are run by nonprofit organizations and hospitals. Local agencies manage WIC sites (also known as clinics), and many local agencies run multiple clinics. WIC administration is governed by a set of federal regulations ([7 CFR 246](#)) while all State WIC Agencies must follow the CFR, there is some variation in how states administer the program.



Since the onset of the COVID-19 pandemic, WIC has undergone a variety of rapid changes, including proposed updates to the WIC food package, a significant increase in the value of the CVB and enhanced remote service options. For more extensive background on WIC, including current program innovations and the evidence base for WIC, please see [NWA's State of WIC report](#). For more details on WIC food packages and details about enrollment requirements, please visit the [FNS WIC homepage](#).

## B. Checklist for Conducting WIC Research Projects

Below is a step-by-step guide for building effective research projects.

 **1.**

**Become familiar with the types of data available through WIC and secondary datasets and consult NWA's Research Priorities, the WIC Hub and other relevant resources.**

Aligning research projects with the current needs of the WIC community is critical to ensure the findings inform research and practice. Researchers should review NWA's Research Priorities, which present 10 recommended thematic research areas informed by NWA's member-led Evaluation Committee. Researchers should then familiarize themselves with the variety of potential WIC data sources, including public-use data files and WIC program data that require longer-term partnerships with a WIC provider to access. See Section D for more details on the types of data available through WIC. See the Appendix for a glossary of commonly used terms related to WIC data.

 **2.**

**Share your Research Concept with NWA and join the WIC Learning Collaborative.**

NWA maintains a database of researchers interested in and/or currently working on WIC-related projects. Researchers can complete [a brief survey](#) here to share their information with NWA. NWA will follow up with researchers that complete the survey to facilitate peer learning connections, answer questions and share resources relevant to the research interest. NWA can also help guide researchers on how projects can best be leveraged to support WIC policy and programs. NWA also recommends joining the [HER-NOPREN WIC Learning Collaborative](#), a group of researchers, practitioners, and policy-makers facilitating peer learning and collaboration. See the Appendix for information about NWA resources for supporting research projects.

 **3.**

**Get in touch with a WIC Agency as applicable.**

Building a collaborative partnership with a WIC provider is instrumental in optimizing impact. For researchers wishing to utilize program data or collect primary data in the WIC setting, building connections with a WIC agency partner is necessary. For those with areas of interest and proposed research questions that can be answered via secondary analysis of a national dataset, contact with a state or local agency may not be necessary. However, NWA still recommends contacting a WIC agency to discuss area(s) of interest and build consensus on a program of research that supports the needs of both the researcher and the WIC agency. See Section E for details on building relationships with WIC Agencies.

4.

**Build a diverse research team and advisory board.**

WIC serves participants from a variety of backgrounds, and research teams should aim to reflect that diversity. This may occur through a diverse research team, through the inclusion of a community advisory board or through other creative approaches. See Section C for more information on Centering Equity in WIC Research.

5.

**Implement the research project in consultation with NWA and/or WIC Agencies.**

Stay in active contact with a WIC agency for local projects and/or NWA for national projects. It is also important to consider whether a research project can help to formalize the relationship, for example, including someone from NWA and/or a Local or State Agency on a project advisory board. See Sections C and E for more information on building advisory boards and relationships with WIC agencies.

6.

**Consider a diversity of publication and dissemination methods.**

Many researchers publish in peer-reviewed journals, which is important for building the WIC evidence base. In addition, NWA encourages the creation of data briefs, presentations and infographics that can expand the dissemination of findings more rapidly and are often more accessible to WIC participants, practitioners, advocates and policymakers. Close collaboration with the partner WIC Agency on the write-up of findings is highly recommended to maximize impact (see Section E on building relationships with WIC agencies). NWA and HER may be able to provide guidance on publishing these other materials without compromising the ability to publish findings through peer review. NWA also encourages the submission of research findings to [the WIC Hub](#) and [NWA's conferences](#), which enable direct connections with WIC practitioners. NWA can also advise on issues related to the dissemination of findings to policymakers and other key stakeholders.

7.

**Stay connected and keep up the partnership**

Learning about WIC and building relationships with WIC agencies is an investment. We hope that the first WIC project turns into a springboard to conduct future WIC research and continue to build the evidence base for WIC.



## C. Centering Equity Throughout the Research Process



NWA encourages researchers to embed principles of equity in every stage of the research process, beginning with project planning to data collection through analysis to dissemination. Considerations for health equity related to research questions, topics and methodology can be found in [NWA's Research Priorities](#).

The application of an equity lens allows for the exploration of how experiences and outcomes are impacted by race, ethnicity, disability status, gender identity and other social identities. NWA's Health Equity Statement describes the intersectional nature of health equity as it relates to WIC participants.



For NWA, health equity is the ability of all individuals and families to achieve optimal health, irrespective of their identity, race, ability or class. This requires equitable access to nutritious foods, breastfeeding support, chronic disease prevention and management services, safe living environments and good jobs with fair pay. It necessitates removing obstacles to families' short- and long-term health and well-being including poverty, discrimination and institutional racism and other forms of bias expressed through housing, healthcare, education, labor and other public policies.

While the content and methodologies of WIC research projects vary, NWA recommends that all projects consider the following guiding principles:

- 1. Attend training to develop and expand knowledge of Equity, Diversity, Inclusion and Belonging (EDIB) and equitable data principles.** Before conducting research with the WIC community, NWA encourages investigators to attend EDIB training. This type of training is offered by many academic and research institutions and by independent providers such as the [Racial Equity Institute](#). Academics for Black Survival and Wellness also has a [list of consultants available for training](#). For LGBTQIA+ topics, the [LGBTQIA+ Health Education Center](#) offers a variety of training and resources, and for disability-related resources, [Ablr has a catalog of training and options](#) for personalization. There are many other high-quality providers for EDIB training and NWA is always interested in learning about other recommended providers.
- 2. Employ principles of data equity.** For NWA, data equity is a set of principles and practices that guide those that work with data, particularly data related to WIC participants, with a lens of justice and inclusivity. NWA does not view data equity as an end goal but rather as a framework for every stage of the research process, from design to dissemination. In addition to EDIB training, training and planning related to equitable data practices are integral to building research projects. [We All Count](#) contains a Data Equity Framework, training and resources for employing these practices throughout the lifecycle of the research. When conducting primary data collection with WIC participants, it is important to give additional consideration to building relationships with research participants. Consider employing community-based research approaches to create equitable relationships with community stakeholders and research participants.

The [Detroit Community-Academic Urban Research Center](#) contains resources and training about community-based approaches. The [Morehouse Model](#) and [Decolonizing Methodologies](#) are recommended further readings about building community relationships and sharing power in the research process. The Robert Wood Johnson Foundation [has a report and resources](#) related to building equitable data systems.

3.

**Consider equity principles of funders.** Building on the principles of data equity described above, NWA recommends examining to what extent potential funding sources embed equitable principles into their grant-making. Funders can create more equitable processes by sharing their power in shaping the research agenda. Funders can promote community-engaged researchers, use participatory grant-making processes, and apply other inclusive grant-making strategies. Healthy Eating Research, a national program of the Robert Wood Johnson Foundation which focuses on advancing nutrition equity in the areas of diet quality and food security, has several [resources for grantees](#) to help them understand and incorporate racial equity principles into research projects. The Ford Foundation also has [several resources related to equity tools in grantmaking](#). Given the purchasing power of WIC's food package, funding sources from the food industry should also be examined for potential conflicts of interest and implicit or explicit biases. NWA recommends the [Larrick et al Nutrients article](#) as a guide to examine potential funding concerns.

4.

**Create a diverse research team and acknowledge positionality.** Diversity in relation to race/ethnicity, disability status, sexual orientation and other social identities is valuable to ensure the research team reflects the diversity of WIC program participants (or the population of study). For those working at a state or local level, having representation on the research team that reflects the local population of the region is important. Further, the lived experiences of WIC participants and staff are invaluable to ensure research questions are reflective of the realities of the program. In research publications, acknowledgment of the identities of the research team in a positionality statement, the potential biases and limitations of that positionality, and how these limitations are addressed can be useful. Sample identity statements are presented below.

*"As an able-bodied, cis-gendered, heterosexual Black male in the U.S. raised by a single Black mother, I came to this work because of my deep care for mothers, specifically Black mothers. As a man raised by a single Black mother, the brother to two younger sisters, and as someone who has deep relationships with women who desire to be mothers, this work matters to me because it impacts people I deeply care about. To highlight the underpinnings of Tupac Shakur's hit song "Keep Ya Head Up," it is crucial for someone with my identity to support women and the babies they give birth to, not just for moral reasons but for societal and economic reasons as well. When mothers and babies are well-supported, society and our U.S. economy are better because they are doing better. Documenting and providing tangible steps to solve future baby formula crises and alleviate barriers to access to baby formula is my way to support mothers and babies in the long term. Through acknowledging my biases up front and my proximity to this issue, I hope this will allow you, the reader, to determine the usefulness of my research on this topic based on its merits and not write it away because of the biases I carry because of my identity and proximity to the issue."*

Antonio Butler. [Lessons Learned from the 2022 US Baby Formula Shortage](#).  
Duke University School of Public Policy (master's thesis). May 2023



*"It is important to acknowledge our research team's positionality. Our team has lived experiences and social identities that are similar to and different from our study participants. These identities can influence the way that we developed our research questions, wrote our focus group guide, facilitated focus group discussions, and analyzed and presented our results. For example, the lead author [EWD] is a white woman that does not have lived experiences with federal food assistance programs, is not a parent or caregiver, and her primary research interest is in nutrition policies that affect early childhood nutrition. Although the study team used numerous measures to account for differences in our team and lived experience of our study participants, it is possible that these identities and interests influenced the types of questions that we asked (e.g., we may have missed important questions about using WIC due to lack of experience) or the way we presented results (e.g., selection of quotes). Throughout the data collection and analysis process, we examined and questioned our pre-existing beliefs with the goal of identifying ways in which these beliefs could have influenced study results. Additionally, in an effort to account for differences in lived experiences and identities, we developed a stakeholder advisory board with WIC staff and community organizations representing individuals with similar lived experiences to our participants and sought this board's input at each step of the research process."*

Duffy EW, Vest DA, Davis CR, Hall MG, De Marco M, Ng SW, Taillie LS. "I Think That's the Most Beneficial Change That WIC Has Made in a Really Long Time": Perceptions and Awareness of an Increase in the WIC Cash Value Benefit. *Int J Environ Res Public Health*. 2022 Jul 16;19(14):8671. doi: 10.3390/ijerph19148671. PMID: 35886526; PMCID: PMC9324401.

**5. Form an advisory board for the project, starting at the stage of project creation.** Creating an advisory board with WIC participants, WIC staff, community-based partners, and others with expertise outside of the traditional research setting is a mechanism for maintaining accountability to the community with whom the research is conducted. Ideally, advisory boards participate in all aspects of the research project, from initial design to data collection to dissemination. It is important to include community members from the outset and, at the end of the work, consider how best to communicate the research back to the community and participants who took part in the research. This includes considering how advisory board members may be able to use the data and findings of research to inform how they might use their voices to further strengthen the WIC program. Compensation for advisory board members for their time and expertise is strongly recommended. NWA may be able to advise on advisory board creation and implementation; researchers should indicate interest in this service when sharing the project with NWA.

**6. Pilot research instruments with eligible study participants before data collection and compensate participants for their time.** Building on the advisory board, consider piloting research instruments (e.g., surveys, interviews and focus group guides) and other data collection protocols before launching the study. Ideally, the pilot population will mirror the priority population (e.g., if the research is with WIC staff, test the instruments with WIC staff; if it is with WIC participants, test the instruments with WIC participants). This process should include a review of the literacy level of the data collection instruments to ensure instruments are easy to understand for the study population. NWA recommends compensation for research participants at or above local living wage rates.<sup>1</sup>

<sup>1</sup> NWA recognizes in some cases compensation is not allowable due to program regulations; in these cases, NWA recommends making an in-kind donation to a local community-based organization working on food insecurity.

7.

**Offer translation and interpretation services.** In areas with populations of non-native English speakers, offering data collection in a variety of languages helps to capture the experiences of participants with limited English proficiency. For quantitative surveys, ensure that translation of the data collection instruments is available in commonly spoken languages in the study’s geographic region. For qualitative data collection, offer interpretation services and/or have data collection conducted by research staff with proficiency in the participant’s preferred language. Consult with WIC agency staff about the relevant languages for the study population.

When conducting secondary data analysis and not collecting new data, building diversity in the research team and utilizing advisory boards in the interpretation and dissemination of findings are both ways to center equity in the research. For example, an advisory board can help inform research questions, identify ways to center equity in the analytic methods and suggest ways to disseminate the research findings with the WIC community.

## D. Overview of WIC Data Availability and Accessibility

Three types of WIC data may be under consideration for a research collaboration: publicly available datasets, WIC program data and primary data collection performed by an external researcher. It’s important to note that the ability of WIC Programs—at both the state and local agency level—to engage with researchers will vary and will be closely tied to how well researchers actively engage the agencies in developing a mutually beneficial partnership (see Section E). This is true whether the goal is to utilize existing WIC Program Data or to engage in primary data collection. It’s also worth noting that some terms commonly used in WIC programs and data may be unfamiliar to even a seasoned researcher; thus, NWA has compiled a data dictionary in Appendix B to define commonly used terms in WIC. Below are descriptions of different types of datasets.



1.

**Publicly available datasets that contain WIC measures but are not housed within WIC agencies.** Several existing high-quality, publicly available datasets can be used to answer many WIC-related research questions. NWA maintains a [library of commonly used secondary datasets](#) that are updated regularly. Some examples of publicly available datasets include the WIC Participant Characteristic Dataset, WIC Infant and Toddler Feeding Practices Study, and the National Health and Nutrition Examination Survey. Publicly available datasets provide many options to explore research questions related to WIC policy, programmatic, and health outcomes. In addition, there are many resources providing background data from NWA and USDA that can provide you with a detailed background on WIC policy,

practice, participation, and more. Many program and policy reports are published outside of peer-review journals, so it is worthwhile to review gray literature regularly. See Section F for additional resources.

2.

**Data that are collected and housed within a WIC agency.** Data collected by WIC agencies (herein WIC program data) is not publicly available. Data is managed by WIC agencies, and in most cases requires a data use agreement between the WIC agency and the researcher. There is no specific time point at which WIC data is collected. Data collection is ongoing based on participant enrollment, certification, and regular appointments. With planning and communications, these datasets can help agencies expand their evaluation capacity and provide a rich dataset that can answer many research questions. Typically, data is held at the State Agency level. Local Agencies often coordinate with the State Agency for data requests, or they may ask the research team to do so. When working at the community level with a Local Agency, NWA recommends clarifying the data storage and access relationship between the Local and State Agency at the onset of the project. WIC datasets will vary from agency to agency; there is not a universal dataset that is used across WIC State Agencies.



However, there are some commonalities across WIC agencies. Data collected from participants will typically include breastfeeding status, demographics, income and adjunctive eligibility, risk assessment, anthropometric and bloodwork, health assessments, referral data, food package issuance and redemption-related data. NWA recommends reviewing the codebook and variable descriptions of the [WIC Participant Characteristics Dataset here](#) before approaching a WIC agency. Each State Agency must submit data for this report to the Food and Nutrition Services (FNS) every two years. The dataset description contains 20 required elements (known as the Minimum Dataset, or MDS) and 11 optional elements (known as the supplemental dataset, or SDS). The full dataset is not available publicly due to personally identifiable information (PII). There is a smaller subset of the Participant Characteristics dataset that is publicly available (see Secondary WIC Datasets for more information).

Researchers interested in using WIC program data will have to request that data from the relevant WIC Agency. Due to privacy protections, accessing participant-level data may or may not be possible depending on the agency and the nature of your request (e.g., if it contains PII). These PII regulations are governed by state and federal laws and regulations. If accessing participant-level data is possible, it will require data security measures and require a longer lead time than aggregate-level data requests. Depending on the scope of the project and the capacity of the WIC agency, another option may be to have WIC staff run the data queries or analysis for you and send you the results at the aggregate level for you to write up. This route may be quicker as it would not entail data transfer agreements. The

length of time it takes to access a dataset will vary based on the complexity of the data but may take several months. Because of the variability in time Data use agreements and/or Memorandums of Understanding (MOUs) are typically required by agencies to access data. A sample data-sharing agreement is available in Appendix 3, however, many WIC State Agencies have a preferred data request template. State Agencies may have Institutional Review Board (IRB) processes in addition to the lead research institution's IRB, though having institutional IRB approval will likely expedite WIC agency approval. NWA encourages early communication about research ideas with agencies to plan appropriate timelines for data access. See section E for additional tips on building successful partnerships with WIC Agencies.

Many students are interested in using WIC datasets for course requirements and/or independent projects. Most research projects working with WIC agency data will require too long of a lead time to complete through semester-long class projects. However, secondary datasets may be a good fit for researchers with a short timeline, such as graduate student projects. For those planning a thesis or dissertation, NWA advises getting in touch with a WIC agency early in the process.

3.

**Primary data collection led by external researchers.** Researchers may be able to work with WIC agencies to promote primary data collection. Before considering primary data collection, NWA recommends that researchers familiarize themselves with the data available through WIC (described above), as many research questions can be answered using existing data. Utilizing existing datasets reduces the burden on WIC staff and allows researchers to build from previously collected data. If a study's target population overlaps with WIC participants, but is not directly related to WIC (e.g., testing a postpartum weight loss app with low-income women), it may be more difficult for WIC agencies to actively recruit participants for the study. WIC agencies receive many requests for data collection, alongside their regular program data collection, so the requests must be managed to reduce burden on WIC participants in data collection. However, a WIC agency may be able to post flyers or similarly post outreach materials in clinics. In these situations, NWA recommends considering how the project could add value to the WIC agency. For example, in the weight loss app example above, the researcher could allow the WIC agency to add a few questions to the survey and share that data back with the WIC agency at the conclusion of the study. Though it may be outside of the scope of the researcher's project, it would provide the WIC agency with valuable data in return for assistance in study recruitment.





### **A Note on Working with Data from Indian Tribal Organizations and U.S. Territories**

WIC is operated through 89 State Agencies: 50 geographic states, 33 Indian Tribal Organizations (ITOs), the District of Columbia, and 5 U.S. territories. Each of these State Agencies is responsible for administering their WIC program, and ITOs function independently from geographic states where they are located. Some ITOs collaborate with geographic states on data storage, while other ITOs store data independently. Many national datasets only include information from the 50 geographic states and the District of Columbia. However, there are opportunities to work with these WIC agencies on their program data and/or primary data collection. Particular attention should be paid to data protection and privacy in agencies with small numbers of participants. Research institutions may have specific guidelines related to working with tribal populations; investigators should confirm with their institutions to make sure they are following guidance from both WIC agencies and their own institutions.

## **E. Building Successful Partnerships with WIC Agencies**



Successful partnerships between WIC agencies and external researchers can be a win-win for all involved and help advance WIC policy and practice. Synergies between researchers, state, and/or local WIC staff maximize the potential for WIC research projects to have a meaningful impact. However, when researchers do not consistently communicate and collaborate with WIC agencies, the impact and applicability of the research is often limited. Please consider the following recommendations.

**1.**

**Center the needs and interests of the WIC program.** Researchers have methodological and content expertise that is valuable to WIC. NWA and WIC agency staff offer complementary policy and practice expertise that can inform and enhance research. Start by reading NWA's research priorities and considering what skills the research team brings to bear on these priorities. Then reach out to NWA and/or a state or local WIC agency to inquire about how a research partnership might get developed to tackle shared interests., clearly communicate research objectives, both verbally and in writing, when approaching state and/or local WIC agencies with a request for their participation in research. NWA also encourages flexibility when developing a research project. Rather than approaching an agency with a specific research question already in mind, NWA recommends researchers approach WIC staff with areas of expertise and interest and co-create research questions. The co-creation of research questions will ensure the research is applied and useful to the WIC agency. Context is also critical in the WIC research environment. Be aware of local policy issues that could be of concern to states, local government agencies, communities, locals, and WIC participants involved in the research. Also consider what impact the research could have on policy discussions at a local, state, and/or national level. Conversations with NWA and/or a collaborating WIC agency can help provide this context.

2.

**Expect a collaboration to take time to develop.**

Building successful relationships with WIC agencies takes time and flexibility. The most successful collaborations develop over multiple years and then last for decades, so investing the time to establish shared interests and understand each other's goals is time well spent. It may also take longer than expected to get replies from WIC agencies because of the time required to manage external requests. Providing ample information and background about your research interest may help to receive a quicker response, as can including multiple WIC agency staff in initial requests. NWA can also provide case-by-case guidance in how to reach out to agency staff.



3.

**Be creative in research designs.** Applied research in real-world settings like WIC does not always go as planned. For example, identifying and maintaining adequate control groups can be challenging when the majority of WIC-eligible families participate in the program; WIC policies may change mid-study; staff and personnel changes are not uncommon. Be prepared to pivot data collection and analytic strategies as needed.

4.

**Consider the administrative burden and recognize WIC participant information is confidential.** WIC staff are extremely busy with program operations, and NWA encourages researchers to bear that in mind when planning research projects. While research is valuable to the WIC community at-large, assisting with external research projects is not formally part of WIC staff's job responsibilities. The most successful WIC/researcher partnerships involve early and frequent communication around research projects and efforts to minimize staff burden. In addition, depending on the type of data needed, careful consideration must be made around data sharing. WIC participant information is confidential and identifying data cannot be shared. Strategies for creating and maintaining anonymized datasets is an important consideration early in the research process (see Section D for more information around data considerations). WIC participants are regularly asked to take part in surveys or other types of data collection for program monitoring and evaluation, as well as external research projects. Agency staff manage these data collection requests to not overburden participants. WIC staff also have best practices around instrument dissemination and data collection with current WIC participants. NWA recommends that researchers solicit input from agencies regarding how their research might fit into wider data collection efforts/initiatives already in place.

5.

**Identify the role of WIC State and Local Agencies in the project.** Partnerships tend to be most successful when expectations are communicated clearly. At the project's inception, clarify roles and expectations of the WIC partner. For example, it is important to ensure that all parties are on the same page regarding the type and level of input that will be requested from participating agencies throughout the duration of the project (e.g., reviewing recruitment and data collection materials, background meetings, dissemination, etc.). Depending on the nature of the data requested, it may be appropriate to build in funds to

cover WIC staff salary time in grant requests. Researchers should discuss the staff time needed with WIC agencies to determine the time required of WIC staff and the preferences of the agency regarding funding of staff salaries through grants.

6.

**Identify State or Local Agency IRB process and/or publication requirements early on in project planning.** Some State and Local Agencies require researchers to engage the institutional IRB affiliated with their WIC program, others will defer to the partner's IRB. It will be important to establish an understanding around IRB protocols early in the research endeavor. It is also important to specify what types of publications will come out of the project, and to clarify the involvement of WIC agency staff in the publication phase. NWA also strongly recommends that WIC staff be given the option to co-author resulting publications to provide subject matter expertise when interpreting data and making conclusions or recommendations based on the findings. Lead authors should be clear about the requirements for co-authorship during conversations with agency staff and provide an option to review publications before publishing if staff do not have the capacity to join as a co-author. Some states may require that publications be reviewed by the department's Communications division prior to submission. Discuss these processes with agency contacts and build this into the review process if necessary.

7.

**Consider a variety of publication and dissemination methods for research findings.** Many external researchers will publish study results in peer-reviewed journals, which is valuable in building the evidence base for WIC. However, many WIC practitioners do not have access to peer-reviewed journals. NWA recommends publishing WIC content in open access formats and building that cost into grants as necessary. Creating data briefs alongside peer-reviewed publications and submitting them to [the WIC Hub](#) also helps to make research accessible to practitioners, as many WIC staff use the WIC Hub similar to how researchers use PubMed or similar databases. Publishing data briefs or pre-prints in advance of peer-review publications are helpful to providing real-time data to inform policy and practice. NWA also suggests asking WIC agencies what form of products would be helpful to their work (e.g., presenting research findings to WIC staff and/or at NWA conferences, creating infographics, etc.).

# F. Acknowledgements

This Framework was led by the NWA’s Senior Manager of Research and Program Innovation in consultation with NWA’s Evaluation Committee. NWA’s Evaluation Committee includes evaluation experts and practitioners from local and state WIC agencies as well as representatives from USDA Food and Nutrition Services (FNS) and Economic Research Services (ERS). Names and affiliations of committee members are included below:

## **NWA Evaluation Committee**

Bagyalakshmi Kodur, Michigan WIC  
Devina Wadhera, Arizona WIC  
Joni Geppert, Minnesota WIC  
Sarah Younker, Berrien County WIC  
Michaela Phillips, Washington State WIC  
Ruth Morgan, USDA-FNS  
Leslie Hodges, USDA-ERS  
Joanne Guthrie, USDA-ERS  
Amanda Hovis, Texas WIC  
Christina Chauvenet, NWA National Office Liaison

The Framework underwent extensive review and member checking. Dr. Christina Chauvenet, Senior Manager of Research and Policy Analysis, first had brainstorming conversations with the Evaluation Committee and senior members of staff at NWA, about key topics that should be included in the Framework. These key topics were then presented at NWA’s 2023 Annual Education and Training conference. The well-attended session included time for discussion and feedback from NWA members and external researchers. Following the conference, Dr. Chauvenet drafted the framework with additional feedback from the Evaluation Committee. The framework was reviewed by key internal staff, including NWA’s Senior Manager for Health Equity and Community Partnerships. NWA’s Evaluation Committee then reviewed the full draft.

This report was supported by Healthy Eating Research. External review was provided by Shannon Whaley, PhD, Director, Research and Evaluation, PHFE WIC, Heluna Health; Betsy Anderson Steeves, PhD, RDN, Senior Research Scientist, Gretchen Swanson Center for Nutrition; and Harry Zhang, PhD, Professor, School of Community & Environmental Health, Old Dominion University.

Healthy Eating Research staff members and external peer-reviewers provided feedback. Dr. Chauvenet then edited the framework based on these reviews and discussion with the Evaluation Committee. The final version was reviewed and approved by NWA leadership, including the Director of Communications and NWA’s Chief Operating Officer.



## Appendix 1: Resources from the National WIC Association, United States Department of Agriculture Food and Nutrition Service (USDA, FNS), and Partner Organizations

In addition to peer-reviewed journals, valuable data, analyses and reports can be found in gray literature. NWA encourages researchers to consult both types of resources when conducting background literature reviews. Given the ease of searching for journal articles, this appendix highlights the many WIC-related reports and analyses that are published through USDA, NWA, and other partner organizations.

### USDA Resources

[Food and Nutrition Service WIC Data Tables](#). These data are published monthly and contain state and national level data on number of enrolled participants by participant category and food and administration costs.

The [WIC Participant Characteristics Dataset](#) and the [National and State Level Estimates of Eligibility](#) are produced biennially by FNS. These reports detail the characteristics of actively enrolled WIC participants and eligible participants, respectively. FNS also regularly publishes other research and data related to WIC on their website. NWA recommends reviewing these materials to understand the landscape of WIC participation.

[USDA's Economic Research Service](#) also publishes a variety of data related to food security, federal nutrition assistance programs, food choices and health outcomes, food access and store proximity, food retailing and marketing, and food prices. ERS maintains an [extensive library of peer-reviewed and gray literature related to WIC](#), as well as annual reports on food insecurity of households with children.

### National WIC Association Resources

[The WIC Hub](#) is a website containing a collection of resources that support the work of WIC staff, researchers, and advocates by making it easier to find WIC-related resources and information. The Hub contains many different types of materials, such as policy manuals, advocacy tools, toolkits, blog posts, peer-reviewed research, reports, and other materials.

[The 2023 State of WIC](#) report centers infant feeding, economic equity, and modernization of the WIC program. It brings lessons learned in 2022 to the forefront of the conversation on reforms, innovation, and policy. This report assesses the infant formula crisis, USDA's proposed food package rule, and WIC's role in building a healthier future for all.

[The 2023 Technology Landscape Report](#) details the progress made since the last report of 2020 and acknowledges some persistent structural barriers to technology equity. It highlights lessons learned from areas such as the remote pandemic operations while also calling for additional policy and systems support to raise the floor of WIC technology-enabled service delivery.

[The 2021 Multistate Survey](#) explores WIC participant satisfaction and experience during the COVID-19 pandemic. State Agencies implemented a variety of innovative service delivery models to meet the needs of the over 6 million WIC participants during the pandemic. These models included

virtual enrollment and recertification and flexible options for obtaining food benefits and nutrition education, counseling and referrals.

The 2021 Multistate Survey also reports the experiences of WIC participants with the [Cash Value Benefit increase during COVID](#). This report reveals an increase in child fruit and vegetable consumption among participants after the WIC benefit was enhanced through the American Rescue Plan Act in summer 2021.

The [Advancing Health Equity to Achieve Diversity & Inclusion \(AHEAD\) in WIC](#) collection on NWA's WIC Hub details findings from a two-year NWA project to systematically build capacity within the larger WIC community to incorporate a health equity framework into WIC research, policy, and practice. NWA published case studies in this collection detailing projects from seven local WIC agencies that piloted promising practices to create an infrastructure and encourage organizational change to support equitable access to WIC services. Data briefs in this collection represent findings from a national landscape scan of over 1,200 WIC staff to identify emerging and promising practices being implemented at the state and local level to promote equity, diversity, and inclusion (EDI).

#### **Additional Data and Research Resources**

Several partner organizations, including [The Center for Budget and Policy Priorities](#), [Food Research and Action Center](#), [The Gretchen Swanson Center for Nutrition](#), and [Healthy Eating Research](#) offer a variety of data briefs, reports, and analysis related to WIC that can be helpful to researchers.

## Appendix 2. WIC Minimum and Supplemental Dataset

Below are the set of data elements known as the Minimum Data Set (MDS) and the Supplemental Dataset (SDS). State Agencies are required to submit MDS data to FNS every 2 years for the Participant Characteristic Report (described in more detail in Appendix 1). As FNS describes:

*“The data items [ in the MDS] represent information State and local WIC staff collect to confirm applicant eligibility for WIC benefits and issue food instruments. In 1992, FNS developed the MDS in collaboration with the Information Committee of the National WIC Association and the Centers for Disease Control and Prevention (CDC). In addition to the MDS, State Agencies are encouraged to submit the Supplemental Data Set (SDS) when it is available. State Agency staff collect data in the MDS and SDS to certify applicants for WIC benefits, guide nutrition education, and issue food instruments. Elements in the MDS and SDS have been consistent since 2010.”*

Individual State Agencies may have different data organizations and naming conventions internally, but the below MDS and SDS provide a general overview of the type of data collected and housed in WIC Agencies. See the [WIC Participant and Program Characteristics 2020: Final Report](#) for more information.

### MDS Items

| Item Number | Item Name       | Item Description  |
|-------------|-----------------|---|
| 1           | State Agency ID | A unique number that permits linkage to the State Agency where the participant was certified; it is the first 7 digits of the 10-digit Local Agency Code maintained by FNS in the WIC Local Agency Directory (WIC LAD).   |
| 2a          | Local Agency ID | A unique number that permits linkage to the Local Agency where the participant was certified as eligible for WIC benefits; it is the last 3 digits of the 10-digit Local Agency Code maintained by FNS in the WIC LAD.  |
| 2b          | Service Site ID | A unique number that permits linkage to the service site where the participant was certified; for State Agencies that submitted service site-level or clinic-level data for the WIC LAD, service site IDs appear in the WIC LAD as the three-digit codes under Administering Agency. For PC2020, State Agencies were asked not to substitute Service Site ID for Local Agency ID (item 2a). |

|      |  |  |
|------|--|--|
| 3    | Case ID  | A unique record number assigned to each participant to maintain individual privacy at the national level. For each participant, State Agencies were asked to construct a Case ID for their PC2020 data submissions; they were asked not to use the case number of the participant as listed in State Agency-held files.  |
| 4    | Date of Birth  | The date of the participant's birth (MMDDYYYY format)  |
| 5    | Race and Ethnicity                                     | <p>Requires classification of participants based on one ethnicity category (Hispanic/Latino or Non-Hispanic/Latino) and five racial categories, which consist of (1) American Indian or Alaska Native; (2) Asian; (3) Black or African American; (4) Native Hawaiian or Other Pacific Islander; and (5) White<sup>a</sup></p> <p>These categories are required by the Office of Management and Budget; one or more racial categories may be selected.</p> <p>State agencies may report race and ethnicity using one of two formats:</p> <ul style="list-style-type: none"> <li>• § Yes/No for each of the categories, generating a six-digit code (1 = Yes; 2 = No)</li> <li>• § Three digits to represent key combinations of racial selections, with the first digit representing ethnicity and the last two representing race combinations</li> </ul> |
| 6a   | Certification Category                                 | One of five possible categories under which a person is certified as eligible for WIC benefits: (1) pregnant woman, (2) breastfeeding woman, (3) postpartum woman, (4) infant (up to the first birthday), and (5) child (up to the fifth birthday)   |
| 6b-c | Expected Date of Delivery or Number of Weeks Gestation | For pregnant women, the projected date of delivery (MMDDYYYY format) or the number of weeks since the last menstrual period as determined at WIC Certification   |

|       |                                       |  |
|-------|---------------------------------------|--|
| 7     | Date of Certification                 | The date the person was declared eligible for the most recent WIC certification as of April 2020 (MMDDYYYY format)   |
| 8     | Sex                                   | For infants and children, male or female   |
| 9     | Risk Priority Code                    | The participant's priority level for WIC certification at the time of the most recent WIC certification as of April 2020   |
| 10a-c | Participation in SNAP, TANF, Medicaid | The participant's reported participation in each of these programs at the time of the most recent WIC certification as of April 2020   |
| 11    | Migrant Status                        | The participant's migrant status according to the definition of a migrant farmworker in Federal regulations <sup>b</sup>   |
| 12    | Number in Family or Economic Unit     | <p>The number of individuals in the family or economic unit upon which WIC income eligibility was based</p> <p>State Agencies may report a self-declared number in the family or economic unit for a participant whose income was not required as part of the WIC certification process. These participants consist of—</p> <ul style="list-style-type: none"> <li>• § Adjunctively income-eligible participants (eligible because of TANF, SNAP, or Medicaid participation)</li> <li>• § Participants deemed income-eligible under optional procedures available to the State Agency in <i>section 7 C.F.R. § 246.7</i>.<sup>b</sup> These optional procedures are means-tested programs identified by the State Agency to determine automatic WIC income eligibility, income eligibility of pregnant women, and income eligibility of American Indian and migrant farm worker applicants.</li> </ul> |



|       |  |   |
|-------|--|---|
| 13a–c | Family or Economic Unit Income             | <ul style="list-style-type: none"> <li>• § For individuals whose income was determined during the certification process, the income amount determined to qualify the participant for WIC at the time of the most recent WIC certification as of April 2020. Income expressed in non annual measures (weekly, monthly, etc.) are converted to annual amounts.</li> <li>• § (For descriptive purposes only) For participants whose income was not required to be determined as part of the WIC certification process, the self-reported income at the time of certification. These participants include adjunctively income-eligible participants and those individuals deemed eligible under optional procedures available to the State Agency in section 7 C.F.R. § 246.7.<sup>b</sup> State Agencies should not use zero to indicate income values that are missing or not available; zero should indicate only an actual value of zero.</li> </ul> <p>Because a large proportion of WIC participants are adjunctively income- eligible, their income information is essential to describe income among the overall WIC population. State Agencies are required to provide income information on those adjunctively eligible for WIC according to Federal regulations.<sup>b</sup></p> |
| 14a–j | Nutritional Risks Present at Certification | Highest priority nutritional risks assigned for the most recent WIC certification as of April 2020, up to a maximum of 10; uniform coding is required in submissions from all State Agencies according to WIC Policy Memorandum 2011-5.   |
| 15a–b | Hemoglobin or Hematocrit                   | Value for the measure of hemoglobin or hematocrit to assess anemia status that applies for the most current WIC certification period as of April 2020   |
| 15c   | Date of Hemoglobin or Hematocrit Test      | Date that hemoglobin or hematocrit measure was collected and reported (MMDDYYYY format); State Agencies must submit these data for all participants reporting a hematologic measure.  |

|       |                                   |  |
|-------|-----------------------------------|--|
| 16a–b | Weight                            | The participant’s weight measured to nearest one-quarter pound. State Agencies may report weight in grams if weight is not measured in pounds and quarter pounds.  |
| 17a–b | Height                            | The participant’s height (or length) measured to nearest one-eighth inch; State Agencies may report height in centimeters if height is not measured in inches and eighth inches.   |
| 18    | Date of Height and Weight Measure | Date of the height and weight measures used during the most recent WIC certification period as of April 2020 (MMDDYYYY format)   |
| 19a   | Currently Breastfed               | For infants and children aged 6 through 13 months in April 2020, whether the participant was being breastfed at that time  |
| 19b   | Ever Breastfed                    | For infants and children aged 6 through 13 months in April 2020, whether the participant ever breastfed  |
| 19c   | Length of TimeBreasted            | For infants and children aged 6 through 13 months in April 2020, the number of weeks the participant breastfed   |
| 19d   | Date Breastfeeding data Collected | For infants and children aged 6 through 13 months in April 2020, the date on which breastfeeding status was reported (MMDDYYYY format)   |
| 20a–n | Food Codes                        | State agencies have the option of providing food data in an item-quantity format or a food package format; agencies were asked to provide the food package codes or item codes and quantities for all foods prescribed for the participant during the month of April 2020. |
| 20o   | Food Package Type                 | A code representing the FNS food package number (I through VII), participant type, breastfeeding status, and (for infants and children only) age associated with the reported food code(s) for that participant  |

MDS = Minimum Data Set

<sup>a</sup>Reporting categories based on the Office of Management and Budget (OMB, 1997) definitions and reporting requirements were first used in the PC2006 report. Some of the reporting category names were modified beginning in 2018 to help streamline table and figure text in the report (see table 2.3 for additional details). The updated category names are used across this report.

<sup>b</sup>See 7 C.F.R. 246.7(d)(2)(vi–viii) (Special Supplemental Nutrition Program for Women, Infants and Children, 1985).

## SDS Items

| Item Number | Item Name                       | Item Description   |
|-------------|---------------------------------|--|
| 21          | Date of First WIC Certification | Date the participant was first certified for WIC (MMDDYYYY format); for pregnant, breastfeeding, and postpartum women, this applies to the current/most recent pregnancy and not to prior pregnancies.             |
| 22          | Education Level                 | For pregnant, breastfeeding, and postpartum women, the highest grade or year of school completed; for infants and children, the highest grade or year of school completed by the mother or primary caretaker.      |
| 23          | Number in Household in WIC      | The number of people in the participant's household receiving WIC benefits   |
| 24          | Date Previous Pregnancy Ended   | For pregnant women, the date the participant's previous pregnancy ended (MMDDYYYY format)  |
| 25          | Total Number of Pregnancies     | For pregnant women, the total number of times the participant has been pregnant, including the current pregnancy; all live births; and any pregnancies resulting in miscarriage, abortion, or stillbirth           |
| 26          | Total Number of Live Births     | For pregnant women, the total number of babies born alive to the participant, including babies who may have died shortly after birth   |
| 27a-b       | Prepregnancy Weight             | For pregnant women, the participant's weight immediately prior to pregnancy; weight may be reported in pounds and ounces or in grams.  |
| 28a-b       | Weight Gain During Pregnancy    | For breastfeeding and postpartum women, the participant's weight gain during pregnancy immediately at or prior to delivery; weight gain during pregnancy may be reported in pounds and quarter pounds or in grams. |

|       |   |  |
|-------|---|--|
| 30a–b | Birth Length  | For infants and children, the participant’s length at birth measured to nearest one-eighth inch; birth length may be reported in inches and eighth inches or in centimeters. |
| 31    | Participation in the Food Distribution Program on Indian Reservations (FDPIR) | The participant’s reported participation in FDPIR at the time of the most recent WIC certification as of April 2020  |

SDS = Supplemental Data Set



## Appendix 3: Sample data request process for State Agencies

**Note: This is an anonymized version of a current WIC State Agency request form. The data request process may vary from agency to agency, but the below provides an idea of what data request forms frequently contain.**

As per federal regulations 7 CFR § 246.26, [WIC Agency name] has developed a process to request WIC data for the purposes of maintaining confidentiality. Here are the steps in the process for requesting WIC data from [WIC Agency]:

1. Communicate the intent to request data by sending an email to [State or Local Agency contact name, email]
2. Meet with State and/or Local Agencies to understand the purpose, justification, and intent of using WIC data. Please think about these questions for discussion during the meeting:
  - 2.1. Purpose of the project (i.e., for a thesis, applied project, etc.)
  - 2.2. Scientific justification for the use of WIC data
  - 2.3. Relevance to WIC (How do you see this project helping the mission of WIC?)
  - 2.4. Months and/or years for which data is being requested
  - 2.5. List of data elements requested (ex: breastfeeding history, no. of WIC participants, etc.)
  - 2.6. Levels of aggregation of data requested. Please note that data elements are typically aggregated at the Local Agency level. Aggregation levels smaller than the Local Agency often produce small numbers which potentially identifies clients. Any request that directly or potentially identifies clients will be denied.
3. Finalize data elements and levels of aggregation in collaboration with WIC.
4. Complete and sign any data agreement request forms (if applicable)
5. Depending on the complexity and time frame of the data request, please allow several weeks after the data agreement request is signed for the official release of data.

## Appendix 4. Dictionary of Commonly used Terms in WIC

| Acronym or Term | Definition   |
|-----------------|--|
| API             | Application Programming Interface. APIs are the mechanisms through which individual software applications pass information to one another. Communications between the systems are facilitated by API calls, which are simply requests between the application to send new information to another system or ask for updated information from another system.  |
| APL             | Approved Product List: this refers to the list of WIC-eligible products issued as part of the food package. Each state has its own APL, with a list of approved brands in each good category.  |
| CVB             | Cash Value Benefit for fruits and vegetables. Formerly known as the cash value voucher, the CVB is the benefit issued for the purchase of fruits and vegetables with WIC.  |
| EBT             | Electronic Benefit Transfer. Also known as e-WIC, EBT refers to the debit-card style delivery of WIC benefits. All geographic states and territories and the majority of Indian Tribal Organizations have now transitioned from WIC checks to EBT cards for benefits issuance. The status of EBT usage in State Agencies <a href="#">is available here</a> . |
| ERS             | Economic Research Service (ERS).ERS conducts economic research on a variety of nutrition assistance and agricultural programs, including WIC. ERS is an agency within the United States Department of Agriculture (USDA).  |
| FNS             | Food and Nutrition Services. FNS is the government agency that administers 16 federal nutrition programs, including WIC. FNS is an agency within USDA.   |
| ITO             | Indian Tribal Organizations (ITO). 33 ITOs administer WIC programs. See the Appendix of the <a href="#">State of WIC for profiles</a> for a full list of ITOs that operate as State Agency.  |
| MIS             | Management Information System. MIS platforms capture data along the WIC participant continuum, from enrollment to demographics to WIC cards for the WIC Participant and/or WIC household.  |
| USDA            | United States Department of Agriculture. FNS and ERS are agencies within USDA.   |
| VENA            | Value-Enhanced Nutrition Assessment. WIC’s participant-centered, health outcomes-based approach to nutrition assessment.   |

## Appendix 5. Works Cited

1. Schultz DJ, Byker Shanks C, Houghtaling B. The Impact of the 2009 Special Supplemental Nutrition Program for Women, Infants, and Children Food Package Revisions on Participants: A Systematic Review. *J Acad Nutr Diet.* 2015;115(11):1832-1846. doi:10.1016/J.JAND.2015.06.381
2. Value Enhanced Nutrition Assessment (VENA) Guidance | WIC Works Resource System. Accessed July 24, 2023. <https://wicworks.fns.usda.gov/resources/value-enhanced-nutrition-assessment-vena-guidance>
3. Soneji S, Beltrán-Sánchez H. Association of Special Supplemental Nutrition Program for Women, Infants, and Children With Preterm Birth and Infant Mortality. *JAMA Netw Open.* 2019;2(12).doi:10.1001/JAMANETWORKOPEN.2019.16722
4. Sonchak L. The Impact of WIC on Birth Outcomes: New Evidence from South Carolina. *Matern Child Health J.* 2016;20(7):1518-1525. doi:10.1007/S10995-016-1951-Y
5. Obesity Among Young Children Enrolled in WIC | Overweight & Obesity | CDC. Accessed August 2, 2023. <https://www.cdc.gov/obesity/data/obesity-among-WIC-enrolled-young-children.html>
6. Tester JM, Leung CW, Crawford PB. Revised WIC Food Package and Children’s Diet Quality. *Pediatrics.* 2016;137(5):e20153557-e20153557. doi:10.1542/peds.2015-3557
7. Fryar CD, Wambogo EA, Scanlon KS, Terry AL, Ogden CL. Trends in Food Consumption Among Children Aged 1–4 Years by Participation in the Special Supplemental Nutrition Program for Women, Infants, and Children, United States, 2005–2018. *Journal of Nutrition.* 2023;153(3):839-847.doi:10.1016/j.tjnut.2023.01.016
8. Guan A, Batra A, Hamad R. Effects of the revised WIC food package on women’s and children’s health: a quasi-experimental study. *BMC Pregnancy Childbirth.* 2022;22(1). doi:10.1186/s12884-022-05116-w