Georgia Department of Public Health (DPH) WIC: Pathways Telehealth Intervention
Final Report

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List of Abbreviations and Terms

CFIR	Consolidated Framework for Implementation Research
CPA	Competent Professional Authority
CSR	Customer Service Representative
CY	Calendar Year
DPH	Department of Public Health
EBT	Electronic Benefit Transfer
ERIC	Expert Recommendations for Implementing Change
FNS	Food and Nutrition Service
GA	Georgia
HIPAA	Health Insurance Portability and Accountability Act
IBCLC	International Board-Certified Lactation Consultant
IRB	Institutional Review Board
IT	Information Technology
MIS	Management Information System
NCRD	Nutrition Counseling with Registered Dietitian
ONE	Online Nutrition Education
PA	Priority Area
PCE	Patient Centered Education
RD	Registered Dietitian
RE-AIM	Reach, Effectiveness, Adoption, Implementation and Maintenance
RFA	Request for Application
RTI	RTI International
SD	Standard Deviation
TA	Technical Assistance
THIS-WIC	USDA/Tufts Telehealth Intervention Strategies for WIC
USDA	United States Department of Agriculture
VENA	Value Enhance Nutrition Assessment
WIC	Supplemental Nutrition Program for Women, Infants, and Children

Terms and Definitions

Clinics	WIC clinics are locations where WIC clients receive services.
Comparison	WIC clinics that did not implement the telehealth intervention and where WIC clients had appointments via "usual care" mode.
Early phase	First quarter of implementation.
eWIC	eWIC is an electronic system for issuing benefits to WIC participants. WIC food benefits are automatically added to the eWIC card which functions like a debit card.
Intervention	WIC clinics that implemented the telehealth intervention.
Late phase	Final quarter of implementation.
Local agency	WIC administrative entity that oversees clinics where WIC clients receive services.
Telehealth	As defined by the U.S. Department of Health and Human Services, telehealth is the use of electronic communication and telecommunications technology to support long-distance clinical healthcare, patient and professional health-related education, public health, and health administration.
Usual care	Standard mode of delivery for WIC appointment. For THIS-WIC, during the COVID-19 pandemic under Federal waivers, usual care in WIC clinics was either telephone-based or in-clinic appointments.
WIC benefit redemption	Calculated as the percentage of food benefits issued that are redeemed in whole or part.
WIC client	All individuals who receive WIC services at participating clinics involved in the THIS-WIC evaluation and represent the entire agency-level caseload, not just those in the THIS-WIC evaluation. In working with the states engaged in this work, the THIS-WIC team recognizes that states differ in how they refer to individuals who receive WIC services. Some states prefer to use the term "WIC client," whereas others prefer "WIC participant." Because of this and potential confusion with the term "participation" in the context of an evaluation, we use the term "client." We acknowledge that the Food and Nutrition Service's preferred term is "WIC participant."
WIC Client Survey respondent	Individuals who consented to participate in the study and responded to the THIS-WIC Client Survey. These individuals represent a subsample of all individuals who received WIC services at participating agencies (WIC clients).
WIC client telehealth user	Individuals who used the telehealth solution (as documented in MIS); these individuals may or may not be survey respondents.
WIC retention	Retention in WIC was defined as those WIC clients who had available data on WIC benefit redemption in MIS after 180 days from survey completion date.
WIC staff key informant interview respondent	Individuals who consented to participate in the study and took part in a WIC staff key informant interview. These individuals were staff who delivered nutrition education/breastfeeding support using telehealth at participating agencies and agreed to take part in the survey or interview.

WIC Staff Survey respondent	Individuals who consented to participate in the study and responded to the THIS-WIC Staff Survey. These staff delivered nutrition education/breastfeeding support using telehealth at participating sites and agreed to take part in the survey.

Executive Summary

Background

Telehealth has emerged as an integral approach to offering health services because it may offer enhanced access, convenience in scheduling and receiving services, and cost savings. However, factors such as comfort level with digital technology, Internet availability, privacy and security concerns, and accessibility may be barriers to telehealth integration within the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). The Consolidated Appropriations Act of 2019 (Public Law 1166) authorized the allocation of $5,000,000 for competitive telehealth grants to (1) supplement the nutrition education and breastfeeding support offered to individuals in the WIC program, and (2) decrease barriers to access WIC services. The U.S. Department of Agriculture (USDA), Food and Nutrition Service (FNS) awarded a Cooperative Agreement to Tufts University and collaborators in Telehealth Intervention Strategies for WIC (THIS-WIC) to support the implementation and evaluation of telehealth services in WIC. THIS-WIC awarded grants and evaluated telehealth solutions across seven WIC State agencies: District of Columbia, **Georgia (GA)**, Michigan, North Carolina, South Carolina, Vermont, and Wisconsin WIC. This report describes the implementation and evaluation of telehealth services using Pathways in GA.

Project Overview

GA WIC developed an integrated telehealth system, Pathways, to provide WIC services and nutrition education and breastfeeding support to WIC clients.[*] The THIS-WIC evaluation in GA assessed the implementation of telehealth services using Pathways and compared staff-, agency-, and client-level outcomes for intervention (telehealth service delivery) versus comparison (phone-based service delivery or in-person) agencies.

Between March 2022 (Q1/2022) and June 2023 (Q2/2023), three local agencies (21 clinics) offered telehealth services and served as intervention agencies; three local agencies (8 clinics) offered usual care and served as comparison. Implementation evaluation findings are based on data collected from GA WIC Management Information System (MIS), state responses to the Implementation Tracking Tool, metadata from Pathways, the THIS-WIC Staff Survey, cost-tracking data, a quarterly local agency reporting tool, and staff key informant interviews. Outcome evaluation findings are based on data collected from MIS and the THIS-WIC Client Survey.

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[*] WIC clients refers to all individuals who receive WIC services at the intervention and comparison agencies involved in the THIS-WIC evaluation and represent the entire local agency–level caseload, not just those in the THIS-WIC evaluation. In working with the states engaged in this work, the THIS-WIC team recognizes that states differ in how they refer to individuals who receive WIC services. Some states prefer to use the term "WIC client," whereas other States, including Georgia, prefer "WIC participant." Because of this and potential confusion with the term "participant" in the context of an evaluation, this report uses the term "client."

Findings

Implementation of Telehealth in GA

In GA, WIC staff generally perceived that offering telehealth services would align service delivery model with mainstream healthcare providers and address travel, time, cost, and other barriers thereby achieving the overall objective of WIC to expand access. Less than 10 percent of staff had experience with telehealth prior to the THIS-WIC project and received ongoing training in various modes. Staff appreciated GA WIC's leadership approach of a slow, hands-on rollout to address challenges as they arose. Staff noted the user-friendliness, simplicity, and capacity of Pathways and considered these features to be critical to boost client engagement. For example, staff appreciated the ability to transfer the clients to other service providers seamlessly via Pathways.

Over the six quarters of project implementation, there was a steady increase in the number of appointments made and completed through Pathways. About 60 percent of appointments scheduled via Pathways were kept and average appointments lasted about 7 to 12 minutes. Staff satisfaction with offering WIC services through the telehealth platform was moderate and increased from early to late phase. In interviews, some staff expressed a preference for in-person appointments because of inconsistent access to stable internet and technology infrastructure, client preferences, and the ability to conduct health assessments. Other staff expressed a preference for virtual appointments so they could attend to clients from any location; staff also perceived increased job security because of increased caseload. Some staff expressed a preference for conducting appointments only in one mode (i.e., only in-person or only telehealth appointments but not both). Overall, staff found Pathways to be a feasible approach to delivering WIC services, appreciated its flexibility, and allowed them to engage with more WIC clients (**Table ES-2**).

Table ES-2. Staff Perceptions of Feasibility of Using Pathways to Provide WIC Services in GA

Statement[a]	Early Phase[b]	Late Phase[b]	p-value[c]
	N=35	N=35	
I find Pathways to be flexible to interact with.	3.76 (3.45, 4.08)	4.15 (3.83, 4.47)	0.030*
Pathways makes my daily work easier to do.	3.27 (2.87, 3.67)	3.94 (3.54, 4.34)	0.001*
Pathways allows me to interact with more participants.	3.47 (3.08, 3.87)	4.03 (3.64, 4.43)	0.013*
I would like to continue using Pathways to provide WIC services.	4.27 (3.96, 4.58)	4.36 (4.05, 4.67)	0.603

Source: THIS-WIC Staff Survey
[a] Responses were assessed on a 5-point Likert scales, where 1 = "Strongly disagree" and 5 = "Strongly agree."
[b] Ordinal data are summarized as predicted mean (95% confidence interval).
[c] p-values were based on mixed-effects regression for ordinal data (controlling for respondent's ID as random intercept for repeated measurements).
* $p < 0.05$

Cost of Telehealth in GA

The startup cost to offer telehealth services was $1,547,592, of which about 67 percent was spent on contracted services and 30 percent was spent on labor (including time spent by eWIC Deputy Director, Telehealth Director, Nutrition Services Manager, Program Integrity Specialist, and fiscal staff). Ongoing mean cost per enrollment declined from pre-intervention to the 12th month of intervention period by $21 at intervention agencies and $2 at comparison agencies.

Client Experience with Telehealth in GA

WIC clients find telehealth appointments to be a highly acceptable approach for receiving WIC services and express a preference to continue the same way in the future (**Table ES-1**). Client experience with WIC appointments, intent to change dietary behaviors, breastfeeding behaviors, and retention in WIC were comparable among respondents in the intervention and comparison agencies.

Table ES-1. Client Preference to Receive WIC Services via Telehealth for Future Appointments in GA

Statement	N	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
		%				
I would like to receive services the same way at my next WIC appointment.	1,191	0.6	0.2	1.5	16.0	81.8

Source: THIS-WIC Client Survey, intervention agencies only

Recommendations

WIC staff provided the following recommendations:

- Enhance the accessibility and sustainability of telehealth by having dedicated staff available to conduct either in-person and telehealth appointments but not both.
- Consider a slower rollout of new technology to allow staff time to build comfort with the solution; provide opportunities for hands-on learning and post-training resources and check-ins to address any challenges.
- Challenges and glitches will arise when implementing new technology; leadership should have plans to address these problems as they arise.
- Train frontline customer service staff on benefits and use of telehealth platforms so that they can market these appointments to clients.
- Have a system like Pathways with integrated features, including document sharing, appointment reminders, built-in chat functionality, and video capability to make the technology user-friendly for staff; other agencies considering integration of telehealth will

find it easier to offer telehealth services using telehealth platforms that integrate multiple features and are easy to navigate.

- WIC clients, particularly grandparents who are primary caregivers, may need additional support to build up their digital literacy and comfort with technology to ensure telehealth appointments are successful.

1. Background

Telehealth technology allows healthcare providers to communicate with patients remotely, through a two-way, synchronous channel. It has emerged as an integral approach to offering healthcare services and could become a standard of care soon. For the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), telehealth may facilitate access to services in rural areas or in areas with staffing shortages, improve efficiency without higher net costs, and reduce travel and wait time, making it convenient to schedule and receive timely care services. However, factors such as comfort level with digital technology, Internet availability, privacy and security concerns, and accessibility dictate the quality of client experience and may be barriers to telehealth integration within WIC. Understanding variations in telehealth use and adoption by staff and clients is necessary to inform telehealth use policies.

The Consolidated Appropriations Act of 2019 (Public Law 1166) authorized the allocation of $5,000,000 for competitive telehealth grants to (1) supplement the nutrition education and breastfeeding support offered to individuals in the WIC program, and (2) decrease barriers to accessing WIC services.[1] The U.S. Department of Agriculture (USDA), Food and Nutrition Service (FNS) awarded a Cooperative Agreement to Tufts University and collaborators in Telehealth Intervention Strategies for WIC (THIS-WIC) to support the implementation and evaluation of telehealth services in WIC. Through a competitive Request for Application (RFA) process, State agencies submitted proposals to implement projects focused on one of two Priority Areas (PAs):

- PA I: Implement an existing telehealth solution to ensure timely access to nutritional or breastfeeding support for WIC clients by qualified professionals.
- PA II: Develop and implement an online (mobile-friendly) resource or tool to provide nutritional or breastfeeding support to WIC clients that is within the scope of the nutrition education or breastfeeding support offered in the WIC clinic by qualified professionals, including Registered Dietitians (RDs), Certified Lactation Consultants, and International Board-Certified Lactation Consultants (IBCLCs).

THIS-WIC awarded grants and evaluated telehealth solutions across seven WIC State agencies:

- PA I: District of Columbia, Georgia, Michigan, Wisconsin
- PA II: North Carolina, South Carolina, Vermont

In addition, THIS-WIC provided technical assistance to all agencies throughout the study to support the adoption of telehealth and the evaluation of their telehealth intervention. THIS-WIC elevated the relevance of telehealth solutions due to the COVID-19 pandemic, which sharply increased public and agency attention on remote access to services. The project was funded and designed before the pandemic, and some aspects of the design were modified to account for USDA COVID-19 waivers. Specifically, prior to COVID-19, THIS-WIC evaluated the impact of delivery of WIC nutrition education and breastfeeding support services via telehealth compared to usual care (i.e., in-person appointments). During COVID-19, with physical

presence waivers in place, the majority of appointments in intervention agencies and all appointments in comparison agencies were remote and telephone-based. This report focuses on the implementation and outcomes of telehealth service delivery in GA using Pathways.

1.1   Need for Telehealth Solution in Georgia

In FY2019, GA WIC served slightly more than 200,000 participants;[2] participation declined and GA WIC served 186,300 participants in FY2020, representing a 38.7 percent coverage rate.[3] Historically, GA has experienced difficulties in providing WIC services to clients in rural locations, especially for those lacking accessible transportation. To address these concerns and make services accessible to eligible participants in underserved and rural areas, the GA Department of Public Health (DPH) established telehealth/telemedicine networks using a two-way, real-time, Health Insurance Portability and Accountability Act (HIPAA)-compliant video network. Prior to THIS-WIC, this network was internal (i.e., clinic to clinic) and required WIC clients to be present in a clinic to access services. GA WIC participants also faced barriers to accessing WIC services in the referral process and requirements. Although GA WIC focused its services around in-person visits, especially for high-risk clients, they also recognized that WIC clients were not always able to get to an in-clinic appointment and implemented procedures and policies to allow services to be provided via telephone when necessary to provide comprehensive care. GA WIC recognized that offering in-person and phone appointments impacted their ability to maintain a consistent level of service across all appointment types. GA WIC identified video education and video-based appointments as critical to supporting delivery of high-quality care, allowing staff to see and better engage WIC clients, assess high-risk participants, and provide real-time breastfeeding counseling and support.

1.2   Telehealth Technology Implementation Through THIS-WIC in Georgia

GA WIC developed a telehealth solution that incorporates Pathways software into WIC programming. Pathways allowed WIC professionals to connect with a client anywhere where internet service is available via video conferencing. Pathways provides a HIPAA-secure method for clients to receive nutrition education and breastfeeding support, reducing the need to come into a WIC office. GA WIC developed the platform to align with the clinic environment and worked with Pathways to implement the design, which functions in both high- and low-bandwidth areas due to the web-based design.

WIC clients can access Pathways through a computer, smartphone, or tablet using a link provided to them via email or text message by the WIC staff. Upon joining, clients enter a virtual waiting room and triaged to receive relevant services such as a virtual nutrition and breastfeeding consultation. If a client has specific needs that would benefit from advanced level care (such as from an IBCLC), the solution allows staff to monitor the "warm transfer" to the next available professional as needed, passing on any relevant information to the other staff member. If a WIC client prefers not to wait, WIC staff identify an alternative time to connect the client with qualified professional staff. The assigned appointment can be sent in real time upon

client request, mimicking a walk-in clinic option, or by a scheduled appointment to create the experience of a traditional clinic. Virtual appointments allowed GA WIC to provide services on demand and connect participants with appropriate follow-up and support even in areas with limited staffing. For example, although RDs and IBCLCs may not always be available in every clinic, these professionals can provide services from other clinics through virtual appointments, saving travel and staff time costs and reducing appointment wait times.

GA WIC used Pathways for breastfeeding and nutrition education contacts. Clients received one-on-one breastfeeding education, Breastfeeding Peer Counselor access and support, and breastfeeding information and skilled lactation support through Pathways. Breastfeeding Peer Counselors contacted clients four times during the prenatal period and another four times during the postpartum period. These contacts occurred over the Pathways platform. GA WIC focused on Value Enhance Nutrition Assessment (VENA) and Patient Centered Education (PCE), which encourages education topics offered to be guided by the client. Clients could receive nutrition education up to four times during the year through Pathways. GA WIC also conducted a pilot in one local agency involving a mobile WIC clinic that traveled to community sites, including the local hospital. Clients were notified of the mobile clinic location via email/text. The mobile clinic staff connected the client to clinic-based nutrition education or breastfeeding support staff via Pathways with technology set up in the mobile unit. However, the mobile clinic encountered technological challenges connecting to Pathways, due to low bandwidth/connectivity, and as a result conducted appointments via telephone. The THIS-WIC evaluation did not assess implementation or outcomes of this pilot.

2.   Project Methods

GA WIC used a non-randomized design to examine whether the use of Pathways decreased barriers and increased access to services in underserved communities, increased client satisfaction, and increased opportunities for delivery of nutrition education and breastfeeding support over a 16-month period, from March 2022 to June 2023. The evaluation focused on the use of Pathways to provide nutrition and breastfeeding education to all (high-risk, low-risk, and breastfeeding) clients. Overall, THIS-WIC used the five-stage model for comprehensive research on telehealth developed by Fatehi and colleagues[4] to guide the overall design of the telehealth research study. GA WIC telehealth project occurred in Stages 3 and 4 (pre-implementation and implementation); see **Appendix GA.1** for details and the model.

2.1   Research Questions

THIS-WIC examined several research questions to understand the implementation and impact of Pathways when added to WIC standard operating procedures for nutrition education (**Table 2-1**) and whether ONE could overcome known barriers to WIC participation and retention by enhancing existing care practices. In the wake of COVID-19, THIS-WIC worked closely with GA WIC to understand changes to usual practices during implementation (e.g., offering telephone-based appointments as "usual care"). Implementation tracking tools were created to document and understand delivery of services in both intervention and comparison agencies throughout the evaluation period.

2.2   WIC Agencies Participating in Telehealth Solution Implementation and Evaluation

GA WIC selected three local agencies (21 clinics) to implement Pathways, based on geographic location in the state, demonstrated history of providing quality service, capacity to participate (i.e., adequate staff), interest in implementing a new telehealth system, and indication of readiness to implement telehealth. GA WIC used local agency-level data on race, ethnicity, and total participation/caseload to match the intervention agencies with three comparison local agencies (eight clinics). **Appendix GA.1** lists the local agencies and the number of associated clinics involved in the THIS-WIC evaluation.

2.3   Data Sources for Pathways Evaluation

This study used newly collected and extant quantitative and qualitative data to assess processes and outcomes. The data sources included (1) Management Information System (MIS) data, (2) telehealth metadata collected directly by Pathways, (3) Client Survey data, (4) Staff Survey data, (5) staff key informant interview data, (6) implementation data, and (7) cost data. **Appendix GA.1** lists the lead for developing and collecting these data.

Table 2-1. Staff-, Local Agency-, and Client-Level Research Questions in GA

Staff and Local Agency Levels

- What was the staff attitude toward the telehealth solution?
- What was the staff level of readiness to implement the telehealth solution?
- What was the staff level of satisfaction with the telehealth solution?
- What was the staff level of telehealth solution adoption?
- What was the staff acceptability of the telehealth solution?

- What was the perceived feasibility of using the telehealth solution to provide WIC services?
- Did staff perceive telehealth services to make WIC services more accessible for WIC clients?
- Did offering telehealth services affect staff travel (frequency and time) to clinics?
- What was the startup cost of telehealth solution in WIC?
- What was the ongoing cost of offering WIC services at the intervention and comparison agencies?

Client Level

- What was the level of telehealth solution adoption among clients in the intervention agencies?
- What was the level of satisfaction with WIC services in the intervention and comparison agencies?
- What was the perceived acceptability (accessibility and feasibility) of WIC services in the intervention and comparison agencies?
- What were the perceived barriers to attending WIC appointments in the intervention and comparison agencies?

- What was the intent to change dietary behaviors in the intervention and comparison agencies?
- What was the daily fruit and vegetable intake in the intervention and comparison agencies?
- How did rates of breastfeeding initiation and duration differ among those in the intervention and comparison agencies?
- What was the food benefit redemption among those in the intervention and comparison agencies?

2.3.1 MIS Data

GA WIC MIS provided administrative data at two levels: the microlevel (individual-level MIS data from WIC clients/clients who completed the THIS-WIC survey) and macrolevel (aggregate MIS data from all clients at participating local agencies). See **Appendix GA.2** for the list of MIS data provided by GA.

2.3.2 Pathways Metadata

Pathways captured monthly aggregate data at the local agency level and by provider role (e.g., RD, IBCLC) on the number of telehealth appointments scheduled and kept and the total and average number of monthly minutes per appointment. See **Appendix GA.2** for the list of Pathways data provided by GA.

2.3.3   Client and Staff Surveys

2.3.3.1   Client Survey

The Client Survey was developed by THIS-WIC to assess accessibility, barriers, satisfaction, and attitudes toward using telehealth. The survey was developed using existing valid/reliable tools[5-19]; GA WIC reviewed the survey to ensure that it captured key aspects of their telehealth solutions, that it had a low respondent burden and easy-to-follow format, and that the literacy level was appropriate for the WIC clients they served. The survey was pilot tested with WIC clients (n=11) in a local agency not participating in the THIS-WIC evaluation, and the average survey completion time was less than 5 minutes. The findings from the pilot testing were used to clarify wording and improve navigability. The final survey included 37 questions, with an expected respondent burden of 10 minutes. The survey was translated into universal Spanish. See **Appendix GA.3**. for the English and Spanish language versions of the Client Survey.

2.3.3.2   THIS-WIC Staff Survey

THIS-WIC developed the Staff Survey to assess staff satisfaction with telehealth for providing nutrition education or breastfeeding support, accessibility and acceptability of the solution, and staff attitudes toward and readiness for telehealth use. The survey items are drawn from reliable/valid instruments[10, 17, 20-26] and focus on key outcomes listed in **Table 2-1**, along with additional demographic questions and covariates (e.g., years of experience working at WIC). Like the Client Survey, a research survey methodologist reviewed the Staff Survey to ensure comprehension and readability. The final staff English language survey included 25 questions and the average completion time was 15 minutes. See **Appendix GA.3**. for the Staff Survey.

2.3.4   Staff Key Informant Interviews

GA WIC staff and directors implementing Pathways were invited to participate in interviews. The key informant interview guides were developed by THIS-WIC in collaboration with the State agencies; the questions were informed by the implementation frameworks of Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM)[27] and Consolidated Framework for Implementation (CFIR) [28] to assess eight key aspects such as relative advantage, compatibility, complexity, and trialability. Once developed, the guide was tested and refined based on a mock interview conducted with a THIS-WIC Advisory Board member who is a former WIC State agency director. Interview findings were used to understand the diffusion of telehealth solutions, activities undertaken to ensure successful implementation, and modifications to workflow to address challenges. Interviews were scheduled for 60 minutes. See **Appendix GA.3** for discussion guide for the WIC staff and director interviews.

2.3.5   Implementation Data

Telehealth implementation data were obtained from two sources: a 46-item Implementation Tracking Tool completed by the GA WIC project team in the early, mid, and late phase of implementation and a local agency reporting tool developed and fielded monthly by GA WIC.

2.3.5.1 Implementation Tracking Tool

To assess implementation adoption, the THIS-WIC project management team developed an Implementation Tracking Tool with a menu of 46 implementation strategies (e.g., identify and prepare champions) from the Expert Recommendations for Implementing Change (ERIC) study.[29] In collaboration with THIS-WIC, the GA WIC project team developed implementation tracking plans and tools for use at intervention agencies. THIS-WIC projects were not expected to implement all 46 strategies but to select those that aligned best with their overall goals. See **Appendix GA.3** for the Implementation Tracking Tool.

2.3.5.2 Local Agency Reporting Tool

The GA WIC team developed a local agency reporting tool to collect implementation information from the intervention agencies. The six-question tool was fielded monthly throughout the evaluation period and included information to document number of appointments scheduled and kept, asked local agencies to document successes and identify challenges faced as well as strategies for overcoming barriers to Pathways implementation. See **Appendix GA.3** for the local agency reporting tool.

2.3.6 Telehealth Solution Startup and Ongoing Implementation Cost Data

THIS-WIC collected both startup and ongoing costs. Examples of startup costs included purchase of videoconference software license and platform access; purchase of new equipment; and staff training. Ongoing costs are those required to deliver nutrition education and breastfeeding services. For intervention agencies that implemented Pathways, ongoing costs for the period after the solution was implemented included annual costs related to maintenance of the telehealth solution (e.g., ongoing training and IT support, service platform subscription, supplies and materials, administrative time). See **Appendix GA.3** for the ongoing cost tracking tool.

2.4 Data Collection for THIS-WIC Evaluation

The GA Institutional Review Board (IRB) served as the IRB of record for the protocol related to collection of WIC client data (Client Survey, MIS data, telehealth metadata). Tufts University IRB established a reliance agreement for the client protocol and separately reviewed and approved all protocols and data collection materials for the Staff Survey and key informant staff interviews led by THIS-WIC.

Before the start of data collection, THIS-WIC principal investigators and study personnel completed human subject protection training, in line with the requirements of the IRB overseeing the protocol. In addition, THIS-WIC designed and provided online training via Zoom to GA WIC study personnel relevant to their involvement in the project. The training covered both implementation and evaluation aspects of the work, including details on the study and an overview of human subjects' research protection. This training was recorded to be available for a refresher and in the event new staff came on board after the start of implementation.

2.4.1 MIS Data

At the study's onset, GA WIC provided microlevel data weekly, allowing the study team to review the data and provide feedback to address data quality and integrity questions. After the processes were established, GA WIC provided these microlevel data monthly for the rest of the study duration. GA WIC also provided macrolevel data for all intervention and comparison local agencies on a quarterly schedule.

2.4.2 Pathways Metadata

GA WIC shared Pathways metadata with THIS-WIC quarterly. All data were captured directly by the Pathways platform; monthly data were provided in Excel format to the THIS-WIC team.

2.4.3 Client and Staff Surveys

2.4.3.1 Client Survey

The Client Survey was programmed through the SurveyMonkey Advantage platform (SurveyMonkey, San Mateo, CA). For survey administration, GA WIC used One-Call Now, a web-hosting messaging system, for both the intervention and comparison agencies to distribute the survey. One-Call Now allowed clients to receive the Client Survey via text message or email. Client Survey response rates were low through March 2022. In an effort to boost response rates, clients who completed the survey received a $25 Amazon gift card from the THIS-WIC study.

2.4.3.2 Staff Survey

GA WIC provided a list of eligible staff (n=105) (i.e., those who were responsible for delivering nutrition education/breastfeeding support at intervention agencies) and their email address to THIS-WIC. THIS-WIC sent an invitational email with a link to the Staff Survey to all eligible staff. Surveys were distributed electronically via Qualtrics twice during the intervention, once in the first quarter after project implementation (early phase) and again in the last quarter of project implementation (late phase). Up to two reminders were sent via email to eligible staff who did not complete a survey, and reminders were sent at 1 week and 2 weeks following the initial outreach. Incentives were not provided to WIC staff for completion of surveys, in compliance with federal and/or state policies.

2.4.4 Staff Key Informant Interviews

The THIS-WIC team used a semi-structured interview guide to conduct key informant interviews via Zoom in the early and late phase of the implementation period (first and last quarter of project implementation period). The interviews were scheduled for 1 hour and digitally recorded. Incentives were not provided to WIC staff for completion of interviews, in compliance with federal and/or state policies.

2.4.5   Telehealth Solution Implementation Data

Implementation data were collected using two methods: (1) responses to the Implementation Tracking Menu for startup (pre-implementation), midway, and endpoint or late phase of implementation (**Appendix GA.3**) and (2) via the local agency reporting tool fielded monthly during the implementation period by the GA WIC team to agencies implementing telehealth (**Appendix GA.3)**.

2.4.6   Telehealth Solution Startup and Ongoing Implementation Cost Data

For startup costs, THIS-WIC extracted data from original project budgets provided by each subgrantee at the time of award. This included information on all staff working on startup activities (both paid for from the grant and in-kind contributions), equipment used in startup activities (both paid for from the grant and in-kind contributions), and contracted services supporting startup activities. THIS-WIC followed up with GA WIC staff to obtain missing data and clarify cost-related questions, and updated the cost tracking tools to ensure all costs were captured prior to analysis. This information included program implementation and evaluation for staff members and other resources, identified in-kind staff and resources not listed in budgets, and included details on the services provided in contracts.

For ongoing service delivery costs, GA WIC completed an Excel-based cost collection tool reporting on the resources used to provide services in a month and the number of clients served. The tool captured all staff, infrastructure and equipment, supplies, contracted services, overhead, and travel used for providing services at intervention and comparison agencies. The resource data were combined with the reported number of monthly enrollments to generate the cost per enrollment. GA WIC was only able to provide enrollment data, as their current data systems do not collect appointment data. THIS-WIC collected costs for a typical month prior to telehealth implementation for fiscal year 2019 (initial) and an average of the first 6 months (midpoint) and last 6 months (endpoint) of implementation. THIS-WIC reviewed completed cost instruments submitted by GA WIC to ensure correct and reasonable data entries and conducted follow-up to resolve data issues.

2.5   Sample Description for THIS-WIC Evaluation

Primary data were collected via surveys from WIC clients and staff. Key informant interviews were also conducted with WIC staff.

2.5.1   Client Survey Sample Size, Response Rate, Characteristics, and Representativeness

WIC clients who received nutrition education or breastfeeding support were eligible to take part in the evaluation. Respondents had to be 18 years of age or older and fall into one or more of the following categories: pregnant, non-breastfeeding postpartum, breastfeeding, or the parent/guardian of a participating infant or child in the WIC program. With a 5 and 10 percent response rate (typical for online surveys), the number of target survey completes were 1,122 and 2,242, respectively.

Following their WIC appointment, WIC clients were invited to complete the Client Survey; 1,668 clients consented to complete the survey. Of those who consented, 91 percent completed the survey and 10.7 percent were successfully linked with the MIS identifier; analysis that did not include demographic variables derived from the MIS included all completed surveys. Analysis involving MIS data to describe the characteristics of survey respondents and regression modeling controlling for demographic characteristics was limited to the data from matched respondents.

Of the 1,517 survey respondents, 1,358 (89.5%) were in intervention agencies and 159 (10.5%) were in the comparison agencies. Reasons for differences in response rates were not examined. Aside from the survey respondent's age, none of the household characteristics were significantly different between the intervention and comparison agencies. Overall, more than half (53.7%) of the respondents self-identified as non-Hispanic Black/African American, 20 percent identified as Non-Hispanic White and slightly less than 20 percent identified as Hispanic. Over half of the respondents (52.5%) were between 26 and 35 years of age. The intervention agencies had more respondents between the ages of 18 and 25 than the comparison agencies (23.1% vs. 17%). Overall, 69 percent of the respondents had some high school education and slightly less than 15 percent had completed some college education. Most respondents (93%) reported the use of English at home (written). The median household size was four members, and the median annual household income was $12,000. About 52 percent of respondents lived in a suburban area, 25 percent lived in an urban area, and 23 percent lived in a rural area.

About 30 percent of respondents had received WIC services for less than 1 year and 17 percent had received WIC services for 5 years or more. A greater proportion of respondents from the comparison than the intervention agencies had received WIC services for 5 years or more (22.3% vs. 16.7%). Based on MIS data, about 36 percent of survey respondents had a high-risk WIC client in their household. The aggregate MIS data and Client Survey data were used to generate balance tables and assess the representativeness of the survey respondents. This analysis entailed comparing the survey respondents' sociodemographic characteristics, duration of WIC participation, and high-risk status with those of clients at the intervention and comparison agencies. See **Appendix GA.1** for sample size calculations, response rate, sociodemographic characteristics, and representativeness of Client Survey responses.

2.5.2 Staff Survey Sample Size, Response Rate, and Representativeness

All staff involved in the delivery of nutrition education/breastfeeding support at intervention agencies were invited to participate in the Staff Survey. The number of staff invited to complete the early and late phase surveys was 111 and 110, respectively. The response rate for the early phase survey was 66 percent and for the late phase survey it was 60 percent. Because WIC agencies experienced staff turnover and hired new staff, the same survey was administered in the early and late phase.

Respondents in the early and late phases were comparable in age, race/ethnicity role at WIC, years of WIC experience, and travel to other WIC clinics. WIC staff were primarily RDs and

breastfeeding support staff, and about 40 percent had worked in WIC for over 12 years. Although all staff surveyed in the early phase traveled to provide service prior to COVID-19 pandemic, about 85 percent did so in the late phase. See **Appendix GA.1** for sample size and characteristics of survey respondents at early and late phase.

2.5.3 Staff Key Informant Interview Sample Size and Response Rate

All staff who completed the Staff Survey were invited to participate in the key informant interviews. The response rate for staff interviews was 43.2 percent in the early phase and 40 percent in the late phase. See **Appendix GA.1** for the sample size and response rate for each WIC local agency.

2.6 Analytic Approach

2.6.1 Aggregate MIS Analysis

Aggregate MIS data included WIC client characteristics, certification information, nutrition and risk assessment, nutrition education, and WIC food benefit redemption. GA WIC also linked the Client Survey identifier with the client-level MIS data; this was used to assess representativeness of Client Survey respondents and to describe the characteristics of respondents. Descriptive analyses were used to analyze the data and present the findings. Crosstabulations and chi-square statistics were used to examine the differences between intervention and comparison agencies. All analyses were conducted in SAS 9.4. See **Appendix GA.1** for details.

2.6.2 Pathways Metadata

Pathways automatically tracked usage metadata at the staff and local agency levels. GA WIC provided quarterly metadata for all intervention agencies spanning the intervention period.

2.6.3 Client and Staff Surveys

2.6.3.1 Client Survey

The client outcomes evaluation examined the experiences of WIC clients who received WIC services and completed a Client Survey in one of the WIC clinics associated with the six local agencies in the study between March 2022 and June 2023. The data were analyzed using descriptive statistics, crosstabulations, and unadjusted and multivariable regression.

Descriptive statistics include respondent and household demographics, availability and comfort with technology, attitudes toward telehealth intervention, and respondent behaviors (fruit and vegetable consumption and breastfeeding). Crosstabulations for categorical variables present proportions among those who provided data (i.e., missing values were excluded from the analysis) by group (intervention and comparison). Descriptive statistics for continuous variables present medians and interquartile ranges (25th percentile–75th percentile) because the data on household income and household size were skewed.

Significance tests compare respondent demographics and household characteristics, availability and comfort with technology, and respondent behaviors between respondents in the intervention and comparison agencies. For categorical variables, chi-square tests for independence are presented. For continuous variables, the median test was used. This test examines whether the two samples come from the same population by assessing the distribution of sample scores around the median instead of comparing the actual median values. Analyses to assess client outcomes (satisfaction index, barriers, and behavior change intentions) employed unadjusted hierarchical linear regression models comparing differences in means for intervention and comparison agencies. For the client satisfaction index, demographic/household variables that demonstrated statistically significant differences between intervention and comparison agencies were entered into multivariable hierarchical linear regression. See **Appendix GA.1** for details.

2.6.3.2   Staff Survey

Descriptive analyses were undertaken to examine the Staff Survey data. Chi-square tests were performed to examine differences in responses from early to late phase surveys. When analyzing the staff outcomes, attempts were made to adjust for biases in the standard error estimate caused by repeated measurements whenever feasible. For ordinal/continuous outcomes, the analysis adjusted for the unique participant ID numbers as random effect and corrected for repeated measurements. However, because of low sample size, the same adjustments could not be made for categorical outcomes, which impose more stringent requirement in sample size. Instead, these data were analyzed as if the two time points are not related. All analyses were conducted in Stata 18 (StataCorp LLC, College Station, TX, USA).

2.6.4 Staff Key Informant Interviews

All interviews were conducted in English, audio-recorded, and transcribed by Zoom verbatim. Each transcript was reviewed for accuracy and corrected to reflect actual dialogue spoken by listening to the audio recording. Before undertaking analysis, three THIS-WIC team members created a preliminary codebook, with codes deductively informed primarily by the Consolidated Framework for Implementation Science Research (CFIR)[28] and the Evaluation Framework for Telemedicine.[30] Graduate research assistants (n=5) with coursework and prior experience in qualitative analyses also coded interviews. A single codebook was used for both early- and late-phase coding. To start, coders independently coded the same four transcripts from the different WIC State agency projects. Coders met to compare codes, arrive at a final determination, and update the codebook if necessary. Additional details of establishing interrater reliability are provided in the technical appendix (**Appendix GA.1**).

2.6.5 Telehealth Solution Implementation

The analysis of the Implementation Tracking Tool data involved tabulating the startup, midpoint, and endpoint status for each strategy to assess change over time. The startup measures were considered the implementation plan, and the change from startup to midpoint and endpoint measures were considered indicative of readiness. In addition to understanding the readiness

for implementation, these data were also used to provide context for the staff- and client-level outcomes. See **Appendix GA.1** for details.

2.6.6 Telehealth Solution Startup and Ongoing Costs

Cost analysis was conducted to understand the (1) startup cost, (2) ongoing service delivery cost, and (3) ongoing cost per enrollment. All costs were adjusted to 2023 dollars using the Consumer Price Index. All analyses were completed in Microsoft Excel and Stata 18.0. The COVID-19 pandemic impacted the timeline and rollout of the telehealth platform. WIC service delivery in both intervention and comparison agencies was adjusted due to the pandemic, and even the comparison agencies transitioned to virtual service delivery during the pandemic's height. To facilitate the comparison of costs from before to after introduction of the telehealth solution and between intervention and comparison agencies, the pre-implementation period was set to FY2019 (i.e., before the start of the pandemic; GA WIC provided the FY2019 data to THIS-WIC in 2023). Change in service delivery costs from pre-intervention (FY 2019) to post-intervention (March 2022 through February 2023) were examined.

3.   Results: Pathways Implementation in Georgia

Between Q1/2022 through Q2/2023 (March 2022 through June 2023), six local agencies (three intervention and three comparison) participated in the 15-month telehealth evaluation. This chapter presents implementation outcomes (process and cost). Data sources for findings included in this chapter include the C Staff Survey, staff key informant interviews, telehealth metadata, implementation data, and startup and ongoing cost data. Chapter 4 presents the client experience with telehealth and the primary and secondary outcomes.

3.1   Telehealth Appointments Offered and Completed by Staff

Information on telehealth appointments offered and completed by WIC staff using Pathways was assessed using data gathered from the Staff Survey and Pathways metadata. As seen in **Table 3-1**, staff responding to the survey from intervention agencies conducted nutrition counseling and breastfeeding support using Pathways. Data from the local agency reporting tool provided insights into reasons for not using telehealth. Common barriers included technical issues experienced by the client (e.g., connectivity), client preference for in-person appointment, and staff-level barriers related to ongoing projects and competing priorities, including eWIC rollout.

Table 3-1.   Service Type Offered to WIC Participants via Telehealth in GA

Service Type	Early Phase (%) N=70	Late Phase (%) N=60	p-value[a]
Nutrition counseling or breastfeeding support			0.292
Nutrition counseling	28.6	21.7	
Breastfeeding support	8.6	15.0	
Nutrition counseling and breastfeeding support	12.9	21.7	
Neither	50.0	41.7	

Source: THIS-WIC Staff Survey, intervention agencies only
[a] p-value based on chi-square test.

3.2   Attitude Toward Telehealth

WIC staff had a positive attitude toward offering telehealth services because of their ability to increase accessibility to WIC services and increase client participation and retention (*CFIR constructs: innovation advantage, outer setting, inner setting, and characteristics of individuals*[*]) through virtual appointments. Statements centered around making WIC services more accessible to the clients by addressing barriers such as transportation, travel time and costs, scheduling conflicts for clients with care responsibilities, long wait times at the clinic, and challenges with paper vouchers, and allowing clients to have a stress-free appointment from the

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[*] As described in Chapter 2, qualitative data was analyzed deductively using the CFIR Framework and inductively. To align project findings with the broader implementation science literature, we note alignment with CFIR constructs when appropriate.

comfort of their home or work, during breaks. Staff perceived telehealth as being critical to ensuring that they met the clients "where they are" to provide services, particularly when they were not open on weekends and late evening hours. Staff also mentioned that telehealth services allowed them to offer tailored support to a diverse client base, reduce no-show rates, and improve retention rates. These themes were more prevalent in the late phase than early phase interviews.

> *"they're just relaxed and chatting with you, so, they're not, you know frustrated because they've been here an hour already you know so." [Staff participant 11]*
>
> *"Especially like, we're a pretty rural area, like our county is massive and we have people in our county that have to drive like 40 minutes to get here, so this is extremely helpful for those people." [Staff participant 22]*
>
> *"I think part of that is our transition to eWIC, and part of that is that we have, we're kind of meeting the needs of our clients by offering this, you know virtual service so they can, you know, get on their WIC appointment, you know, on their lunch break, instead of leaving their place of business, you know their workplace to come for appointment or miss work, or you know, whatever their personal situation is. I think that the, as far as it improving our workflow, it's allowed us to see more clients." [Staff participant 2]*
>
> *"Even if they're at home, or if they're at work, even if the children are here, they're kind of like in the background...it makes it a little easier for us to have that (kids not running around) and make it a little less stressful." [Staff participant 9]*
>
> *"There's definitely that option, or for our working parents, because we are only open from 8 to 5, and we do appointments from 8:15am to 3:30pm." [Staff participant 9]*

Staff noted that offering telehealth also benefited the staff because they could attend to clients from any location. Staff also perceived increased job security due to increased caseload. They noted that they were able to accommodate walk-in clients and respond to in-bound client calls, which was a win-win for both clients and staff.

> *"So right now, it's the person that's in my clinic that's helping, and then a person at the [local agency] office helping, but neither of them have had to drive to that clinic. So it not only saves the participants in that gas and that drive time, but it also saves our staff, and that gas and that drive time. And we're able to help out more, in more places and kind of be in more than one place at a time, versus you know, being in one clinic and only being able to do things for that clinic." [Staff participant 9]*
>
> *"So we have staff that you know or clinics that are smaller, that are short, short-staffed at times, or you know they just have fewer staff to operate. So then we can, you know, pull from one of the other clinics to have someone else jump in and cover those appointments." [Staff participant 2]*
>
> *"Well, it will also benefit us because our jobs are funded basing on participation of the clients, so if we can offer them a different avenue with Pathways. We can probably you know increase our caseload and secure our jobs a little more, so you know." [Staff participant 20]*

Staff perceived that telehealth services are useful in promoting health equity among WIC clients. Staff also considered telehealth to be an integral part of WIC's health equity strategies (see **Table 3-2**).

Table 3-2.   Attitudes Toward Telehealth among Staff Survey Respondents in GA

Statement[a]	Early Phase	Late Phase	p-value[b]
	N=35	N=35	
	Mean (95% CI)		
Telehealth is useful in promoting health equity among my WIC participants	4.19 (3.90, 4.56)	4.36 (4.06, 4.65)	0.316
Telehealth should be a part of all WIC organization's health equity strategies	4.26 (4.00, 4.52)	4.51 (4.25, 4.76)	0.040

Source: THIS-WIC Staff Survey

[a] Responses were assessed on a 5-point Likert scale, with 1 = Strongly disagree and 5 = Strongly agree.

[b] p-values based on mixed effect linear regression, controlling for repeated measurements at the individual level.

3.3   Readiness to Implement Telehealth Solution

Data on perceived readiness to implement the telehealth solution were obtained from four sources: (1) Implementation Tracking Tool completed by staff in in the early, midpoint, and endpoint of telehealth implementation; (2) local agency reporting tool; (3) early- and late-phase the Staff Survey; and (4) key informant interviews with WIC administrators and staff in the early and late phase.

3.3.1   Telehealth Implementation Strategies

At startup, GA WIC selected 18 strategies for implementation and had already implemented 15 strategies at the time of startup. By endpoint, GA WIC had implemented 43 of the 46 strategies; which included all strategies in six categories: provide interactive assistance, adapt and tailor to context, develop stakeholder (e.g., WIC local agency staff and directors, WIC clients) interrelationships, train and educate stakeholders, support clinicians, and engage consumers. By the endpoint, GA WIC had not implemented three strategies: develop a formal implementation blueprint, change service sites, and start a dissemination organization or committee. See **Appendix GA.4** for details.

3.3.2   Staff Training and Frequency of Telehealth Use and Mode Preference

In the early phase, about 5 percent of the staff indicated having prior telehealth experience whereas in the late phase about 11 percent reported having prior telehealth experience. This prior experience in the early phase may reflect staff experience with telehealth platform use before THIS-WIC rollout. WIC staff delivering telehealth services were trained prior to implementation. Staff reports on training duration varied considerably; in the early phase, almost two-thirds of the staff reported receiving 2 to 4 hours of training whereas in the late phase, about one-third reported receiving 2 to 4 hours of training. In general, the hours of training reported by

staff may reflect their experience with using telehealth; some staff may be reporting duration for the initial training and others may be reporting duration for refresher training.

As seen in **Table 3-3**, in the early phase, more staff used Pathways daily for breastfeeding support appointments (54%) than for nutrition education appointments (43%). However, in the late phase, this pattern was reversed with 81 percent of staff using Pathways daily for nutrition appointments and 50 percent of staff using it for breastfeeding support appointments. Staff preference to use Pathways (vs. in-person or phone) for nutrition counseling and breastfeeding support was comparable in the early and late phases.

Table 3-3. Telehealth Training Duration and Frequency of Use in Early and Late Phase in GA

Variables	Early Phase (%)	Late Phase (%)	p-value[a]
Prior telehealth experience	N=35	N=35	0.374
Yes	5.6	11.4	
Hours of training	N=36	N=35	0.050
0 hours	0.0	5.7	
0 to <2 hours	22.9	40.0	
2 to <4 hours	61.1	28.6	
4 to <6 hours	5.6	11.4	
6 to <8 hours	2.8	0.0	
8 or more hours	5.6	14.3	
Frequency of telehealth solution use: Nutrition Counseling[b]	N=28	N=26	0.004*
Daily	42.9	80.8	
Weekly	57.1	19.2	
Monthly	0.0	0.0	
Every other month	0.0	0.0	
Frequency of telehealth solution use: Breastfeeding support[c]	N=13	N=22	0.867
Daily	53.8	50.0	
Weekly	38.5	36.4	
Monthly	7.7	13.6	
Every other month	0.0	0.0	
Mode preference: Nutrition counseling[b]	N=23	N=21	0.380
In-person	47.8	28.6	
Pathways	39.1	47.6	
Phone	13.0	23.8	
Mode preference: Breastfeeding support[c]	N=10	N=14	0.301
In-person	90.0	64.3	
Pathways	10.0	21.4	
Phone	0.0	14.3	

Source: THIS-WIC Staff Survey

[a] p-values are based on chi-square tests.

[b] Analysis restricted to those who indicated they used telehealth for nutrition education.

[c] Analysis restricted to those who indicated they used telehealth for breastfeeding support.

* $p<0.05$

Key informant interviews also provided insights into the training offered to staff. Several statements captured the strengths and limitations of the training provided to staff (*CFIR constructs: inner setting and implementation process*). Staff discussed challenges and strengths of the training offered to become familiar with using Pathways. Some challenges that emerged were a short lag between training and implementation, which limited their ability to fully engage in self-paced learning; lack of step-by-step instructions or practice sessions on how to log on to

the portal; broad discussion of project but insufficient focus on how to implement it; and not enough attention to the different skills and experiences of staff with technology. Staff noted that these challenges left them feeling unprepared for implementation.

> *"...and then, again I just didn't feel like I got very much like I didn't get hands on time, to use the system during the training and we were just kind of after that we were just kind of expected to just start using it with clients and I didn't feel like there was much time for hands on or like one-on-one instruction."* [Staff participant 65]
>
> *"I don't think it prepared me at all. Because I didn't know if they did not show us the portal or get into it, or anything like that I think he was just like it was an introduction for the whole grant and all that."* [Staff participant 25]
>
> *"...everybody is at a different level with it technology wise and there is more comfort with doing virtual for it check in and make sure everybody, can do that on our own, but I'm just saying maybe a little check in to remind us of that. Right, so if you, you know if you feel like 'you're not comfortable with it, you need to practice it and its also like you're giving us a deadline and giving people deadlines like that may not help."* [Staff participant 13]
>
> *"I guess we haven't been trained on what it looks like on the client side, because I don't know if they get an invite how it is on their side Every now and then I can hear they get a message and say that I'm on the line and so but I have. We haven't I haven't even seen a client side of Pathways."* [Staff participant 8]
>
> *"In regards to that you know, in the training, I think it would be you know, like you know have troubleshooting problems, you know that would be good to have something like that you know this happens, "do this this and this"....You know, and then even having like a little, just like a little PDF you know, like "troubleshoot, try this or try this" you know for me that's what works better than having someone sitting here watching someone goes through a million different little things that I'm not going to remember."* [Staff participant 11]

Staff who felt prepared discussed several effective components of training, such as interactive, hands-on opportunities to gain familiarity before going live. Staff also appreciated the post-training resources, which included self-paced materials and technical support to troubleshoot IT issues; noting that the videos and guides served as reference, they used these to gain familiarity with the solution following the training. Finally, staff noted that routine check-in meetings to ask questions, hear about the experiences of other staff members, discuss solutions to challenges, and receive IT support to troubleshoot challenges helped them become comfortable with technology and the telehealth solution. Staff noted that the training, post-training process, and working alongside colleagues gave them the skills and confidence to promote the telehealth platform to their clients and make them feel comfortable.

> *"...It has been presented in a way that is easy, at least for me to understand, so the first day I used Pathways I know everything that I have to do, how to send invitations to upload a parson. Find their medical restrictions. It was all easy to use."* [Staff participant 81]

> *"I think that was helpful that they went through step by step and showed us what clicking on each thing is going to do, what we shouldn't click on, what we can [click on] you know that kind of thing."* [Staff participant 22]
>
> *"Because it was all so simple and it goes straight to exactly what we have to do with Pathways, the work was informative but at the same time, it was not a lot of information that you were overwhelmed."* [Staff participant 81]
>
> *"But we definitely practiced afterwards, because we were like okay, how do we do this, and what do we do it, how do we do the appointments and so on."* [Staff participant 24]

In both the early and late phases, WIC staff acknowledged the potential benefits of the telehealth solution but also expressed concerns about its execution amid the complexity and diversity of settings and realities of their workplace. For example, staff described the challenges and stress of simultaneously adapting to multiple changes and transitions to new systems such as telehealth, Electronic Benefit Transfer (EBT) systems, and the ongoing pandemic-related changes. In the late phase, staff indicated that the pandemic had universally affected staffing across all agencies and that all operations were being managed with limited staff. They also noted that the eWIC implementation resulted in staffing changes and shifts in priorities with emphasis on Pathways. WIC staff highlighted the difficulties, hesitations, and mixed feelings about implementing and adapting to the new telehealth system and expressed hesitation and discomfort with the new technology as well as the tension between providing in-person and telehealth appointments. These barriers are consistent with those reported by staff in the local agency tracking tool; staff noted technical issues on the WIC client side with respect to both connectivity and comfort with technology, lack of understanding and fear about clicking on Pathways appointment links in text messages (i.e., clients considered it spam), WIC client preference for in-person appointments, and limited staff capacity and competing priorities such as eWIC rollout in one local agency.

> *"We were being required by USDA to do all these extra fruit and vegetable vouchers and mail them. And we had a whole change of the MIS system, like there was just a lot of stuff."* [Staff participant 5]
>
> *"But my boss, the one who retired, she like she was basically in charge of the pilot for E-WIC and so she was… I don't want to say she wasn't a fan of Pathways. But it was a lot to ask somebody to pilot two things at one time"* [Staff participant 81]
>
> *"So, it's hard to get some of our staff on board of thing, like we really want to promote this to clients, it's going to be so much better, it's going to be so much easier and they're like, 'I don't know if that's my experience with it', so it's even hard to get staff on board."* [Staff participant 21]
>
> *"I think it's less fun, I mean less fun for me. Personally, I would much rather be in-person for sure."* [Staff participant 24]

3.4   Satisfaction with Telehealth Solution

As seen in **Table 3-4**, staff satisfaction with Pathways was significantly higher in the late phase than the early phase (mean: 4.12 vs. 3.59, respectively). However, there was no difference over time in preference for WIC appointments with Pathways vs. in-person WIC appointments; at both time points staff were neutral/agreed that they preferred Pathways appointments over in-person appointments.

Table 3-4.   Satisfaction with Telehealth in Early and Late Phases among Staff Survey Respondents in GA

Statement[a]	Early Phase[b]	Late Phase[b]	p-value[c]
	N=35	N=35	
	Mean (95% CI)		
Overall, I am satisfied with Pathways	3.63 (3.27, 3.99)	4.13 (3.77, 4.49)	0.002*
I prefer WIC appointment with Pathways over WIC appointments that are in-person	3.29 (2.89, 3.69)	3.53 (3.13, 3.93)	0.292

Source: THIS-WIC Staff Survey

[a] Responses were assessed on a 5-point Likert scale, where 1 = "Strongly disagree" and 5 = "Strongly agree."

[b] Ordinal data are summarized as predicted mean (95% confidence interval).

[c] p-values were based on mixed-effects regression for ordinal data (controlling for respondent's ID as random intercept for repeated measurements).

* $p<0.05$

Staff shared various factors that affected their level of satisfaction with offering telehealth services. For example, staff expressed appreciation about the leadership initiative, excitement, and engagement to try new things with focus on expansion and accessibility. Staff noted that their leadership used a supportive and practical approach to rolling out the telehealth solution, which translated to a clear vision and confidence that was conveyed to the team. Staff perceived their leadership as "pioneers" who helped the staff and propelled them to learn and be proficient with the telehealth solution, while demonstrating the benefits for the clients. WIC staff also appreciated the local agency team's support and highlighted the impact of receiving telehealth use data from the local agency to understand their impact. Staff highlighted the overall management for their hands-on approach, clear communication, feedback, and willingness to brainstorm with the staff on strategies to make telehealth more acceptable for the staff and clients. The leadership role was consistent in the late phase interviews; staff indicated that their supervisor welcomed questions and escalated issues to the local agency level, when need be, to ensure timely fixes. Staff also mentioned that their supervisor acknowledged the technological challenges faced by staff and clients and encouraged them to work through such issues. Staff working in larger clinics appreciated the methodical approach used by their supervisor to onboard staff and create schedules, track usage, and address resistance to ensure the telehealth solution was effective.

> *"The leadership has been great. They've been really sort of the pioneers, and I mean you know they've helped us through the process of adapting to Pathways and sort of hand holding us and helping us kind of get to the edge, and you know eventually they've pushed us to do more, it helps us realize that most of our clients, you know, can be reached through it going forward so they've been great all the leadership has been great."* [Staff participant 13]
>
> *"I think that everyone at the [local agency] level is helping as well as the managers here at the clinic level um and I'm sure that if people are doing something to help out, you know, whenever we have issues or so as far as I can see everybody is helping support the process."* [Staff participant 13]
>
> *"My supervisors are really excited about it. So, they were very enthusiastic and encouraging and were just trying to remind us that we will get to see our clients faces and the babies and the children, all that so they were very positive about implementing it."* [Staff participant 65]
>
> *"...I feel like it helped to trial run with coworkers, we were all new at it, and so we all could kind of like um came together and know we're all new at it and try to learn this thing together"* [Staff participant 65]

Staff discussed several aspects of the telehealth design, including its user-friendliness, simplicity, capacity to boost client engagement with visuals and documentation, and potential to refine workflows. However, although staff noted that the system was easy to access and navigate, they experienced frequent connectivity issues during appointments, which affected the quality of appointments and upset their clients because they had to start all over again. Staff described call drops and interruptions with videochat options on different devices, causing them to revert to telephone-only appointments. Staff also identified challenges in sending Pathways links via text messages (e.g., WIC clients not receiving messages or not clicking on links). In addition, staff noted that the telehealth system was not fully integrated in their MIS, which led to inefficiencies during use.

In the late phase interviews, staff described the learning curve in transitioning to telehealth and emphasized the need for ongoing support and training to maximize the effectiveness of telehealth services. They also continued to highlight the need for reliable technological infrastructure connectivity as important factors for successful telehealth delivery.

> *"And I don't see her on my screen anymore because she has disappeared and I called her as I'm sitting in the waiting room, and I can see them just sitting there. And she's, just like in Pathways purgatory like we have no idea where she is and we can't find her and I don't know if that's a connectivity issue or Pathways issue."* [Staff participant 46]
>
> *"If a person has a number that they don't know, and you ask them about the text, they will say to me, "yeah I receive that text, but I didn't know what was there, so I didn't want to press it and be scammed, especially these days." They think it's something like fishy so yeah. That's a challenge they express to me."* [Staff participant 81]

> *"When the girls up front, who take all the information and load it initially and all, they've invested all that time and then the person drops off afterwards and we can't finish the process, they get, you know, that's very upsetting to them, because then we have to try to do it all again another day."* [Staff participant 20]
>
> *"It can be hard when they're like "Okay, how many appointments, did you have? How many people did you see?" and we're keeping track of that on paper versus having like a, you know, a built-out schedule."* [Staff participant 82]
>
> *"If someone was dropped from [telehealth solution] or call, we would have to scramble through multiple methods to find out what happened..."* [Staff participant 13]

WIC staff appreciated the partially or fully virtual work option because it made it easier for them to achieve work–life balance and take care of their family. Staff also mentioned that telehealth would contribute to "increase in our caseload and secure our jobs a little more." Staff also indicated significant investments were made in the telehealth program and hoped there would be enough funding to support the platform going forward.

3.5 Adoption of Telehealth Services

Adoption of telehealth services at intervention agencies was assessed using data gathered from Pathways metadata, key informant interviews, and a local agency reporting tool. In the first quarter, 123 staff had Pathways accounts and that had increased to 180 staff who had accounts by the end of implementation. As seen in **Table 3-5**, the total number of Pathways sessions scheduled and completed increased steadily from Q1/2022 to Q2/2023. In any given quarter, between 56 and 67 percent of appointments scheduled were completed; average session length using Pathways ranged from 7.5 to 12.4 minutes, with slightly longer appointments in the earlier than later quarters.

Table 3-5. Total Number of Pathways Sessions Scheduled and Kept and Average Session Length in GA

Sessions	Q1/2022	Q2/2022	Q3/2022	Q4/2022	Q1/2023	Q2/2023	Q3/2023
Scheduled (N)	1,141	2,888	3,880	2,480	8,375	11,583	3,850
Completed (N)	738	1,697	2,167	1,669	5,222	7,230	2,373
Completed: scheduled (%)	65	59	56	67	62	62	62
Average length (Min)[a]	9.3	9.7	11.6	12.4	9.9	8.4	7.5

Source: Pathways metadata via GA WIC

[a] Includes completed appointments only.

In any given quarter, the percentage of completed Pathways appointments ranged from 11 to 91 percent for breastfeeding education, 33 to 74 percent for nutrition education, and 32 to 71 percent for nutrition education plus breastfeeding education. The average duration for Pathways appointments ranged from 6 to 27 minutes for breastfeeding education, 8 to 14 minutes for

nutrition education, and 8 to 24 minutes for nutrition education plus breastfeeding education (see **Appendix GA.4**).

Key informant interviews provided additional context into staff adoption of telehealth services. In early phase interviews, most staff noted significant operational changes in offering telehealth services stemming from staffing shortages and turnover alongside the additional burden of understanding the transition from paper vouchers to EBT. In the late phase interviews, staff acknowledged lessons learned in adapting to a new method of service delivery and noted the importance of a transition period for both staff and clients. They also noted that that the telehealth solution had introduced new work dynamics and work options that are beneficial for work–life balance and service delivery.

> *"Well, I think you know initially, there was a learning curve because in our state we, our [local agency], like the [local agency] that I'm in, we had only in-person services, whereas other local agencies were kind of working remotely." [Staff participant 2]*
>
> *"Well, so [local agency]) is unique, we have been short staffed when I came here in June, we were supposed to have four additional staff, and it was myself and another clerk." [Staff participant 5]*
>
> *"And I know, specifically in Georgia because right now, we still have the paper vouchers, even that alone like will deter people from continuing with WIC or just signing up for WIC." [Staff participant 21]*
>
> *"And then now that we're having a remote work option, we're gonna have, you know, a team dedicated to just serving those people on Pathways." [Staff participant 2]*

Staff feedback on the local agency reporting tool also described factors that affected telehealth adoption, including challenges with staff seeing or hearing participants and vice versa, technical issues, lack of client awareness about Pathways, and inability to complete appointments via telehealth.

3.6   Acceptability of Pathways

As seen in **Table 3-6**, staff agreed with the statement that Pathways was an acceptable way to provide WIC services and useful for them as WIC staff. The average score for level of agreement with the statement, "Pathways is useful for me as a WIC staff" was significantly higher in the late phase than in the early phase.

Table 3-6. Acceptability of Pathways in Early and Late Phase among Staff Survey Respondents in GA

Statement[a]	Early Phase[b]	Late Phase[b]	p-value[c]
	N=35	N=35	
	Mean (95% CI)		
Pathways is an acceptable way to provide WIC services.	4.33 (4.02, 4.64)	4.59 (4.28, 4.89)	0.215
Pathways is useful for me as a WIC staff.	3.91 (3.60, 4.22)	4.21 (3.9, 4.52)	0.046*

Source: THIS-WIC Staff Survey

[a] Responses were assessed on a 5-point Likert scale, where 1 = "Strongly disagree" and 5 = "Strongly agree."

[b] Ordinal data are summarized as predicted mean (95% confidence interval).

[c] p-values were based on mixed-effects regression for ordinal data (controlling for respondent's ID as random intercept for repeated measurements).

* $p < 0.05$

Findings from the key informant interviews indicate that staff considered telehealth to be an important part of providing services and recognized the need to provide clients a choice (of phone or telehealth) and letting them decide what works best for them (*CFIR innovation advantage and characteristics of individuals*). In the early phase, staff grappled with technological glitches that either extended the appointment duration or resulted in rescheduled appointments. In the late phase, staff noted that they had implemented strategies that eased these technological challenges and mitigated rescheduling, managed appointments, and reduced wait times for clients. Notes on the local agency reporting tool indicate that staff in one local agency considered Pathways to be most suitable for reaching and engaging prenatal and breastfeeding mothers, as those WIC clients were most receptive to having Pathways appointments.

> *"I would just add you know once I hang up the call with her, I haven't entered anything into that I haven't entered her certification into the computer system yet. So I mean, I would say that the Pathways appointments are a little bit time more time consuming in that way." [Staff participant 24]*
>
> *"If we're trying to, you know, do that whole motivational interviewing session within a 15-minute time frame, and then we spend five or ten minutes trying to get this person hooked up on Pathways, that really then limits the rest of our session or can affect clients that maybe had appointments after them." [Staff participant 21]*
>
> *"(You miss their body language) and with all that you're relying only on their voice, with the Pathways you are seeing the client so that communication aspect is there, so it helps a lot." [Staff participant 25]*
>
> *"we're able to give them the choice to be seen again virtually...we're able to send her a link for the next day, or you know it's an hour later, or whatever works." [Staff participant 2]*

> *"We're, let's say a client missed an appointment or service, and we drop them into [telehealth solution] and are quickly able to get a Nutritionist or CSR to jump in and answer the questions."* [Staff participant 2]
>
> *"Appointments themselves don't take as long on [telehealth solution], and we're able to offer more of a streamlined service to our participants."* [Staff participant 13]
>
> *"If I transfer them back to the waiting room and then come back and get them, it'll work."* [Staff participant 81]

3.7   Feasibility of Using Telehealth Solution

As seen in **Table 3-7**, staff found it easy to learn how to use Pathways. Average scores for five indicators increased significantly from early to late phase; these five indicators included ease of use, flexible to interact with, comfort communicating with clients, making daily work easier to do, and allowing interaction with more clients. These scores are indicative of moderate to strong perceived feasibility of using Pathways.

Table 3-7.   Feasibility of Using Telehealth in Early and Late Phase among Staff Survey Respondents in GA

Statement[a]	Early[b]	Late[b]	p-value[c]
	N=35	N=35	
	Mean (95% CI)		
Learning to use Pathways was easy for me.	4.24 (3.97, 4.51)	4.45 (4.18, 4.72)	0.134
I find Pathways to be easy to use.	4.22 (3.94, 4.49)	4.44 (4.17, 4.71)	0.077
I find Pathways to be flexible to interact with.	3.76 (3.45, 4.08)	4.15 (3.83, 4.47)	0.030*
I feel comfortable communicating with WIC clients using Pathways.	4.00 (3.65, 4.35)	4.42 (4.07, 4.77)	0.057
Pathways makes my daily work easier to do.	3.27 (2.87, 3.67)	3.94 (3.54, 4.34)	0.001*
Pathways allows me to interact with more participants.	3.47 (3.08, 3.87)	4.03 (3.64, 4.43)	0.013*

Source: THIS-WIC Staff Survey

[a] Responses were assessed on a 5-point Likert scale, where 1 = "Strongly disagree" and 5 = "Strongly agree."

[b] Ordinal data are summarized as predicted mean (95% confidence interval).

[c] p-values were based on mixed-effects regression for ordinal data (controlling for respondent's ID as random intercept for repeated measurements).

* $p < 0.05$

In the early phase, staff discussed the importance of available technology and ways to improve the current system to enhance accessibility. Staff thought that instead of sending clients with a link to join their telehealth appointment, a QR code at the back of their EBT card may be a better approach as they could then access all WIC appointments easily. In the late phase

interviews, WIC staff specifically noted that they had limited office space for in-person appointments, which raised concerns around privacy and comfort of virtual appointments. WIC staff indicated that lack of space was compounded by "the challenge of conducting consults in public spaces" particularly for staff providing breastfeeding support.

> *"We're going to see it become even more accessible for our clients with things like the possible like QR codes for our low risk and things like that. One thing that can be so much easier for them, just to jump on they have the QR code on their folder there in that low risk wait room and we pick them up talk to them for 10 minutes and then they're good to go." [Staff participant 21]*
>
> *"It's more of a challenge of facilities. I guess there's not enough offices for all of us." [Staff participant 13]*
>
> *"Because I work in a cubicle, and it's not a private office... it can be a challenge to do virtual... meetings." [Staff participant 13]*

Some WIC staff described the importance of having telehealth as an option to sustain WIC participation and avert attrition; they also provided suggestions on ways to ensure sustainability, including aspects of telehealth with higher potential for sustainability. In the early and late phase interviews, staff discussed the importance of telehealth for WIC clients, particularly following the pandemic and raised concerns about having to go back to in-person appointments. They articulated several benefits for WIC clients and perceived it as essential for client retention and explained that the only challenge would be with clients who do not have access to a computer or the internet. Staff hoped their budget would allow continuation and indicated they were motivated to move towards telehealth and have been successful in educating clients on its use.

> *"I mean for everything else it's the way we're going, you know so it makes sense for WIC to head in that direction." [Staff participant 46]*
>
> *"I do think it's sustainable and I think you know, for the most part…Telehealth is just the thing to do now. And a lot of people are kind of already using these kind of telehealth platforms anyway, and so I think because of that, it'll be sustainable." [Staff participant 63]*
>
> *"I don't foresee any challenges necessarily that are that would make it to where we couldn't do this other than People that don't have access, obviously, to a computer." [Staff participant 63]*

Similar themes were included by staff in the local agency reporting tool. Staff provided recommendations for overcoming barriers to Pathways use, including engaging customer service staff to discuss the process of connecting via Pathways with clients when scheduling appointments, availability of internal technical support staff to address issues during appointments, and having staff provide appointments either by Pathways or in-person but not both.

3.8　Improved Accessibility of WIC Services for Clients

As seen in **Table 3-8**, staff providing services through Pathways perceived that it positively impacted accessibility to WIC services for clients. Staff reported that the use of Pathways increased their ability to reach participants who faced challenges in accessing WIC clinics because of traffic or distance. Staff also expressed a high level of interest in continuing to use Pathways to provide WIC services.

From a user perspective, WIC staff noted that the solution was uncomplicated and "more user-friendly than Zoom" and found it easier to facilitate smoother client transitions between staff and appreciated the streamlined sharing of necessary documentation for WIC. In the late phase interviews, staff highlighted that features and customization options such as appointment reminders and chat functions enhanced the utility of telehealth and enhanced the communication and documentation process. Staff also appreciated that telehealth allowed them to see their clients and use visual cues during appointments to facilitate communication.

> *"It's a very easy system to use. It's user-friendly..."* [Staff participant 2]
>
> *"Appointment reminder piece was added for us... chat function... it's a good way to do that."* [Staff participant 2]
>
> *"I think [telehealth solution] flows better having the waiting rooms and just being able to move them to different places and not having to call people back and forth "hey I did this, or I did this" rather everything's just in front of you."* [Staff participant 11]
>
> *"you can't pick up on what's really going on with them as far as motivational interviewing when they're just on the phone you know. But you can pick up on those subtle cues using [telehealth] you know so that's been a plus."* [Staff participant 20]
>
> *"It's easier to talk about breastfeeding. It's easier to talk about paste bottle feeding. Somebody is more interested in your face than they are your voice..."* [Staff participant 83]

Table 3-8. Staff Perceptions of Improved Accessibility to WIC Services for Clients Because of Telehealth in Early and Late Phase in GA

Statement[a]	Early Phase[b]	Late Phase[b]	p-value[c]
	N=35	N=35	
	Mean (95% CI)		
With telehealth, I am able to provide services for WIC participants who have difficulty accessing a clinic because of traffic or distance.	4.33 (4.02, 4.64)	4.46 (4.16, 4.77)	0.203
With telehealth, I am able to provide services for WIC participants who would usually miss their appointments.	4.24 (3.93, 4.56)	4.57 (4.26, 4.89)	0.108
I would like to continue using Pathways to provide WIC services.	4.27 (3.96, 4.58)	4.36 (4.05, 4.67)	0.603

Source: THIS-WIC Staff Survey

[a] Responses were assessed on a 5-point Likert scale, where 1 = "Strongly disagree" and 5 = "Strongly agree."

[b] Ordinal data are summarized as predicted mean (95% confidence interval).

[c] p-values were based on mixed-effects regression for ordinal data (controlling for respondent's ID as random intercept for repeated measurements).

WIC staff noted various aspects of technology focused barriers, with connectivity and clients' digital literacy being the most common barrier in the early and late phases. Some respondents mentioned that it was not uncommon to have variability in clients' type of internet packages, with some clients residing in areas with no internet coverage. Some staff indicated that younger clients were familiar and savvy with using technology, but grandparents often found it confusing and overwhelming. Staff also narrated their personal experiences with connectivity challenges, which allowed them to understand the challenges experienced by their clients. Finally, some staff acknowledged that clients may not have a smartphone, laptop, or computer or may not even have an email account and therefore opt for phone appointments.

> *"Really the only barrier to using telehealth I could see, you know, is if a client, you know, didn't have a ... smartphone or ...computer."* [Staff participant 63]
>
> *"The people that we have and use of technology it's going to be like that, the chat like the young people love it."* [Staff participant 52]
>
> *"... and then another population, which was interesting to run into, is we have a lot of like grand[parents], who sometimes can find the process of clicking links and all that a little confusing or overwhelming."* [Staff participant 65]
>
> *"It's so prevalent like the majority of our sessions are having some kind of connectivity issues. That really feels like a barrier to something that could be really great for us and for the clients"* [Staff participant 21]
>
> *"So now, these clients, a lot of them are used to doing their appointments on the phone and to them that is sometimes easier when they're seeing the connectivity issues. They're thinking or they're saying to us: " Why can't you guys just call me on the phone and do it that way."* [Staff participant 21]
>
> *"So many of our clients just like don't have email, and they don't have access to, you know, a laptop or computer, you know, they have like little notebooks or whatever, but I think you know technology is challenging, so I would say 95% most of our clients, we do the [telehealth solution] through the telephone.* [Staff participant 5]
>
> *"I think the first one, I did have audio issues and you know I don't know that it was on my end or theirs. I couldn't figure out. I feel like they could hear me but I couldn't hear them some kind of thing maybe it was on their end and I'm not one to mess around and try to figure it out so it's just like, "I'm going to call you, so I just called them you know I ended the video, and then we just chatted."* [Staff participant 11]
>
> *"Only I think sometimes the clients have user error. That's the only challenge, you know, like I'll type in a chat box. "Hey? You know I can't hear you," or you know, do this, and I don't know if they can see the chat. I don't know what's going on their end. But for whatever reason, they can't figure out the chat function."* [Staff participant 11]

3.9   Frequency of Travel and Travel Time

The Staff Survey asked respondents about the length of work at WIC. Staff who worked for 2 years or more were asked if their job included traveling to one or multiple WIC clinics prior to the COVID-19 pandemic. In the early phase, 23 out of 72 (43.4%) and in the late phase, 21 out of 63 (39.6%) of staff traveled to one or more WIC clinics prior to the COVID-19 pandemic. As seen in **Table 3-9**, neither the frequency of travel nor the travel time to other clinics differed significantly from the early phase to the late phase of telehealth implementation.

3.10 Startup Cost to Implement Telehealth Solution

The startup period for implementing the telehealth solution in Georgia was from March 1, 2021 to March 1, 2022. As seen in **Table 3-10**, Georgia incurred $1,547,592 in setting up the telehealth solution over this 12-month period, which translated to an average monthly cost of $128,966. During the startup phase, the single largest expense was on contracted services, accounting for 67 percent of total spending. The largest contracted cost was $728,887 for a local agency grant-in-aid, followed by costs for Pathways licenses and digital advertising. The

local agency grant-in-aid included staff (coordinator, Competent Professional Authority, Customer Service Representative (CSR), IBCLC), circuit costs, supplies including computers, and indirect costs. Other startup phase expenses included labor (30%), which included time spent by the eWIC Deputy Director, Telehealth Director, Nutrition Services Manager, Program Integrity Specialist, and fiscal staff, and indirect costs (3%).

Table 3-9. Frequency of Travel and Travel Time to Other WIC Sites among Staff Survey Respondents in the Early and Late Phase of Telehealth Implementation in GA

Variables	Early Phase %[a]	Late Phase %[a]	p-value[b]
On average, how many minutes of your workday did you spend traveling to these other WIC clinic sites?	N=13	N=15	0.577
15 mins or less	23.1	6.7	
16–30 mins	23.1	20.0	
31–60 mins	30.8	33.3	
61 mins or more	23.1	40.0	
On average, how frequently did your job require you to travel to these other WIC clinic sites?	N=13	N=15	0.993
More than 1 per week	38.5	40.0	
1 per week	23.1	20.0	
More than 1 per month	15.4	13.3	
1 per month	23.1	26.7	

Source: THIS-WIC Staff Survey

[a] Categorical data are summarized as column percentages.

[b] p-values were based chi-square test for categorical data.

Table 3-10. GA Telehealth Solution Startup Costs

Resource Category	Cost, $	Percentage of Total
Labor	468,541	30
Equipment	0	0
Indirect	39,961	3
Contracted services	1,039,090	67
Total (12 months)	1,547,592	100
Average per month (12 months)	128,966	

Source: Cost-tracking data, GA WIC agency

3.11 Ongoing Cost to Implement Telehealth Solution

Average ongoing costs of service delivery per enrollment are shown in **Table 3-11** for intervention and comparison agencies and for the three timepoints of the telehealth solution implementation (pre-implementation and at 6- and 12-months post-implementation). During the pre-implementation period, the average cost per enrollment was lower in the intervention agencies than the comparison agencies ($43 vs. $67 per enrollment). After implementation of the telehealth solution in the intervention agencies, the average cost per enrollment in those agencies increased slightly (to $47 per enrollment) at 6 months post-implementation and then decreased substantially at 12 months post-implementation (to $22 per enrollment). Meanwhile, per enrollment costs in the comparison agencies roughly stayed the same, $70 and $64 per enrollment at 6 and 12 months post-implementation, respectively. There were differences between the mean and median estimates for intervention and comparison agencies at each time point, but with only three observations per local agency it is unclear whether this represents skewness or just a small sample size. The minimum and maximum values show the spread of the estimates, indicating that there was variation in the average ongoing service delivery cost across local agencies.

Table 3-11. Per Enrollment Cost at Intervention and Comparison Agencies in GA

			Post-Implementation			
	Pre-implementation (FY2019)		6th Month (August 2022)		12th Month (February 2023)	
Value	Comparison	Intervention	Comparison	Intervention	Comparison	Intervention
Mean	$67	$43	$70	$47	$64	$22
Median	$82	$44	$82	$32	$79	$19
Min	$33	$27	$27	$9	$28	$16
Max	$85	$58	$102	$101	$86	$31

Source: Cost-tracking data, GA WIC Agency

The findings on the cost of GA's ongoing service delivery support the hypothesis that telehealth implementation can elicit potential cost savings. Per enrollment costs reduced over time for the

intervention agencies relative to the comparison agencies. Per enrollment costs for the intervention agencies decreased by $21.10 from pre-implementation to 12 months post-implementation ($43.15–$22.05), while for the comparison agencies costs decreased by only $2.43 ($66.62–$64.19). The difference between these two values is $18.67 and represents potential cost savings per enrollment associated with the intervention.

Return on investment can be determined using the cost savings per enrollment compared with the investment of startup. The total startup cost of the telehealth intervention in GA WIC was $1,547,592. With a cost savings estimate of $18.67 per enrollment, 82,882 enrollments would be needed for GA to recoup their startup cost investment ($1,547,592/$18.67). In the period 12 months post-implementation, GA WIC intervention agencies had 39,847 enrollments per month. It would therefore take about 2 months (82,882/39,847) for GA to recoup its investment. **Table 3-12** displays these calculations.

Table 3-12. Return on Investment Using Cost Per Enrollment

Description	Estimate
Total Startup Cost	$1,547,59
Intervention cost per enrollment	
Pre-implementation (FY2019)	$43.15
12 months post-implementation (October–March 2023)	$22.05
Difference	-$21.10
Comparison cost per enrollment	
Pre-implementation (FY2019)	$66.62
12 months post-implementation (October–March 2023)	$64.19
Difference	-$2.43
Cost savings of intervention per enrollment	$18.67
Enrollments needed to recoup startup cost	82,882
Total monthly enrollments at all intervention agencies	39,847
Months needed to recoup startup cost	2.08

Source: Cost-tracking data, GA WIC agency

3.12 Summary

In GA, six (three intervention and three comparison) local agencies participated in the THIS-WIC evaluation. WIC staff at intervention agencies (21 clinics) used Pathways to provide nutrition education and breastfeeding support education. Key findings include the following:

- **Staff attitude**: WIC staff had favorable attitudes toward the use of telehealth and perceived it to be a win-win for clients and staff. They acknowledged the role of telehealth in promoting health equity by addressing client challenges to attending in-person appointments such as transportation, childcare, and work conflicts. Staff expressed a preference for virtual appointments because it allowed them to attend to

clients from any location; staff also perceived increased job security because of increased caseload.

▪ **Staff readiness**: A small percentage of staff reported prior experience with telehealth, likely because GA has used telehealth/telemedicine networks for internal communication before the THIS-WIC evaluation. Staff varied in their report on the duration of training offered by GA WIC for these platforms, likely because of the differences in their stage of telehealth use; staff with prior experience may be reporting refresher training duration and newer staff may be reporting initial training duration. Although the preferred mode to provide nutrition education and breastfeeding support was not significantly different between the early and late phases, there was a 10-point increase in the percentage of staff preferring Pathways to in-person or phone appointments in the late phase. Some staff did not feel prepared to provide telehealth services in the early phase for a variety of reasons, including multiple ongoing projects amid staffing shortages, the short time between training and implementation with limited ability to fully engage in self-paced learning, and misalignment with tasks and staff skills. Others felt prepared and noted that interactive, hands-on opportunities allowed them to gain familiarity with Pathways. Staff also appreciated the post-training resources, routine check-ins to address issues, and support from colleagues, which allowed them to feel comfortable using Pathways.

▪ **Staff satisfaction**: Overall, staff satisfaction with offering services through the telehealth platform was moderate with significantly higher satisfaction in the late phase than in the early phase. Staff appreciated the leadership's approach of a slow rollout and hands-on approach to addressing challenges as they arose. Staff acknowledged the user-friendliness, simplicity, and capacity of Pathways and considered it critical to boost client engagement. However, some staff noted that frequent connectivity issues disrupted appointments, increased appointment length, and upset clients. Although staff highlighted the need for reliable technological infrastructure, they also indicated a preference for WIC appointments to be conducted via Pathways over in-person appointments. During key informant interviews, some staff expressed satisfaction with in-person appointments because of the ability to conduct health assessments, visually see the client, and assess client receptivity to education materials.

▪ **Staff adoption**: There was a steady increase in the number of appointments scheduled and kept via Pathways. In all quarters (from Q1/2022 to Q2/2023), about 60 percent of the scheduled Pathways appointments were conducted via telehealth, indicating early and steady adoption. Pathways allows staff to seamlessly flow clients to other service providers; most appointments lasted about 7 to 12 minutes, with a slight decline in appointment duration over time. Reasons for this decline were not captured.

▪ **Staff acceptability**: Most staff noted that Pathways was an acceptable way to provide WIC services and that it was useful to them as staff. Staff noted that the technological glitches experienced in the early phase were addressed, which eased scheduling and managing appointments, and reduced wait time for clients. Some staff thought Pathways was better suited for appointments with prenatal and breastfeeding mothers, based on WIC client interest.

- **Perceived feasibility**: In general, staff noted that it was easy to learn how to use the telehealth platform and that it was easy to use and interact with the platform. Average scores for five of the six feasibility indicators were significantly higher in the late phase than in the early phase, indicative of moderate to strong perceived feasibility of using Pathways. Staff shared recommendations to further improve the current system and enhance accessibility and sustainability, including having dedicated staff to conduct in-person vs. telehealth appointments (but not both).

- **Improved accessibility of WIC services for WIC clients**: Staff reported that they were able to provide services to clients having difficulty accessing a clinic because of traffic or distance and to those who would usually miss their appointments. Staff had a high level of understanding of the challenges faced by their clients in attending in-person appointments and appreciated offering telehealth appointments to increase client participation and retention. Staff noted that they would like to continue using Pathways to provide services and that several features in Pathways made it more user-friendly than Zoom, including smoother client transitions between staff, document sharing, appointment reminders, chat functionality, and video functionality. Some staff discussed the limitations of telehealth from a client perspective in that many clients may have limited digital literacy or access to internet services.

- **Travel to other WIC clinics to provide services**. Before the COVID-19 pandemic, about 40 percent of staff traveled to other clinics more than once a week, and over half of them spent over 30 minutes traveling.

- **The startup cost** to offer telehealth services was $1,547,592, of which about 67 percent was spent on contracted services and 30 percent was spent on labor. Based on the monthly caseload data, it would take GA about 2 months to recoup its investment in telehealth startup costs.

- **The mean ongoing cost per enrollment** was lower in the 12th month post-implementation than at pre-implementation period for intervention agencies ($22 vs. $43) but not for comparison agencies ($64 vs. $67).

4. Results: Client Experiences with Telehealth Services and Pathways

GA WIC implemented a telehealth solution that enabled WIC staff to offer virtual appointments via Pathways to clients at intervention local agencies. Client Survey responses and MIS data spanning the intervention period, March 2022 through June 2023 (Q1/2022 through Q2/2023), were used to assess client use of telehealth services and examine outcomes.

4.1 Acceptability of Telehealth Services

WIC clients in the intervention agencies responded to a series of questions about their experience using telehealth services at their most recent appointment. As seen in **Table 4-1**, almost all respondents agreed or strongly agreed that they could hear the WIC nutrition educator clearly and that it was easy to figure out how to use and receive WIC services through telehealth. Most respondents (about 96%) agreed or strongly agreed that the way they received WIC services was easier than going to a WIC clinic and they would like to receive services the same way at their next WIC appointment. Slightly less than 60 percent of respondents agreed or strongly agreed that their WIC appointment was shorter than usual when receiving care. However, 9 percent disagreed or strongly disagreed that their appointment was shorter than usual when receiving care. Reasons for perceived differences in appointment length were not captured.

Most respondents disagreed or strongly disagreed that they had trouble accessing the telehealth platform (92%) and agreed or strongly agreed that the telehealth platform was simple to use for their WIC appointment (98%). Nearly all respondents (98%) said the content of the telehealth platform was in a language they could read (results not shown in table). Among the respondents who completed their appointment via Pathways, most agreed or strongly agreed that they could clearly see (96%) and easily talk (96%) to the WIC nutrition educator.

4.2 Barriers to Accessing WIC Services

4.2.1 Availability of Technology at Home

Most survey respondents had access to a smartphone or computer at home. As seen in **Table 4-2**, over 90 percent had a smartphone, and many had a computer, tablet, or Chromebook at home. Respondents connected to the internet primarily using home connect (73.5%) followed by cellular connect (24%). Among those who used home connect, less than 5 percent encountered problems often and about 24 percent encountered problems sometimes when it came to connecting with the internet. Among those not using home connect, common reasons for not doing so included internet cost (36%), followed by the ability to connect somewhere else (19%).

Table 4-1. Client Survey Respondents' Attitudes Toward Telehealth Services in GA

Statement	N	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
		%				
I could easily talk to the WIC nutrition educator during my appointment.[a]	1,119	1.0	0.1	0.2	15.9	82.8
I could see the WIC nutrition educator clearly.[a]	1,121	1.7	0.9	1.9	15.5	80.0
I could hear the WIC nutrition educator clearly.	1,198	0.8	0.8	0.4	17.0	81.0
It was easy to figure out how to use and receive WIC services.	1,197	1.0	0.0	0.6	19.0	79.4
The telehealth platform was simple to use for my WIC appointment.	1,123	0.9	0.2	1.2	15.4	82.4
I had trouble accessing the telehealth platform.	1,120	66.3	25.7	2.9	1.7	3.4
My most recent WIC appointment was shorter than usual when receiving care.	1,196	2.8	6.2	31.3	25.8	34.0
The way I received WIC services at my most recent appointment was easier than going to a WIC clinic.	1,192	0.8	0.6	3.1	15.4	80.2
I would like to receive services the same way as my most recent appointment for my next WIC appointment.	1,191	0.6	0.2	1.5	16.0	81.8

Source: THIS-WIC Client Survey, intervention agencies only

NOTE: Includes 112 respondents who indicated their most recent appointment was onsite at the WIC clinic.

[a] Asked only if respondents completed their appointment via Pathways using a video/webcam or screen share from the WIC nutrition educator.

Table 4-2. Availability and Use of Technology at Home among Client Survey Respondents in GA

Availability and Use of Technology	Overall	Intervention	Comparison	p-value[a]
	%			
Which of the following do you have at home?[b]	N=1,335	N=1,218	N=117	
A desktop or laptop computer	53.6	54.4	45.3	0.0584
A tablet computer	33.0	32.8	34.2	0.7671
Chromebook	10.0	10.0	9.4	0.8321
Smartphone	93.9	94.0	92.3	0.4648
Other	0.1	0.1	0.0	0.7565
No devices in the home[3]	0.8	0.7	2.6	0.0293*
How do you most often connect to the internet?[3]	N=1,326	N=1,209	N=117	0.0011*
Home connect	73.5	74.9	59.0	
Public connect	1.9	1.7	4.3	
Cellular connect	24.0	22.9	35.0	
Do not connect	0.7	0.6	1.7	
Among Those Who Use Home Connect				
How often do you have problems with the speed, reliability, or quality of Internet connection at home in a way that makes it hard to do things you need to do online?	N=970	N=900	N=70	0.1213
Often	3.2	3.1	4.3	
Sometimes	23.6	22.7	35.7	
Rarely	36.5	37.0	30.0	
Never	34.6	35.2	27.1	
Don't know	2.1	2.0	2.9	
Among Those Who Do Not Use Home Connect				
What is the most important reason why you do not connect to the internet at home?	N=342	N=296	N=46	0.2603
Not available	6.4	5.7	10.9	
Internet cost	36.0	37.2	28.3	
Device cost	11.4	12.5	4.3	
I connect somewhere else	19.0	17.9	26.1	
I don't want to	16.4	16.2	17.4	
Privacy/security	10.8	10.5	13.0	

Source: THIS-WIC Client Survey

[a] p-values are based on chi-square test. For have other devices at home, have no devices at home, and method for connecting to internet, 25% or more of the cells have expected counts less than five so chi-square may not be a valid test.

[b] Percentages do not add up to 100 because respondents could select all that applied.

* p<0.05

4.2.2 Comfort with Technology and Frequency of Videochat Use

Overall, about two-thirds (66.5%) of survey respondents were very confident with their use of technology with about a fourth being somewhat confident; less than 3 percent indicated they were somewhat or very uncertain when it came to technology use (**Table 4-3**). Slightly more respondents from the intervention agencies than comparison agencies were very confident about their use of technology (67% vs. 62%). However, 30 percent of respondents used videochat daily to communicate with and stay connected with friends and family whereas an additional 24 percent used it about two times per week; 5 percent never used videochat to stay connected with friends and family. Although 5 percent of respondents from intervention agencies never used videochat, about 9 percent from the comparison agencies never used videochat.

Table 4-3. Comfort with Technology and Frequency of Videochat Use among Client Survey Respondents in GA

Comfort with Technology	Overall	Intervention	Comparison	p-value[a]
	%			
When it comes to the use of technology, which of the following best describes you?	N=1,309	N=1,193	N=116	0.0001*
Very confident	66.5	67.0	62.1	
Somewhat confident	24.5	24.9	20.7	
Neither confident nor uncertain	4.6	4.4	6.0	
Somewhat uncertain	1.4	1.4	0.9	
Very uncertain	1.1	0.8	4.3	
Don't know	1.8	1.4	6.0	
How often do you use video chat to communicate and stay connected with family and friends?	N=1,304	N=1,190	N=114	0.0160*
Daily	31.6	32.5	21.9	
2 times per week	24.4	24.5	22.8	
1 time per week	10.8	10.4	14.9	
2 times per month	12.9	13.1	10.5	
1 time per month	5.1	5.3	3.5	
Less than 1 time per month	8.3	7.7	14.0	
Never	5.1	4.7	8.8	
Don't know	1.8	1.7	3.5	

Source: THIS-WIC Client Survey

NOTE: For use of technology, 25% or more of the cells have expected counts less than five so chi-square may not be a valid test.

[a] p-values are based on chi-square tests.

* p<0.05

4.2.3   Administrative-, Individual-, and Staff-Level Barriers

Survey respondents reported barriers to accessing WIC services for their most recent WIC appointment. Barriers included administrative factors (receiving a specific appointment time and experiencing long wait times), individual-level factors (transportation, childcare, and getting off work); and staff interactions (language barriers, racial/ethnic barriers, and internet connectivity). As seen in **Table 4-4**, mean scores for all measures ranged from 2.4 to 2.8, indicating low frequency of experiencing barriers. For six of the eight measures examined, no differences were observed in frequency of barriers among respondents from intervention and comparison agencies. Differences were observed for two barriers: language used by WIC staff (mean 2.8 vs. 2.7 for intervention and comparison agencies, respectively) and WIC staff race/ethnicity (mean 2.4 and 2.6 for intervention and comparison agencies, respectively).

Table 4-4.   Barriers to Accessing WIC services among Client Survey Respondents in GA

| | Mean (SE) | | | |
Barriers[a]	Intervention (N=1,358)	Comparison (N=159)	Δ (95% CI)	p-value[b]
Not given a specific appointment time	2.7 (0.05)	2.7 (0.08)	−0.06 (−0.27, 0.16)	0.580
Wait too long	2.4 (0.11)	2.5 (0.14)	−0.17 (−0.61, 0.26)	0.357
Transportation issues	2.7 (0.05)	2.7 (0.08)	−0.06 (−.27, 0.16)	0.580
Childcare issues	2.6 (0.06)	2.8 (0.10)	−0.19 (−0.46, 0.08)	0.143
Difficulty getting off work	2.6 (0.07)	2.7 (0.11)	−0.13 (−0.44, 0.18)	0.350
WIC staff language barrier	2.8 (0.02)	2.7 (0.06)	0.15 (0.01, 0.29)	0.034*
WIC staff racial/ethnic barrier	2.4 (0.03)	2.6 (0.08)	−0.19 (−0.36, -0.02)	0.028*
No or poor internet connection	2.7 (0.02)	2.6 (0.07)	0.07 (−0.09, 0.23)	0.381

Source: THIS-WIC Client Survey

[a] On a scale of no/never to frequently, please mark (X) if you experienced any of the following barriers to attending your WIC appointment with response options: 0=frequently, 1=occasionally, 2=a little, and 3=never.

[b] Hierarchical linear regression models (unadjusted) were used to compare differences in means for intervention and comparison agencies.

* p<0.05

4.3   Satisfaction with WIC Appointment

The unadjusted mean client satisfaction level was significantly higher for survey respondents from intervention agencies than from comparison agencies (mean 94.1 vs. 89.9), reflecting greater satisfaction with WIC services delivered via Pathways than via usual care (**Table 4-5**). The multivariable hierarchical regression model (**Table 4-6**) controlled for the number of years respondents received WIC services. The inclusion of this control covariate did not change the overall finding that respondents had greater satisfaction with WIC services delivered via Pathways than via usual care (i.e., telephone-based or in-clinic appointments).

Table 4-5. Satisfaction with WIC Appointment among Client Survey Respondents in GA

Client Satisfaction	Mean (SE)		Δ (95% CI)	p-value[b]
	Intervention (N=1,358)	Comparison (N=159)		
Client Satisfaction Index[a]	94.1 (0.61)	89.9 (1.10)	4.17 (1.35, 6.99)	0.008*

Source: THIS-WIC Client Survey

[a] Client satisfaction index (range: 20−100) is based on eight items (interitem correlation, alpha = 0.92).

[b] Hierarchical linear regression models (unadjusted) were used to compare differences in means for intervention and comparison agencies.

* p<0.05

Table 4-6. Adjusted Regression Model Examining Satisfaction with WIC Appointment among Client Survey Respondents in GA[a,b]

Independent Variable	Coefficient	Std error	DF	t-value	Pr > |t|
Intercept	90.999	1.1881	35.4	76.59	<.0001*
Condition					
Intervention	3.5019	1.2137	11.5	2.89	0.0142*
Comparison	Ref				
Number of years WIC services received					
1–2 years	−0.2828	0.7142	1280	−0.40	0.6922
3–4 years	0.4879	0.8003	1280	0.61	0.5422
5 or more years	0.7495	0.8489	1280	0.88	0.3775
Less than 1 year	Ref				

Source: THIS-WIC Client Survey

[a] Client Satisfaction Index (range: 20−100) is based on 8 items (interitem correlation, alpha = 0.92).

[b] Hierarchical linear regression models (adjusted) were used to compare differences in means for intervention and comparison agencies.

* p<0.05

4.4 Intent to Change Dietary Behaviors

Respondents' intentions to change dietary behaviors following their most recent WIC appointment were comparable for respondents in the intervention and comparison agencies. As seen in **Table 4-7**, mean scores for the three intentions measures ranged from 4.6 to 4.7, indicating that respondents agreed or strongly agreed with these statements.

Table 4-7. Intent to Change Dietary Behaviors Following the WIC Nutrition Education Lesson among Client Survey Respondents in GA

Statement[a]	Mean (SE)		Δ (95% CI)	p-value[b]
	Intervention (N=1,358)	Comparison (N=159)		
After my WIC nutrition education lesson, I wanted to change how I eat.	4.7 (0.05)	4.6 (0.10)	0.13 (−0.11, 0.36)	0.252
After my WIC nutrition education lesson, I wanted to change how I feed my family.	4.7 (0.05)	4.6 (0.09)	0.16 (−0.06, 0.38)	0.138
My WIC nutrition education lesson taught me things that will help me choose nutritious foods for me or my family.	4.7 (0.04)	4.7 (0.22)	0.06 (−0.38, 0.50)	0.787

Source: THIS-WIC Client Survey

[a] Response options to dietary behavior change items included: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, and 5=strongly agree.

[b] Hierarchical linear regression models (unadjusted) were used to compare differences in means for intervention and comparison agencies.

4.5 Daily Fruit and Vegetable Intake

Following their appointment, survey respondents self-reported their daily fruit and vegetable intake, with response options ranging from none to 4 or more cups. As seen in **Table 4-8**, about 55% of respondents reported consuming 1 to 3 cups of fruits per day and 1 to 3 cups of vegetables per day. The distribution of daily fruit and vegetable intake was statistically different for the intervention and comparison agencies, with relatively lower levels of consumption for respondents in comparison agencies.

4.6 Breastfeeding Practices

Data captured in the GA WIC MIS system for survey respondents were used to assess the association between breastfeeding behavior and WIC service delivery because breastfeeding assessment and education were provided via telehealth. This analysis was restricted to WIC households with at least one infant (n=126). As seen in **Table 4-9**, a greater proportion of respondents in the intervention than in the comparison agencies ever breastfed (76% vs. 56%) and exclusively breastfed for their infant 6 months (20% vs. 0%). Reasons for these differences were not examined.

Table 4-8. Daily Fruit and Vegetable Intake among Client Survey Respondents in GA

Variable	Overall	Intervention	Comparison	p-value[a]
		%		
Fruits per day	N=1,280	N=1,169	N=111	0.0076*
None	1.1	0.8	4.5	
1/2 cup or less	8.2	7.9	11.7	
1/2–1 cup	19.8	20.2	16.2	
1–2 cups	33.8	33.9	33.3	
2–3 cups	20.9	21.0	18.9	
3–4 cups	8.2	8.5	5.4	
4 or more cups	8.0	7.8	9.9	
Vegetables per day	N=1,282	N=1,171	N=111	0.0231*
None	1.0	0.8	3.6	
1/2 cup or less	8.5	8.2	11.7	
1/2–1 cup	16.8	16.7	18.0	
1–2 cups	32.9	33.6	26.1	
2–3 cups	22.6	22.9	19.8	
3–4 cups	10.0	9.6	14.4	
4 or more cups	8.2	8.4	6.3	

Source: THIS-WIC Client Survey

[a] p-values are based on chi-square tests.

* p<0.05

Table 4-9. Breastfeeding Practices of Client Survey Respondents in GA

Breastfeeding Practices[a]	Overall	Intervention	Comparison	p-value[b]
		%		
Ever breastfed	N=126	N=110	N=16	0.0873
Yes	73.8	76.4	56.3	
No	26.2	23.6	43.8	
Exclusively breastfed	N=126	N=110	N=16	0.0490*
Yes	17.5	20.0	0.0	
No	82.5	80.0	100.0	

Source: GA WIC MIS

[a] Breastfeeding behavior is reported for households with at least one infant (0–12 months) during the intervention period.

[b] p-values are based on chi-square tests; 25% or more of the cells have expected counts less than five for the variables ever breastfed and exclusively breastfed, so chi-square may not be a valid test.

* p<0.05

4.7   WIC Benefit Redemption Patterns

WIC benefit redemption patterns were examined for the month following the completion of WIC appointment and the Client Survey using MIS data. As seen in **Table 4-10**, over 85 percent of respondents redeemed their WIC benefits in the month following their telehealth appointment. There were no differences in WIC benefit redemption patterns for survey respondents in the intervention and comparison groups.

Table 4-10.   WIC Benefit Redemption Following Client Survey Completion in GA

	Overall	Intervention	Comparison	
	N=164	N=146	N=13	
Any WIC Benefits Redeemed	%			**p-value[a]**
Yes	86.59	86.99	76.92	0.3140
No	13.41	13.01	23.08	

Source: GA MIS linked to Client Survey Data

[a] p-value based on chi-square test.

4.8   Summary of Findings: WIC Clients

WIC clients in the intervention agencies received services via Pathways. WIC clients in the comparison agencies received phone services and in-person. This chapter described client experience with telehealth services and resources and compared outcomes for clients in the intervention and comparison agencies. Key findings include the following:

- **Acceptability of telehealth services and Pathways:** Client Survey respondents who received WIC services through a telehealth appointment found it acceptable (agree or strongly agree) to do so. Most respondents indicated that the way they received WIC services was easier than going to a WIC clinic and expressed a preference to continue receiving services the same way at their next appointment. Respondents found Pathways easy to access Pathways and simple to use and found it easy to figure out how to use and receive WIC services. Respondents who used Pathways with video capabilities found it easy to talk with and see their WIC nutrition educator.

- **Barriers to accessing WIC services**: In general, most survey respondents had a computer (54%), smartphone (94%), and internet connection at home (74%). Additionally, most were very confident (67%) or somewhat confident (25%) about using technology; only 5 percent had never used videoconferencing to communicate with family and friends. Respondents had favorable experiences with their appointments. There were no differences in the mean barrier scores for those in the intervention and comparison agencies for six of the eight barrier questions, likely because clients at comparison agencies received services via phone. Significant differences were noted in the mean scores among respondents in the intervention and comparison agencies for

WIC staff language as a barrier (2.8 vs. 2.7) and race/ethnicity as a barrier (2.4 vs. 2.6); these scores are indicative of experiencing these barriers a little or never.

- **Satisfaction with WIC appointment**: Consistent with low frequency of barriers, survey respondents in the intervention and comparison agencies had a high level of satisfaction with their WIC appointment. Respondents in the intervention agencies were 3.5 times more likely to report satisfaction with WIC services than those in the comparison agencies.

- **Intent to change dietary behaviors**: Survey respondents in the intervention and comparison agencies have comparable scores (4.6 to 4.8 on a 5-point agreement scale) for intent to change their dietary behaviors (i.e., how they ate, how they feed their family) and the usefulness of lessons to make healthy choices (4.7 on a 5-point agreement scale for respondents from both intervention and comparison agencies).

- **Daily fruit and vegetable intake**: About 8 percent of survey respondents ate ½ cup to 1 cup of fruit and about 20 percent ate 1 to 2 cups of fruit, with a similar pattern for vegetable intake. Following WIC appointments, distribution of both fruit and vegetable intake was significantly different for respondents from the intervention and comparison agencies. Reasons for this difference are not known.

- **Breastfeeding practices**: Unadjusted analysis of breastfeeding practices indicates that a similar proportion of survey respondents from the intervention and comparison agencies ever breastfed (73.8% vs. 76.4%), but a lower proportion of respondents from the intervention agencies than comparison agencies exclusively breastfed for 6 months (17.5% vs. 20%) their infant. Reasons for this difference are not known.

- **WIC benefit redemption:** Unadjusted analysis of WIC benefit redemption indicates that over 85 percent of respondents redeemed their WIC benefits in the month following their WIC appointment. These redemption patterns are comparable in the intervention and comparison agencies.

5. Conclusions and Lessons Learned

Telehealth has emerged as an integral approach to offering healthcare services because it may offer enhanced access to services, convenience in scheduling and receiving services, and cost savings by eliminating the need for transportation. However, factors such as comfort level with digital technology, internet availability, privacy and security concerns, and accessibility may be barriers to telehealth integration within WIC. The goal of the THIS-WIC project was to develop a robust evidence base regarding telehealth solutions in WIC and understand whether and how telehealth influences impact, intermediate, process, and cost outcomes.

As planned, the project aimed to deliver WIC nutrition education and breastfeeding support to WIC clients at intervention agencies through telehealth and at comparison agencies through in-person appointments. Project launch was delayed due to the COVID-19 pandemic, amid several changes to WIC service delivery at intervention agencies, including delays in launching telehealth services, eWIC rollout. Despite these challenges, GA WIC implemented the Pathways program as intended.

5.1 Implementation of Telehealth Services in GA

Between March 2022 (Q1/2022) and June 2023 (Q2/2023), three local agencies (21 clinics) offered telehealth services and served as intervention agencies; three local agencies (eight clinics) offered usual care (i.e. phone or in person) and served as comparison agencies. WIC staff generally perceived a high need to offer virtual services to their clients and believed that offering telehealth appointments was necessary to offer services that align with those by other healthcare providers and promote health equity.

All WIC staff received ongoing training in various modes. Some staff did not feel prepared to provide telehealth services in the early phase because of multiple ongoing projects amid staffing shortages, short lag between training and implementation with limited ability to fully engage in self-paced learning, and misalignment with tasks and staff skills. Others felt prepared and noted that interactive, hands-on opportunities allowed them to gain familiarity with Pathways. Staff also appreciated the post-training resources, routine check-ins to address issues, and support from colleagues, which allowed them to feel comfortable using Pathways. Staff appreciated the leadership's approach of a slow rollout and hands-on approach to addressing challenges as they arose. Staff acknowledged the user-friendliness, simplicity, and capacity of Pathways and considered it critical to boosting client engagement. Some staff noted that these features made Pathways easier to use than Zoom.

Over the six quarters of project implementation, there was a steady increase in the number of appointments scheduled and kept via Pathways; in any given quarter, about 60 percent of the scheduled Pathways appointments were conducted via telehealth, indicating early and consistent adoption. Pathways allowed seamless transfer of clients to other service providers, and most Pathways appointments lasted about 7 to 12 minutes. Staff satisfaction with offering services through the telehealth platform was moderate with significantly higher satisfaction in the late phase than in the early phase. Although some staff expressed a preference for in-

person appointments because of inconsistent access to stable internet and technology infrastructure, client preferences, and the ability to conduct health assessments, other staff expressed a preference for virtual appointments so they could attend to clients from any location; staff also perceived increased job security caused by increased caseload. Some staff expressed a preference for conducting only in-person or only telehealth appointments.

Before the COVID-19 pandemic, about 40 percent of the staff traveled to other WIC clinics and about half spent more than 30 minutes traveling. The costs incurred in the startup period (March 2021 through February 2022) to offer telehealth services was $1,547,592, of which about 67 percent was spent on contracted services and 30 percent was spent on labor. Based on monthly caseload data, it would take GA about 2 months to recoup the investment in Pathways. In the 12th month of the telehealth intervention, mean cost per enrollment had declined to $22 (compared with $43 in the pre-intervention period) for intervention agencies but remained steady for comparison agencies ($67 in pre-intervention period vs. $64 in the 12th month). This finding indicates potential savings associated with the telehealth solution implementation.

5.2   Client Experience and Outcomes

In general, most Client Survey respondents had a computer and smartphone at home and were confident or somewhat confident about using technology. Responses to the Client Survey from the intervention agencies indicate a high level of acceptability to receive WIC services via Pathways. Respondents also expressed a preference to continue receiving WIC services the same way for their next appointment. Survey respondents found Pathways easy to access and simple to use; those who used the video capability also found it easy to talk with and see the WIC nutrition educator.

Satisfaction scores were high for survey respondents in both the intervention and comparison agencies, and respondents in the intervention agencies were 3.5 times more likely to report satisfaction with WIC appointments than those in the comparison agencies. Following their WIC appointment, respondents from the intervention agencies had statistically significantly different distributions for fruit and vegetable intake. Most barriers experienced were similar, but differences were noted for staff language and race/ethnicity; more WIC clients in the intervention agencies reported staff language barriers and more WIC clients in the comparison agencies reported staff race/ethnicity as barrier.

Overall, breastfeeding initiation rates were comparable for respondents in the intervention and comparison agencies; those in the intervention agencies had a lower rate of exclusive breastfeeding than those in the comparison agencies. Because breastfeeding practices were assessed immediately following their telehealth appointment and these practices are not likely to change based on a single appointment, factors contributing to these differences were not examined. There were no differences in policies or procedures for following up on breastfeeding for telehealth vs. usual care (i.e., in person or phone).

5.3   Lessons Learned

Telehealth is a viable approach to deliver WIC services to clients. Telehealth services can involve a phone-based appointment. Comprehensive training is essential to preparing staff for providing telehealth services, understanding the logistics of setting up appointments, helping clients set up accounts and navigate the resources, and marketing/promoting the use of resources to clients. Staff note that clients should be provided the flexibility in how they would like to receive WIC services. Some staff expressed a preference for conducting appointments in a single mode (only in-person or only telehealth appointments but not both).

High-level staff engagement and support is critical for staff uptake. Staff highlighted the feedback from the supervisors as vital to understanding the impact of telehealth and appreciated their timely response to emergent issues. However, staff experienced challenges during implementation stemming from the simultaneous ongoing projects amid staffing shortages, including eWIC rollout, technological issues that disrupted Pathways appointments, and client preferences.

Despite the technological challenges, staff prefer telehealth appointments and note that telehealth services can help increase client participation as they reduce or eliminate the barriers to attending in-person appointments. Staff who use the video functionality appreciate the rapport building and connections with the clients, which ultimately leads to better engagement. Similarly, clients who complete an appointment via telehealth prefer to receive services the same way for future appointments.

5.4   Implications

Telehealth is a relatively new approach to providing services to WIC clients, and findings from this evaluation demonstrate the potential of increasing reach, promoting participation, and reducing attrition. The higher level of satisfaction with WIC services among respondents in the intervention agencies demonstrates the feasibility of delivering virtual services successfully. Additional studies and evaluations are needed to demonstrate its efficacy, particularly as WIC resumes offering in-person services (i.e., usual care). Understanding and deploying strategies to increase awareness, comfort, and use of Pathways synchronously may increase the percentage of kept appointments. The findings from this evaluation suggest that flexibility in providing telehealth services is essential. Training staff on the process and promotion of telehealth platform resources may lead to increased use of telehealth.

The findings on the cost of ongoing service delivery should be interpreted with caution. First, to assess changes in service delivery costs associated with telehealth implementation, the pre-implementation period was set to FY2019 (i.e., before the start of the COVID-19 pandemic), because services in both intervention and comparison agencies were virtual during the height of the pandemic. This resulted in a 2.5-year gap between the study pre-implementation and post-implementation periods. Changes in staffing and reporting systems during this period may have affected the quality of the data reported for the pre-implementation period in both intervention and comparison agencies. Other factors and changes in service delivery (beyond

implementation of the telehealth solution) may have also affected the costs incurred during the post-implementation period. Most importantly, comparison agencies continued to offer virtual services to their clients during the post-implementation period.

Additionally, agency-level costs can vary for reasons beyond telehealth or traditional delivery models, such as socioeconomic composition of the clients, geographical differences, or provider turnover. For example, agencies that experience higher provider turnover may have higher costs because additional resources are spent on recruiting, hiring, training, and onboarding new staff. Studies with a larger sample size can statistically control for these confounding factors, but this study was not able to do so with a limited sample size. Therefore, in addition to the previously noted limitations, the changes in costs among telehealth and comparison agencies may be caused by other factors unrelated to the mode of delivery, such as changes in staffing, the level of services or administrative tasks that agencies are required to provide, and WIC participation.

5.5   Strengths and Limitations

This evaluation has several strengths and limitations. Some of the strengths of the evaluation include its mixed methods design, emphasis on effectiveness and implementation outcomes, matched approach to selecting intervention and comparison agencies, and higher response rate to the Client Survey from intervention agencies.

GA WIC selected intervention agencies based on their geographical location in the state, demonstrated history of providing quality service, capacity to participate (i.e., adequate staff), interest in implementing a new telehealth system, and indication of readiness to implement telehealth. GA WIC used local agency–level data on race, ethnicity, and total participation/caseload to match the intervention agencies with three comparison local agencies (eight clinics), thus ensuring comparability in clients served at intervention and comparison agencies. In the context of understanding telehealth delivery, the Staff Survey response rate was high (66% in early and 60% in late phase). Additionally, the telehealth metadata provided insights into the patterns of Pathways use over time.

In the context of understanding client satisfaction and experiences, the percentage of clients from who consented to take part in this evaluation and completed the surveys exceeded the target response rate of 5 to 10 percent, increasing our ability to understand client perspectives on telehealth use and experience.

This evaluation has several limitations. The COVID-19 pandemic reshaped usual care service delivery; in-person appointments were replaced with phone appointments. Thus, the mode of service delivery was phone/Pathways for the intervention agencies and phone/in-person for the comparison agencies. Second, staff turnover, burnout, and simultaneous projects, including eWIC rollout, also resulted in limited capacity to promote telehealth use among clients in the intervention agencies. Third, the response rate to the Client Survey for comparison agencies was low, limiting the comparability for intervention and comparison agencies. Additionally, the low match rate for the Client Survey and MIS data also limited our ability to interpret the findings on agency level breastfeeding patterns as well as WIC retention.

It is important to highlight that comparable client/respondent-level outcomes in the intervention and comparison agencies should not be interpreted as evidence of the absence of improvements. In addition to the similarity in mode of service delivery, it is possible that implementing the intervention in the absence of the COVID-19 pandemic may have produced different results. Additional studies are needed to evaluate the effectiveness of telehealth services compared to in-person appointments, assess factors that affect synchronous use of resources during appointments, and assess client perspectives on facilitators and barriers to using resources via a telehealth platform.

5.6   Sustainability

GA WIC considers WIC telehealth a viable option for providing WIC services to clients. Following the THIS-WIC project, GA WIC is focused on modernizing the WIC program and is exploring available options to maintain a level of equitable service for clients, including opportunities to continue and expand use of Pathways based on available funding, timing, and other ongoing projects.

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