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# Western Region WIC Participant Survey & Focus Groups Report

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# Executive Summary

The Enhancing WIC Services through Electronic Technologies Project, funded by USDA FNS WR WIC, administered by the Inter-Tribal Council of Arizona (ITCA), was managed by Barbara Longo and Claudia Desmangles (California WIC Program) in coordination with an advisory group representing WIC programs throughout the Western Region. The goal of the project was to develop strategies that would support and enhance WIC services with electronic technologies regardless of the various WIC database systems in the Western Region. To accomplish this goal, the project used a comprehensive, mixed methods approach, including a quantitative online survey and a series of focus groups to identify the use of electronic technologies and social media among current WIC participants and WIC-eligible participants (i.e., future WIC families) and to understand how these individuals want to interact with WIC in the future. The focus groups included three separate categories: current WIC participants identified as early adopters of technology, current WIC participants, and WIC-eligible participants. This report summarizes the findings from the online survey of Western Region WIC participants and the focus groups conducted with current WIC participants and WIC-eligible participants. Separate reports included in the appendix describe the detailed findings for each of these groups. Also included are state level reports that present the findings for each state and Indian Tribal Organizations that had at least 20 respondents complete the online survey. A separate report describes the findings from the focus groups with WIC participants identified as early adopters of technology.

The *WIC Participant Online Technology Survey* was available from November 7, 2011 to December 9, 2011. Survey respondents ( $n=8,144$ ) consisted of a convenience sample of WIC participants who were familiar with technology. Eleven focus groups with WIC participants (9 in English, 2 in Spanish) were conducted between November and December 2011. Focus group participants ( $n=76$ ) were comprised of a convenience sample of enrolled WIC participants who wanted to participate and were not necessarily familiar with technology.

Two focus groups ( $n=16$ ) with WIC-eligibles participants (1 in English and 1 in Spanish), were conducted in Phoenix, Arizona. Recruitment quotas and inclusion criteria were developed and given to WestGroup Research for participant recruitment. The purpose of these focus groups was to: identify current technology used, determine reasons why they are not participating in WIC, identify how they want to learn about the WIC program and apply for WIC services via technology, and test online outreach methods currently being used by Arizona WIC.

## Key Findings

### **What are the current technologies frequently used by WIC participants in the Western Region?**

- The top three most frequently used technologies were email, Facebook and text messaging.
- Twitter was the least frequently used technology.
- Technology use varies by language, age, ethnicity and education. For example: American Indian/Alaskan Natives, those with less than a high school education, as well as those living in Indian Tribal Organizations use Facebook the least.
- Nearly all participants own a cell phone with text messaging capabilities.
- Focus group participants and online survey respondents use different devices to connect to the internet. For example: 43% of focus group participants use their cell phone to access the Internet and 28% use their desktop computer, laptop or computer tablet. The opposite pattern is shown for online survey respondents, 51% of whom mostly use a desktop computer, laptop or computer tablet and 23% mostly use a cell phone to connect to the Internet.
- Age influences the device used to connect to the internet, such that beginning at age 25, as age increases, technology is accessed more frequently via a computer and less frequently via cell phone.
- WIC online survey participants are very familiar with technology, for example: using a cell phone or computer 93% send and receive email messages; 88% locate a store, business, restaurant or residence; 77% watch videos; 76% cancel or schedule appointments online, 67% play games and download apps.

### **What types of technology and in what situations do WIC participants want to use these technologies to engage with the WIC program?**

- WIC participants want to receive appointment reminders via text message or email, but want to have the option to choose how they would like to receive their appointment reminders.
- WIC participants want to schedule their appointments online.
- WIC participants want to receive more nutrition education via online classes, take home lessons and video chat.
- Most WIC participants perceive WIC counseling via video chat as useful.
- Pregnant and breastfeeding women and those with infants want breastfeeding support in person and via video chat.
- Nutrition education via text message and email will be useful, particularly for those with an unlimited text messaging or data plan.
- WIC participants are open to connecting with each other via social media. Some expressed that they would like to connect with WIC parents using a WIC-specific social media site, while other would like to connect via existing platforms such as Facebook.
- Preferred technologies WIC participants want to use to connect with WIC in the future varied by participants education level and ethnicity. For example: As online survey respondents' education level increased, the percentage of respondents who would prefer internet classes also increased. Similarly, Non-Hispanics had higher than expected desire to engage in Internet lessons.

### **How does the use of technology vary by geographic location within the Western Region?**

- Facebook use was lowest among Indian Tribal Organizations.
- Using video chat for breastfeeding support and nutrition education was popular among WIC focus group participants living on the islands.
- Current modes of nutrition education and breastfeeding support vary by geographic location. For example: nearly half the respondents from Alaska reported currently receiving nutrition education online. Focus group participants from Hawaii and Guam indicated a higher use of video chat.
- Future modes of nutrition education and breastfeeding support also vary by geographic location. For example: 76% of respondents from Nevada, 63% from California and 64% from Oregon reported that they would like to receive nutrition education via the internet, which is higher than the aggregate sample of 59%.

### **How are WIC participants different from WIC-eligible participants in their use of technology?**

- Technology use is similar among WIC participants and WIC-eligible participants. For example: the top three most used technologies were also email, text messaging and Facebook.
- Twitter was the least used technology.
- WebMD, BabyCenter, and Google were the most popular sites accessed for health and parenting information by WIC participants and WIC-eligibles.
- However, more WIC-eligible participants (56%) reported using a cell phone as their primary way to access the Internet than did WIC focus group participants (43%) and survey respondents (23%).

### **Implications of Key Findings**

Based on the key findings, WIC programs in the Western Region should consider implementing the use of text messaging and email for appointment reminders and nutrition education. In addition, Facebook should be explored as a way to provide outreach to WIC-eligibles and nutrition education to current WIC participants. Other emerging, newer technologies to be explored include video chat, mobile websites and smartphone apps. Participants seem very open to using these technologies. Mobile websites or smartphone apps, for example, can help clients access WIC services at their convenience and shop for WIC foods. Video chat could be a great option for participants who live in remote areas and often have transportation issues.

The Western Region WIC programs will need to decide which technologies make more sense to implement for each of the services they offer. For example, this research strongly suggests the creation of web-based applications and mobile-based websites that allow participants to access scheduling and appointment services online. In the near future, WIC participants and WIC-eligibles should be able to schedule an appointment online and receive an appointment reminder via their desired method of contact chosen from a menu of options that includes email, text messaging or a phone call. Online appointment scheduling and the ability to view appointment service online may be more pressing and important to WIC participants at this time than creating nutrition education contacts via email, text messaging and

Facebook. A feasibility and cost benefit analysis will help determine and give direction as to which services should be implemented first.

The findings from WIC focus groups indicate a progression of technology use, specifically within social media. For example, some discussed how they started out using MySpace, migrated to Facebook, and mentioned that other social media sites, such as Twitter, may become more popular in the future. Some focus group participants reported currently using additional types of social media, such as Tumblr, LinkedIn and Google+. Focus group participants also indicated that their use of instant messaging has decreased due to connecting with others via text messaging and Facebook. Given these findings, it is critical for the WIC program to keep up with newer and emerging technologies and their potential use for delivery of program services.

In addition, findings also showed that with age, WIC participants continue to use technologies and the devices they are most familiar with. For example, older WIC participants continue to use the computer more than the cell phone when accessing the Internet. As such, younger WIC participants will likely continue to use the cell phone as they age, while new generations of WIC participants will use the newer, “smarter” technologies that will become more accessible over time. Given this, it makes sense for WIC to offer multiple modes of nutrition education and breastfeeding support such as online classes, websites, social media, video chat, and smartphone apps geared towards younger generations.

Despite the limited resources and in some cases limited education levels and language barriers of some WIC participants, they are using and willing to learn about other newer technologies. This was evidenced many times throughout the focus groups. For example, participants shared about the increasing availability of Smartphones, and that they are feeling forced into learning and taking advantage of newer technologies. This is a major advantage for WIC, as increasing use of and familiarity with the technology will make it easier to implement technology in service delivery.

Finally, incorporating the use of technology will not eliminate the need to provide one-on-one WIC services. Remote places such as villages in Alaska and ITOs have difficulty accessing the Internet and cellular technology. In addition, as highlighted by many focus group participants, there are many participants with limited resources and lower levels of education who do not currently access the Internet. As such, it is imperative that WIC offers multiple options when it comes to delivering WIC services.

# Methodology

## Background

Amanda Hovis & Company, LLC and Limetree Research, LLC conducted the online *WIC Participant Technology Survey* and the WIC participant focus groups in November and December 2011 as part of the Enhancing WIC Services through Electronic Technologies Project, funded by USDA FNS WR WIC, administered by the Inter-Tribal Council of Arizona (ITCA) and managed by Barbara Longo and Claudia Desmangles (California WIC Program) in coordination with an advisory group representing WIC programs throughout the Western Region. This region includes Alaska, American Samoa, Arizona, California, Commonwealth of the Northern Mariana Islands, Guam, Hawaii, Idaho, Nevada, Oregon, Washington, Intertribal Council of Arizona, Intertribal Council of Nevada, and Navajo Nation.

## Purpose

The purpose of this mixed methods study is to better understand technology use of Western Region WIC participants by using both quantitative (broad numeric trends) and qualitative (detailed views of WIC participants and potential WIC participants) data. The current study's methodology used the Diffusion of Innovation theory. This theory explains how new ideas and technology spread through a population. The premise is that innovations spread over time and there are differences between groups who adopt a technology at a particular time. Innovators are the first ones to adopt a new technology, followed by early adopters, early majority, and late majority, with laggards being the most resistant. Early adopters exhibit the highest degree of influence on the rest of the population. The mixed methods approach used in this study allowed sampling of early adopters of technology, early majority, late majority and laggards. Additionally, the online *WIC Participant Technology Survey* assessed the technologies used by WIC participants, the technologies currently used to interact with WIC, the situations and types of technologies WIC participants want to use when interacting with WIC in the future, and the likelihood of use of these technologies when interacting with WIC in the future. At the same time, these topics were also explored using focus groups with Western Region WIC participants at WIC clinics throughout the Western Region.

The purpose of the online *WIC Participant Technology Survey* and the WIC participant focus groups was to:

1. Identify current technology used by WIC participants in the Western Region.
2. Identify types of technology WIC participants currently use when interacting with WIC.

3. Identify the situations in which Western Region WIC participants want to use technology and social media to interact with WIC (e.g., scheduling and appointment services, eligibility information, nutrition education, health linkages and referrals, store locations and authorized foods, WIC agency locations and breastfeeding peer counseling support services).
4. Identify types of technology WIC participants want to use when interacting with WIC.
5. Determine the likelihood of use of these technologies when interacting with WIC.

The focus groups with WIC-eligibles were conducted in Phoenix, Arizona in an effort to gain a better understanding of:

1. Current technology used by WIC-eligible participants.
2. Reasons why WIC-eligibles fail to participate in the WIC program.
3. How WIC-eligibles want to learn about the WIC program and apply for WIC services via technology.
4. Current online outreach methods being used by Arizona WIC to encourage potential WIC-eligibles to apply for program services.

## Definitions

In this document, the term *technology* refers to a specific set of technologies of interest to the Western Region WIC program which includes email, Internet, Smartphone applications, text messaging, video chats, gaming activities and social networking sites such as Facebook and Twitter.

The term *survey respondents or respondents* refers to individuals who answered the Online WIC Participant Technology survey. The term *focus group participants or participants* is used to identify individuals who participated in one of the eleven focus groups of WIC participants.

The term *WIC-eligibles participants* refers to individuals such as a pregnant, breastfeeding or post-partum mothers or caretaker of an infant or child under age 5 who meet the eligibility guidelines to be a WIC participant but who have never enrolled in the WIC program.

## Development of Online WIC Participant Technology Survey

The online survey was developed by Amanda Hovis & Company LLC and Limetree Research LLC from recommendations provided by members of the Western Region WIC Electronic Technologies Advisory Board. The survey was then reviewed by the Western Region WIC Electronic Technologies Steering Committee. The *WIC Participant Technology Survey* items were tested for comprehension using cognitive interception interviews of WIC participants at designated WIC clinics that hosted the three early adopter focus groups. Following the comprehension testing, a usability test was conducted with WIC participants from the volunteer agencies in California and Arizona. During the test phase, survey items were revised as needed.

The final survey contained 43 questions in six categories as shown in Table 1. Most of the questions were multiple choice, with options for writing in additional information. The survey was offered in both English and Spanish.

**Table 1. Description of Online WIC Participant Technology Survey**

<b>Question Category</b>	<b>Number of Questions</b>
Demographics	15
Cell phone use	6
Internet use	5
Facebook use	3
Current WIC services	4
Future WIC services	10

### **Participant Recruitment of *Online WIC Participant Technology Survey***

Western Region WIC participants accessed the *WIC Participant Technology Survey* online from November 7, 2011 to December 9, 2011. The survey was available at [www.wicsurvey.com](http://www.wicsurvey.com) and was linked to [wichealth.org](http://wichealth.org) (used in Alaska, California, Nevada, and Washington) and Oregon's Internet-based nutrition education system. To encourage participation the survey included a \$100 Gift Card drawing for participants in each of the Western Region states and territories. All states were provided with a recruitment flyer (see Appendix A-2) to inform participants about the survey. The Western Region held several conference calls to discuss additional recruitment and promotion strategies. Ideas for additional promotion included having a computer available for participants to complete the survey at the clinic, posting web banner advertisements on agency websites, and emailing and/or texting clients directly about the survey.

States with higher participation rates utilized additional recruitment strategies such as having participants complete the survey at the clinic, promoting the survey via a web banner on their website, connecting to web-based nutrition education, and direct emails and/or text messages. States with the highest levels of participation (California and Oregon) also emailed or sent text messages to participants about the survey.

The final sample ( $n=8,144$ ) was comprised of a self-selected convenience sample of individuals who were most likely familiar with Internet technology given that they participated in the online survey.

### **Weighting data for appropriate representation among States and ITOs**

In order to achieve a representative sample of the Western Region states, a quota was set for each state, territory and tribal organization of a target number of WIC participants that needed to complete the online survey. When the data collection ended, some states were in excess of the established quota, while others missed their quota and were under represented. In consultation with the Western Region and statisticians from the University of Texas at Austin and University of Alaska at Anchorage it was decided that the data would be weighted based on the WIC population in each of the Western Region states/territories. This was done by using an "expected sample size" from the power calculations to esti-

mate a population proportion. The actual survey response numbers were used to create a sample proportion. The population proportion was divided by the sample proportion to obtain a weight. The weight was an added variable for each individual respondent. For example, the expected sample size from the Navajo Nation was thirty respondents, yet the actual sample contained only five. Therefore, each respondent from the Navajo Nation was weighted 'up' by ~10.745. Additionally, we expected 2,700 Californians to complete the survey, yet 6,077 completed the survey. Therefore, each California respondent was weighted 'down' by ~0.7956.

### Sample Demographics of Online WIC Participant Technology Survey

The final sample from the WIC participant online survey included 8,146 respondents. Based on the weight-adjusted formula, the frequency for the overall sample was adjusted to 8,144 respondents. When describing the overall sample of the Western Region, the weight-adjusted sample was used. However, in the state-level reports the unadjusted frequencies were used. Ninety-eight percent of survey respondents indicated that they were WIC participants and 2% indicated that they were neither WIC participants nor staff, but described themselves as a parent or caretaker of a child on the WIC program. Table 2 presents the distribution of responses from each of the fourteen states/Indian Tribal Organizations (ITOs) represented in the sample.

Table 2. WIC Program Online Survey Participation by State and Indian Tribal Organization (ITO)

State or ITO	Sample Frequency	Weight-adjusted Frequency	Weighted Sample Percent (%)	Regional Percent (%)
Alaska	102	101	1	1
American Samoa	25	25	0.3	0
Arizona	246	686	8	8
California	6,108	5,457	67	67
Guam	39	31	0.4	0
Hawaii	139	139	2	2
Idaho	45	175	2	2
Inter Tribal Council of Arizona	28	42	0.5	1
Inter Tribal Council of Nevada	4	7	0.1	0
Mariana Islands	51	18	0.2	0
Navajo Nation	5	45	0.5	1
Nevada	176	271	3	3
Oregon	850	426	5	5
Washington	328	723	9	9
<b>TOTAL</b>	<b>8,146</b>	<b>8,144</b>	<b>100%</b>	<b>100%</b>

### Age, Race, and Ethnicity

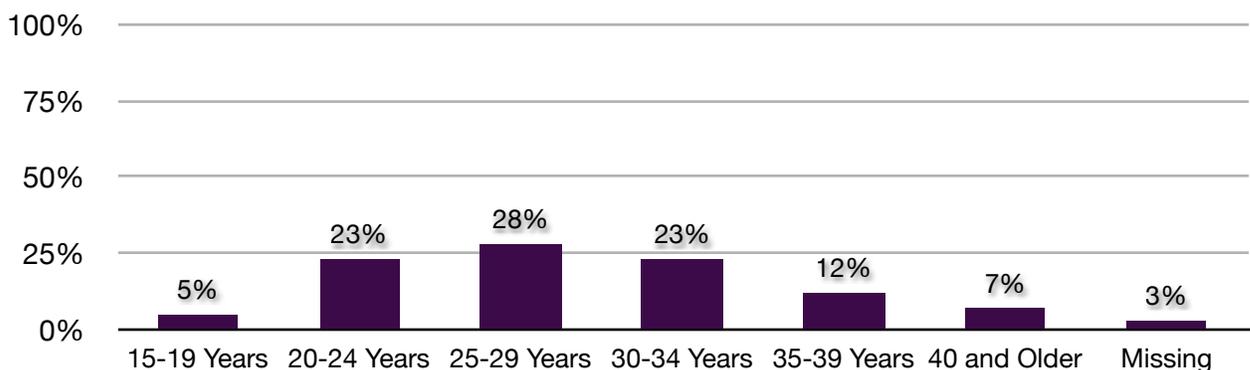
Table 3 and Figure 1 below present the weight-adjusted demographics for online survey respondents based on the aggregate sample (includes all Western Region states and ITOs). Table 3 shows the mean age, a generational breakdown by millennials (ages 20-31) and those younger and older. Pew Research defined the term millennial as those born after 1980 and at least age 18 at the time of their study. The same birth years were used in this study which shifted the age range two years making the range 20-31 rather than 18-29. In addition, Table 3 includes ethnic and racial distribution of online survey respondents. Respondents were asked to answer if they were Hispanic, followed by a question regarding their race. It is important to note that most of the participants who described themselves as Hispanic skipped the race question in both the online and focus group surveys. As evidenced by the focus group participants and Spanish language online survey who wrote-in “Hispanic” or “Latino” in the “other” response option, Hispanics in this study consider their ethnicity to be equivalent to their race. The “other” category was removed from further analysis related to race except when reporting the overall demographics.

Table 3. Online Survey Respondents Demographics (weight-adjusted statistics, n=8,144)

Age	Race	Ethnicity
Mean = 29 years (SD=6.9) Range = 15-73	White, 57%	Hispanic, n=3,865 (47%)
<b>Millennial Generation</b> (ages 20-31), 62%	African American, 7%	
<b>Younger</b> (ages 15-19), 5%	Asian, 6%	
<b>Older</b> (ages 32 and up), 30%	American Indian/Alaskan Native, 7%	
Missing, 3%	Native Hawaiian/Pacific Islander, 3%	
	Other, 3%	
	Missing, 17%	

Figure 1 presents online survey respondents age distribution in 5-year increments.

Figure 1. Online Survey Respondents' Age (weight-adjusted percentages; n=8,144)



### Parental Status and Length of Time on WIC

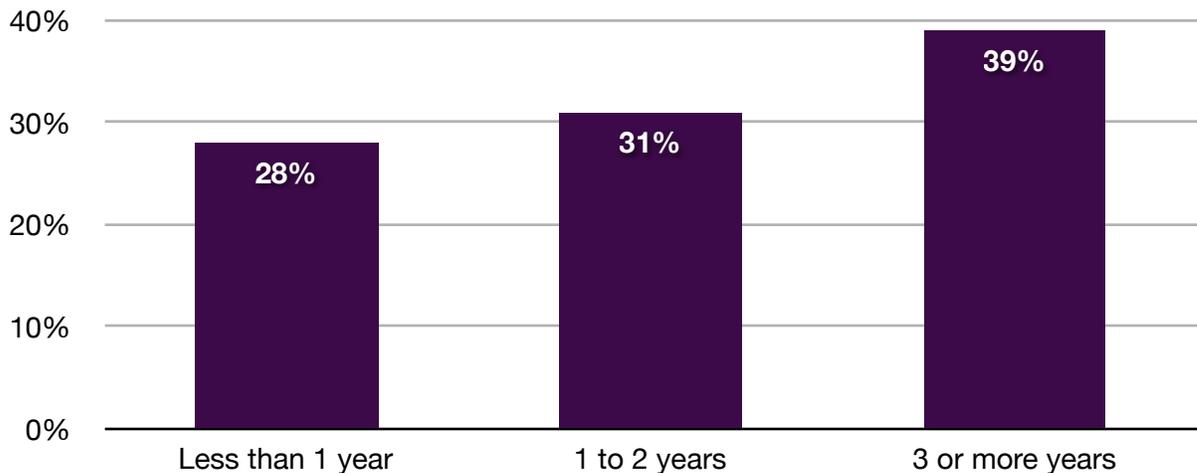
Table 4 depicts the average number of children in the household, the relationship of online survey respondents to the child(ren) on WIC, and the online survey respondent’s client category. Most of the online survey respondents were mothers (89%). The average number of children in the home was 2 (*SD*=1.4).

Table 4. Parental Status of Online Survey Respondents (weight adjusted statistics, *N*=8,144)

Number of Children	Relationship to the child(ren) in WIC	WIC client categories
Mean, 2 children ( <i>SD</i> =1.4) Range, 0-16	Mother, 89% Pregnant, 5% Father, 2% Foster parent, 1% Grandparent, 1% Other, 1% Missing, 1%	Pregnant, 16% Breastfeeding, 22% Parent/caretaker of baby <12 mo, 34% Parent/caretaker of child > 1 yr, 76%

As illustrated in Figure 2, 29% of survey respondents reported they have been on WIC for less than a year, while 32% have been on WIC for at least 2 years and 39% have been on WIC for more than 3 years.

Figure 2. Online Survey Respondents’ Length of Time on WIC in the past 5 years



## Data Analysis of Online WIC Participant Technology Survey

### Eligibility

In order to be eligible for analysis, respondents had to be A) WIC participants or B) individuals who were not enrolled in the WIC program, yet indicated that they were either a parent or caretaker of a child enrolled in the WIC program. In addition, eligible respondents must have indicated in which WIC program they enrolled.

### English and Spanish Survey Data

The final survey count was 8,146 and included 7,507 English and 639 Spanish surveys. The data from those who completed the survey in Spanish and English were merged into one data set and analyzed in aggregate. The percent of respondents who preferred Spanish as their main language was not representative of the Western Region. An analysis of Spanish-speakers specific to California is available in the California state report (see Appendix D-4). Additionally, an analysis of all of the Spanish-speakers is available in Appendix D-13. Please note that these results are not representative of the Western Region Spanish-speakers and should be interpreted with caution.

### Coding

Several new variables were created for the analysis. Two new age variables were created based on the continuous respondent age variable: 1) a categorical variable grouping respondents in five-year increments (e.g., 15-19, 20-24, etc. through 40+) and 2) a millennial generation variable to indicate whether the respondent was part of the “millennial generation” (considered to be ages 20-31), younger or older.

For the number of children variable, respondents who wrote-in “pregnant” were coded as having 0 children. This is based on the assumption that their parenting needs and behavior would be more similar to someone with no children than someone with one child.

A new variable was created to group states and ITOs into the following categories: islands (American Samoa, Guam, Hawaii, Mariana Islands), ITOs (Inter-Tribal Council of Arizona, Inter-Tribal Council of Nevada, Navajo Nation), Alaska, California, and other states (Arizona, Idaho, Nevada, New Mexico, Oregon, and Washington). For several items on which data was compared across states, the created variable was used. In many cases, variability within categories made it inappropriate to use this variable.

### Descriptive and comparative analysis

Using the weighed data, frequencies and percentages were calculated for categorical variables, as well as means and standard deviations for continuous variables. Chi-square tests were used to compare states/ ITOs to the aggregate sample on a variety of demographic variables. Adjusted standardized residuals +/-2 indicated significant deviation from expected results. Significance was set at  $p < .05$ .

## Focus Group Protocol Development

The focus group protocol consisted of a focus group discussion guide and either a 19-item (for WIC participants) or a 17-item (for potential WIC participants) focus group participant survey. Amanda Hovis & Company LLC and Limetree Research LLC developed the focus group guides (Appendix B-1 & C-1) based on recommendations provided by members of the Western Region WIC Electronic Technologies advisory group. The discussion guides were then reviewed by the Western Region WIC Electronic Technologies Steering committee and approved by Barbara Longo and Claudia Desmangles, project managers for the USDA FNS WR WIC ET Project. The WIC Connect visuals (Appendix B-4 & C-5) used during the groups were developed by Claudia Desmangles and designed by Tim Hoerl. Specific to the WIC-eligible participant focus groups, materials developed by the Arizona WIC program tested current outreach methods (Appendix C-6).

The participant surveys consisted of demographic information, current use of technology, and preferences for visuals of technologies shown during the focus group. The participant survey was administered following the conclusion of the focus group discussion. The focus group discussion guide and participant survey were initially written in English and translated into Spanish by a native Spanish speaker who is a member of the research team.

## WIC Participant Focus Group Details

Focus groups were conducted with Western Region WIC participants. The goal of these groups is to help WIC understand technology use of current WIC participants, how and in what situations they wished to interact with the WIC program via technology, and the likelihood of using such technologies in the future.

The in-person focus groups were 90 minutes in length and the online focus groups were two hours in length. Additional time for set-up and introduction to the online system was allotted for the online focus groups. Each participating WIC clinic identified and recruited 10 participants per focus group, with the expectation that 6-8 participants would show for each group. Online focus groups were limited to 6 participants each. Each focus group was conducted in a local WIC clinic at a time convenient for both working and non-working participants. Following the conclusion of the focus group, participants completed a short demographic survey and received \$50 for their participation.

Audio recordings of each focus group were subsequently transcribed. Following transcription, qualitative description was used to analyze the data<sup>1</sup>.

## WIC Participants Focus Group Site Selection

The Western Region was responsible for finding the sites to hold the WIC participant focus groups. Sites were selected to represent urban and rural participants as well as English and Spanish speakers. The

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<sup>1</sup> Miles, M. B., & Huberman, M.A. (1994). *An expanded sourcebook: Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: Sage.

online focus group in Guam was held at one clinic location, whereas the online focus group in Alaska included participants from five different locations around the state (Anchorage, Juneau, Barrow, Yukon, and Fairbanks). The focus group sites selected are illustrated in the Table 5.

**Table 5. WIC Participants Focus Group Sites and Language Used**

Focus Group Location	Language Used
Seattle, WA Group A	English
Seattle, WA Group B	English
Seattle, WA Group C	Spanish
Portland, OR Group A	English
Portland, OR Group B	English
Guam (Online)	English
Wahiawa, HI Group A	English
Honolulu, HI Group B	English
Inter-Tribal Council of Arizona	English
Phoenix, AZ	Spanish
Alaska (Online)	English

### Online Focus Group of WIC Participants

In an effort to include WIC participants in the remote areas of the Western Region, two online focus groups were conducted, one in Guam and one in Alaska. To conduct these interactive focus groups over the internet Amanda Hovis & Co., LLC partnered with FocusVision Worldwide. Web cameras were provided to each local WIC clinic that hosted online focus group participants. Prior to each online focus group, a live practice session was conducted with clinic staff, research team members, and FocusVision engineers to ensure that all Internet, hardware, and software systems were functioning properly.

### Recruitment for WIC Participant Focus Groups

WIC participants were identified by their clinic or local agency staff. In addition, recruitment posters (see Appendix B-3) were posted throughout the participating clinics and local agencies.

Table 6 presents the geographic distribution and participation from the focus group samples.

**Table 6. WIC Program Focus Group Participation by State and Indian Tribal Organization (ITO) (n=76)**

State or ITO	# of Participants	Percent (%)
Alaska	6	8
Arizona	7	9
Guam	5	7

State or ITO	# of Participants	Percent (%)
Hawaii	14	18
Inter Tribal Council of Arizona	7	9
Oregon	15	20
Washington	22	29
<b>TOTAL</b>	<b>76</b>	<b>100</b>

A total of 76 participants attended the focus groups. One participant left the Alaska focus group early and did not complete the participant survey. Thus, throughout the report the demographic survey data for the focus groups reflects 75 participants.

Online survey respondents and focus group participants are similar in mean age; however, as expected, the age range of online survey respondents was larger than that of focus group participants. In addition, because the Hawaiian, Native American, and Hispanic populations were targeted during focus group recruitment, there is greater representation of these populations.

### WIC Participant Focus Group Approach

Each focus group used a funnel-based interview strategy<sup>2</sup>. The focus group opened up with a broad question in order to encourage free-flowing discussion among the participants. During this initial discussion, participants' experiences with and perspectives on technology and social media use began to emerge. Using the funnel analogy, the interview questions began to narrow and focus on specific questions about the ways in which participants would like to use technology and social media to interact with WIC. Next, participants viewed various visuals of technology and social media that they may be able to use in the future to connect with the WIC program. The focus group concluded with specific questions asking participants to describe their thoughts on the visuals, the likelihood of their use of such technologies and social media to connect with WIC, and any suggestions or other ideas of ways they would like to interact with their WIC program.

### WIC Participant Focus Group Analysis

Qualitative description analysis was used to describe focus group participants' experiences with technology, both in their personal life as well as their current and desired future interactions with WIC. The focus group data was analyzed in three separate areas (current use of technology, visualization activity for desired future interactions with WIC using technology, reactions to visuals of mock-ups of future WIC technologies). Analysis of participants' current use of technology was further analyzed by each technology/device discussed.

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<sup>2</sup> Morgan, D. L. (1997). Focus groups as qualitative research (2nd ed.). Thousand Oaks, CA: Sage.

A coding scheme was developed inductively from transcripts of the focus groups and was further refined and adjusted throughout the analysis. Two researchers analyzed the focus group data independently of one another and checked to ensure consensus on all codes and themes.

### **WIC-eligibles Focus Group Details**

The focus groups were conducted with English and Spanish speaking WIC-eligibles in Phoenix, Arizona. The goal of the focus groups was to help WIC understand the current technology use of individuals who are eligible for WIC, but not yet participating. In addition, WIC-eligibles were asked about the types of technology they are using and the situations in which they wish to interact with the WIC program via technology. The groups also discussed effective outreach tools to reach and enroll WIC eligibles into the WIC Program.

The focus groups were approximately 120 minutes in length. Twelve participants were recruited for each focus group and eight participants were selected to participate in the focus group. Following the conclusion of the focus group, participants completed a short demographic survey and received \$80 for their participation. One focus group was conducted with Spanish-speaking WIC-eligible participants and the other with English-speaking WIC-eligible participants.

Audio recordings of each focus group were subsequently transcribed. Following transcription, qualitative description was used to analyze the data<sup>3</sup>.

### **WIC-eligibles Site Selection**

The Western Region WIC programs selected Phoenix, Arizona as the location for the focus groups. Amanda Hovis & Company LLC contracted with WestGroup Research to recruit the participants and hold the focus groups. Participants were recruited from Phoenix and the surrounding metro area.

### **WIC-eligibles Recruitment**

The screener in Appendix C-3 was used to recruit participants. Eligible participants were individuals who had never been enrolled in the WIC program who also meet the income and program eligibility guidelines for WIC (at/or below 185% of the Federal Poverty Level for 2011 and are pregnant or have a child under age 5).

### **WIC-eligibles Focus Group Approach**

Each focus group used a funnel-based interview strategy<sup>4</sup>. The focus group opened up with a broad question in order to encourage free-flowing discussion among the participants. During this initial discussion, participants' experiences with and perspectives on technology and social media use began to

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<sup>1</sup> Miles, M. B., & Huberman, M.A. (1994). *An expanded sourcebook: Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: Sage.

<sup>4</sup> Morgan, D. L. (1997). *Focus groups as qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.

emerge. Using the funnel analogy, the interview questions then began to narrow and focus on specific questions about the reasons why WIC-eligibles are not participating in the WIC program, ways in which they would like to learn about the WIC program using technology and social media and how WIC could use technology to help WIC-eligibles apply for WIC program services. Next, participants were shown a series of outreach methods currently used by the state of Arizona WIC program and asked to comment on these methods.

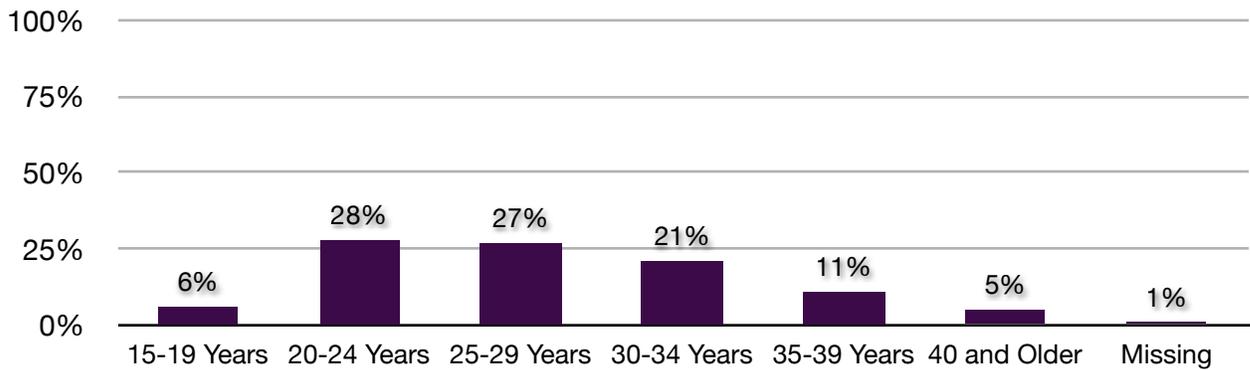
Table 7 presents the demographic information for WIC focus group participants.

**Table 7. WIC Participant Focus Group Demographics (n=75)**

Age	Race	Ethnicity
Mean = 28 years (SD=6.9) Range = 15-48  <b>Millennial Generation</b> (ages 20-31), 67% <b>Younger</b> (ages 15-19), 7% <b>Older</b> (ages 32 and up), 25% Missing, 1%	White, 52% African American, 1% Asian, 4% American Indian/Alaskan Native, 17% Native Hawaiian/Pacific Islander, 9% Other, 4% Missing, 12%	Hispanic, n=29 (38%)

Figure 3 presents the age distribution in 5-year increments of WIC focus group participants.

**Figure 3. Focus Group Participants' Age (N=75)**



### Contrasts of Preferred Language and Education of WIC Participants

All online survey respondents and focus group participants were asked to provide their highest level of education. As illustrated in Figures 4a & 4b, 10% of online survey respondents completed 10th to 12th grade, 38% graduated from high school or received their GED, 35% graduated from college, and 13% completed trade or technical school. Thirty five respondents (0.4%) did not report their highest level of education. In contrast, 21% of focus group participants had less than a 12th grade education, 31% graduated from high school or received their GED, 17% graduated from college and 28% reported having some college experience. Two focus group participants did not report their highest level of education.

Figures 4a & 4b. Education Level of Online Survey Respondents & WIC Focus Group Participants

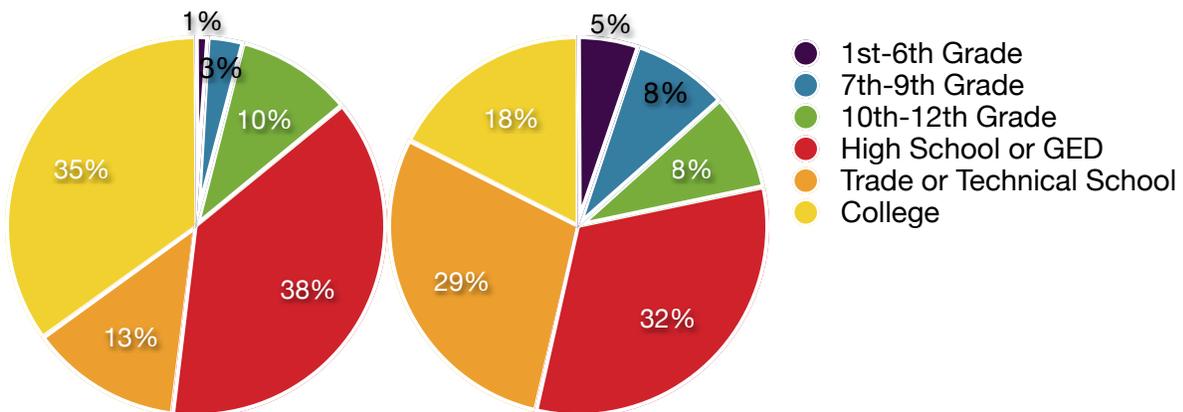


Figure 4a. Online Survey

Figure 4b. WIC Focus Groups

As illustrated in Figures 5a & 5b, the majority of online survey respondents (76%) and WIC focus group participants (74%) indicated that English is their preferred language, while 14% of online survey respondents and 11% of WIC focus group participants preferred both languages equally. In addition, 8% of online survey respondents and 15% of WIC focus group participants preferred Spanish.

Figures 5a & 5b. Preferred Language of Online Survey Respondents & WIC Focus Group Participants

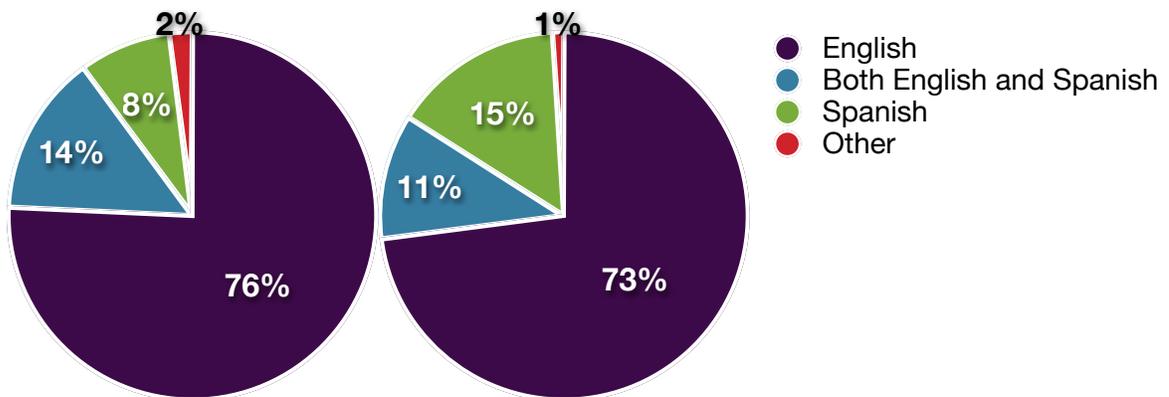


Figure 5a. Online Survey

Figure 5b. WIC Focus Groups

Figures 6a, 6b & 6c contrast the education level of online survey respondents by preferred language. As illustrated, 51% of survey respondents who selected English as their preferred language (English speakers) attended trade or technical school or college. In contrast, only about one-quarter (26%) of survey respondents who reported Spanish as their preferred language (Spanish speakers) had attended college or trade or technical school. It is important to note that 47% of Spanish speakers did not complete high school or a GED. In contrast, only 9% of English speakers did not complete high school or a GED. Also of interest are the differences in high school/GED education levels among online survey respondents. Specifically, only 27% of Spanish speakers have a high school diploma or GED as compared to 40% of English speakers.

Survey respondents who prefer speaking both English and Spanish (bilingual speakers) have similar education levels as those who indicated that English is their preferred language. For example, 51% of respondents who selected English and 46% of bilingual speakers have at least attended trade or technical school or college. Similarly, 40% of English speakers and 36% of bilingual speakers have a high school diploma or GED. With regard to survey respondents who did not complete high school or a GED, bilingual speakers (18%) fared better than Spanish speakers (47%), but worse than English speakers (9%).

Figures 6a, 6b, & 6c Survey Respondents' Education Level by Preferred Language

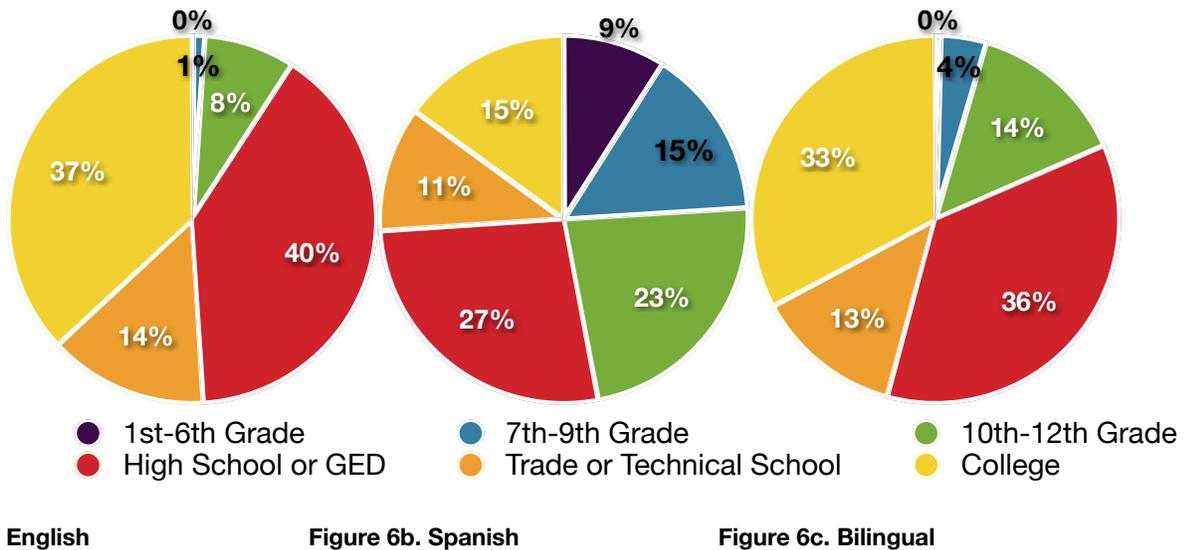


Figure 6a.

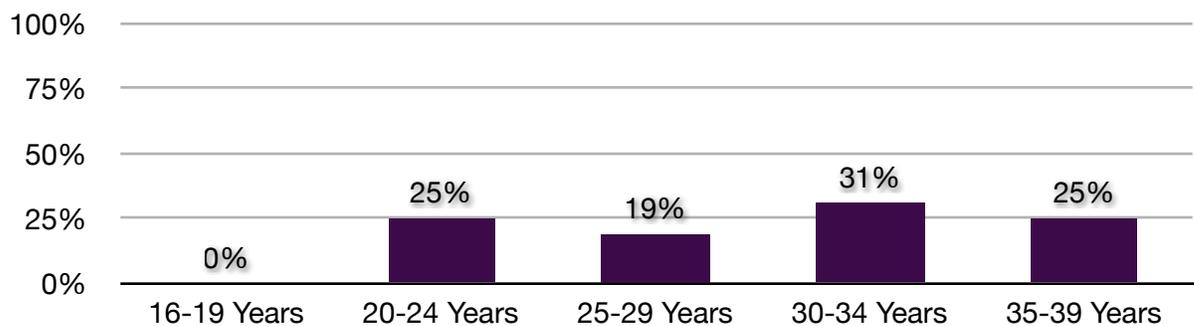
### WIC-eligible Participant Demographics

Table 8. Summary of Demographic Characteristics of WIC-eligible Focus Group Participants (N=16)

Gender	Age	Race	Ethnicity
14 Females 2 Males	Mean=30 years (SD=6.4) Range=21 to 39 years	African American, n=1 American Indian/Alaskan Native, n=0 White, n=10 Other, n=4 Missing, n=1	Hispanic, n=12

Figure 7 depicts WIC-eligible focus group participants' ages in 5-year increments.

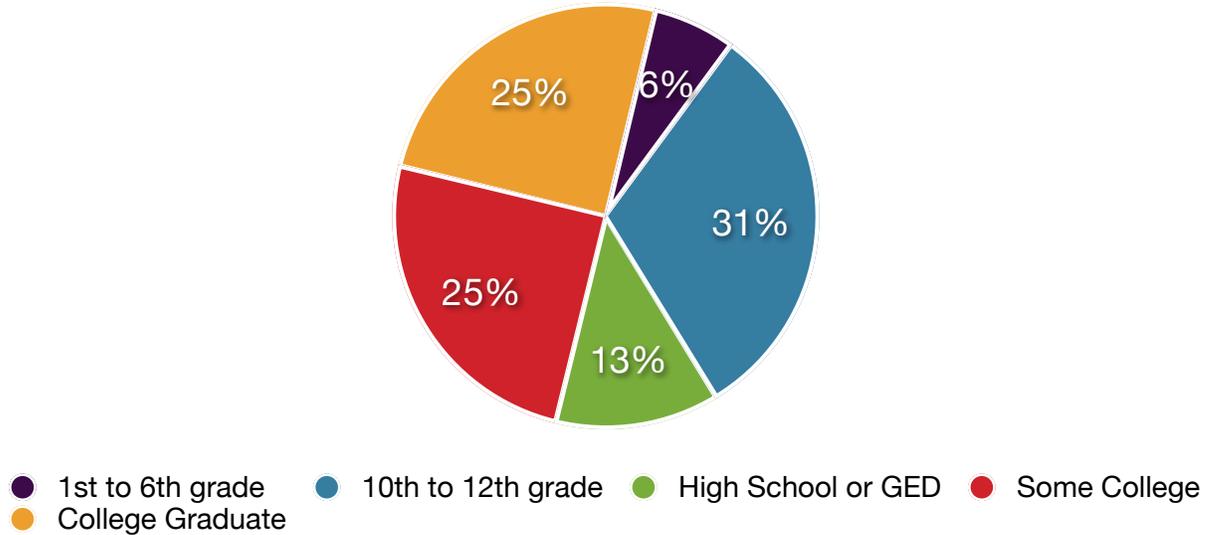
Figure 7. Age of WIC-eligible Focus Group Participants



Participants were asked to provide their highest level of education. As illustrated in Figure 8, 31% (n=5) of the participants completed 10th-12th grade, 25% (n=4) completed some college, and 25% (n=4)

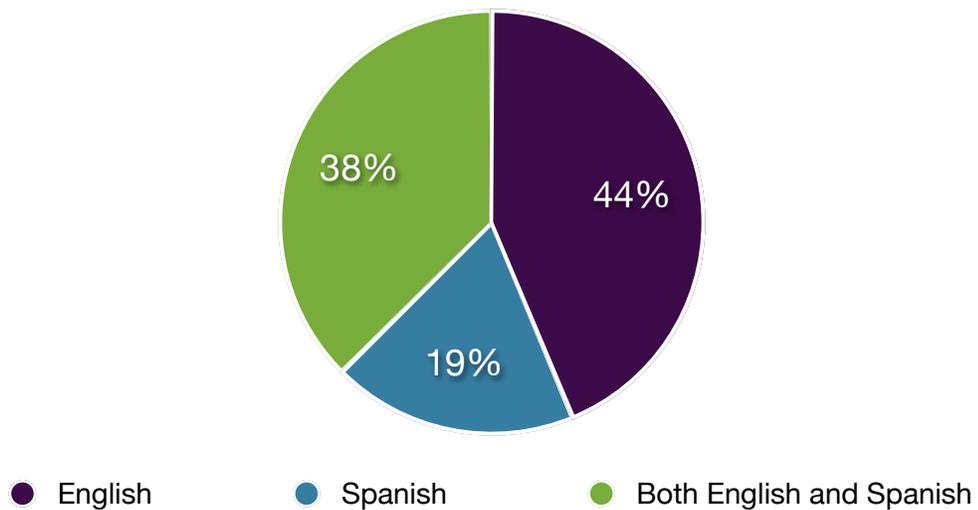
completed college, 13% ( $n=2$ ) graduated from high school or received their GED, and 4% ( $n=1$ ) completed 1st-6th grade.

*Figure 8. Education Level of WIC-eligible Focus Group Participants*



As illustrated in Figure 9, 44% ( $n=7$ ) of participants indicated that English is their preferred language, while 38% ( $n=6$ ) prefer English and Spanish equally and 19% ( $n=3$ ) prefer Spanish.

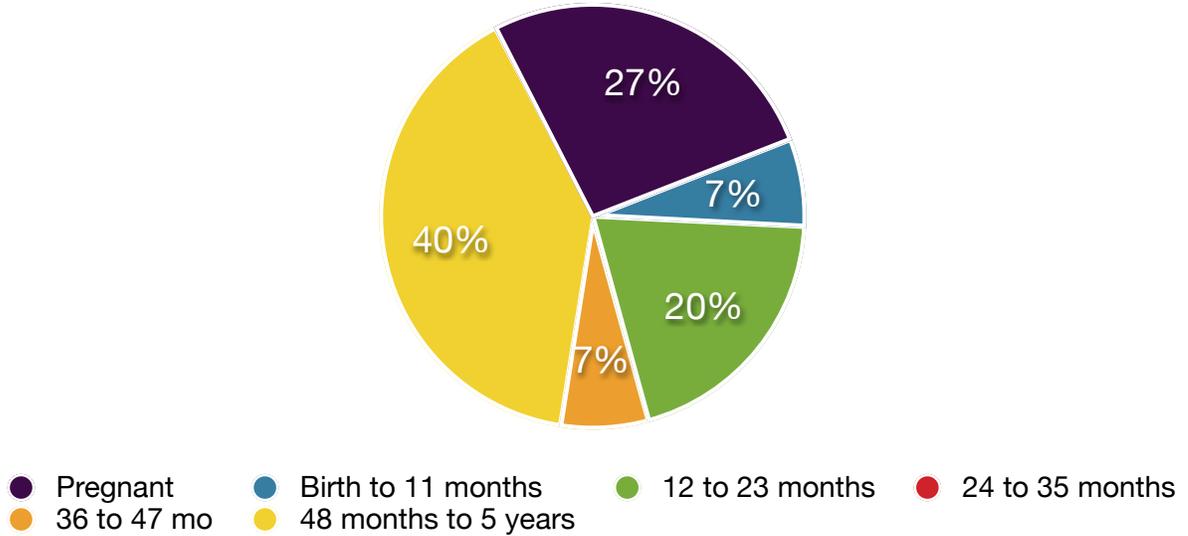
*Figure 9. Preferred Language of WIC-eligible Focus Group Participants*



Participants provided the age of their youngest child under the age of five, but the item did not include a category for pregnancy. Thus, the information was indexed against the participant screener which included pregnancy status. As shown in Figure 10, most parents (42%;  $n=6$ ) indicated that their oldest child under

age 5 was between the ages of 48 months and 5 years; followed by pregnant moms (27%;  $n=4$ ); 20% of participants had children between ages 12-24 months; while 7% ( $n=1$ ) had an infant age 0-12 months and 7% ( $n=1$ ) had a child between 36-47 months. One participant indicated that her youngest child was age 9, and it was unclear as to whether this meant nine *months* or nine *years*. It is likely that this participant meant 9 *months* since all participants in the study were screened prior to the focus group to determine whether they had a child under the age of 5. However, this participant was omitted from the analysis.

*Figure 10. Age of Youngest Child of WIC-eligible Focus Group Participants*



# Key Findings

## Current Technology Use

### WIC survey respondents:

- Email (92%), text messaging (86%) and Facebook (80%) were the top 3 technologies used.
- 61% email daily.
- 57% use instant messaging.
- 83% have never used Twitter.
- 80% have a Facebook profile.
- As age increases Facebook use decreases.
- Respondents who identified themselves as American Indian/Alaskan Natives, those with less than a high school education, as well as those living in Indian Tribal Organizations use Facebook the least.
- Among Facebook users, 74% have liked/commented on a group/business page, 48% have joined a Facebook group, and 31% joined a group chat.
- 92% own a cell phone, of these 58% own a smartphone.
- 54% have an unlimited data plan on their phone, 78% have an unlimited text messaging plan.
- 93% who own a cell phone use it to send and receive text messages.
- Only 31% use Smartphone Apps for health information. The most popular app was WebMD mobile.
- When accessing the Internet 51% of respondents reported using a desktop, 23% a cellphone, and 25% reported using both devices equally.
- Beginning at age 25, as age increases, technology is accessed more frequently via a computer and less frequently via cell phone.
- Survey respondents are very familiar with technology, for example: 93% use computers or cell phones to send and receive email messages; 88% locate a store, business, restaurant or residence; 77% watch videos; 76% cancel or schedule appointments online, 67% play games and download apps.

### WIC focus group participants:

- Similar to online survey respondents, the top 3 technologies used daily by focus group participants were text messaging (79%), Facebook (59%) and email (50%).
- 72% send and receive text messages 'several times a day'.
- Focus group participants stated that text messaging provides an economical way to communicate.

*"I use it a lot because it saves us money on our bill, we don't have to have as many minutes. We have unlimited free texting so I can text as much as I want."*

- Most have a Facebook profile and are very familiar with the functionality. For example, several have created Facebook groups, joined Facebook groups, 'liked' business pages, and use it as a marketing tool.
- 50% email daily.
- 42% use instant messaging.
- Most focus group participants have never used Twitter.
- Almost all participants had at least a basic cell phone with texting capabilities.
- Indicated that cell phones are "vital".

*"...[the cell phone] is really useful and I think it is vital like a car, these things are not a luxury but a necessity."*

- Devices used to access the Internet: 43% of focus group participants reported using their cell phone, 28% use their desktop, laptop or computer tablet, and 28% reported using both equally.
- Some focus group participants were overwhelmed by the rate in which cellular and computer technology has advanced, but are willing to keep up and learn.

*"De eso de tecnología yo estoy bien atrasada. No sé casi nada. Yo apenas si sé usar el celular."*

*TRANSLATION: "That about using the technology I am really behind. I don't know almost anything. I barely know how to use the cell phone."*

### **WIC-eligibles focus group participants:**

- Text messaging is the most frequently used technology among WIC-eligibles.
- 81% send and receive text messages 'several times a day'.
- Facebook is most participants' favorite technology.
- 30% use instant messaging and email daily.

## **Current Interactions with WIC**

### **WIC survey respondents:**

- 75% currently receive nutrition education via in-person, one-on-one contact with WIC staff.
- Approximately 60% schedule WIC appointments over the phone or in person.
- 67% receive appointment reminders by phone, while 25% do not receive appointment reminders of any kind.
- Some agencies are beginning to send appointment reminders via text message or email.
- Alaska (49%) respondents reported taking more online nutrition education classes than other states and ITO's combined (21%).

### **WIC focus group participants:**

- Some mentioned currently receiving appointment reminders from WIC via email or text message.
- In addition some mentioned currently receiving text message reminders from businesses and health-care providers and communicating via email with their doctor's and pediatrician's offices. They have used

email to receive information about appointments, lab results and to fill out documentation prior to their next visit.

- Currently use Facebook in a variety of ways, from personal communications to business-related marketing and networking, but are not using Facebook as a means to communicate with WIC.

## Connecting with WIC in the Future

### WIC survey respondents:

- 67% indicated that appointment reminders via text message would be “very useful”, 64% reported that scheduling WIC appointments online and 63% mentioned that having access to recipes to and cooking demonstration videos featuring WIC foods would be “very useful”.
- More than half (59%) perceived that it would be useful to receive nutrition education via text message or email in the future.
- Among cell phone users, 70% with an unlimited text messaging plan and 72% with an unlimited data plan reported that receiving nutrition education via text message would be “very useful”.
- 46% want a social media site specifically for WIC participants, while 38% want WIC to use Facebook.
- More participants want to receive nutrition education via Internet classes in the future (59%) compared to 21% that currently receive this type of education.
- Fewer individuals want one-on-one nutrition education with WIC staff in the future (59%) compared to current usage (75%).
- Pregnant, breastfeeding, and respondents with children less than 12 months of age were more likely than respondents with children older than 12 months to indicate that video chat with a breastfeeding educator would be “very useful”.
- More than respondents from any other state or ITO, American Samoa and Guam reported that receiving nutrition education from a nutritionist via video chat would be “very useful”.
- 57% would join an online WIC group.
- Topics of interest for online WIC group vary by parental status in WIC. Respondents tend to seek topics that are a step ahead of their child’s current stage of development. For example, pregnant women want an online group about breastfeeding and newborns, breastfeeding women and respondents of children less than 12 months want an online group about infants and parenting, respondents of children over 12 months of age want an online group about toddlers, healthy eating, and parenting.
- Only 12% of respondents reported that they want to receive nutrition education via Twitter.
- 60% reported that the mock-ups of technologies to shop for WIC foods are “very useful”.
- 70% are “somewhat likely” or “very likely” to participate in a chatroom with other WIC parents.

### WIC focus group participants:

- Most want to receive appointment reminders via text message or email but would still like WIC to offer other options.

- Prefer to receive health-related information from WIC via email and most were open to receiving short pieces of information via text message.
- Participants indicated video chat would be a great way to receive nutrition education and breastfeeding support. This is particularly true for those who already video chat with friends and family. While some felt it would be “weird” at first, meeting the WIC staff in-person beforehand would help put them at ease with video chat.

*“I would want to get used to my worker first and get comfortable and then take it step by step from there. Yeah, I wouldn’t like my first visit have it be over computer.”*

- Focus group participants were split on whether they want to connect with other WIC participants via Facebook or a WIC-specific social media site.
- Indicated that Facebook could serve as a great outreach tool.
- Most focus group participants reacted positively to the mock-ups of technologies, but suggested many changes and additions.
- WIC participants are ready for WIC to implement Electronic Benefit Transfer (EBT).

## **Technology use varies by geographic location**

### **WIC survey respondents:**

- Living on Indian Tribal Organizations use Facebook the least (48% vs 80%).
- From Guam, Mariana Islands, American Samoa, and Nevada reported a higher desire to use video chat for either breastfeeding support or nutrition education compared to other geographic areas within the Western Region.
- From Alaska (49%) reported currently taking online nutrition education classes, which is higher than the aggregate sample of 21%.
- 76% of respondents from Nevada, 63% from California and 64% from Oregon reported that they would like to receive nutrition education via the internet, which is higher than the aggregate sample of 59%.

### **WIC focus group participants:**

- From Guam and Hawaii indicated a higher use of video chat when compared to other regions.

## **Technology use is similar among WIC participants and WIC-eligibles**

- Top three technologies across the board were text messaging, Facebook and email.
- Twitter is the least frequently used technology.
- No differences found between text messaging and email use among current and WIC-eligible participants and survey respondents.
- WebMD, BabyCenter, and Google are the most popular sites accessed for health and parenting information by survey respondents and all focus group participants. WIC focus group participants also added Facebook to this list.

**Differences among WIC survey respondents, WIC focus group participants and WIC-eligible participants:**

- More WIC-eligible participants (56%) reported using a cell phone as their primary way to access the Internet than did WIC focus group participants (43%) and survey respondents (23%).

**Demographic Characteristics**

- Survey respondents reported higher levels of education compared to current and WIC-eligible focus group participants.
- Among survey respondents, Spanish-speakers were less educated than English-Speakers.
- 44% of respondents from American Samoa reported having less than a high school education.

# Current technologies used by WIC participants in the Western Region

## Email, text messaging, and Facebook are the top three technologies currently used

Email was the most frequently used technology among online survey respondents. Of the 92% ( $n=7,492$ ) who send or receive email, 61% do so on a daily basis. Text messaging is used by 86% of online survey respondents. Of those who own a cell phone, 93% ( $n=7,006$ ) report that they send and receive text messages. Of these, 77% report that they use it daily. The majority of online survey respondents ( $n=6,510$ ; 80%) reported that they use Facebook with more than half reporting that they use both email and Facebook daily (61% and 60%, respectively).

Focus group participants also reported email, text messaging and Facebook as the their top three technologies they use most frequently, however the order reported differed from that of online survey respondents. On a daily basis, focus group participants use text messaging (79%), Facebook (59%) and email (50%).

Participants use text messaging to communicate with friends, family members and work-related situations, and mentioned that it is a good way to communicate with younger family members.

*"...hoy en día es muy difícil hablar con los hermanos jóvenes por teléfono o personalmente así que no más contestan los textos así que por eso uso los textos." TRANSLATION: Today it's really hard to speak with your younger siblings on the phone or in person, they only answer text messages so that is why I use text messages." -Washington C*

Most of the focus group participants who have a Facebook account were very familiar with the functionality and access it every day, multiple times a day.

*"I live and breathe Facebook 'cause I have a home business so that's how I market myself. So Facebook is probably the tool I use the most. I'm always on Facebook." -Hawaii B*

In addition, some participants had 'liked' a business page and even created groups for family, friends and school.

*"I started a group on Facebook. It's a private group though so like I started by adding to it people I know who have kids under the age of 6 and then the members can add people but it wouldn't show up on any*

*kind of search engine, it doesn't show upon your page and it's just like a group of my friends and their friends and we try to do like play dates and stuff like that. We're all on different schedules, but people post and say like if they find a cool kid friendly recipe or like I posted this article I'd seen about using old baby clothes to make a quilt and or just accomplishments or questions and stuff like that. But it's all people that I know and all people that my friends know so we're all connected and nobody we don't know." -Oregon A*

Many focus group participants use email, although not always with great frequency. Email was described as an easy, private and convenient way to communicate. The frequency with which focus group participants use email to communicate varies widely, from never using email to emailing on a daily basis.

*"I don't always check my email. It's not a daily thing. Um I'm trying to warm to that because people communicate like that but there's been a few times where something's gone on and I missed it because I wasn't on there that day. It's not a preferred method of communication for me in particular." -Oregon A*

Other participants explained that they use Facebook for email, but don't regularly check their email account.

*"I'm not really into an e-mail. I will get my notifications through Facebook, but I'm not too much on checking e-mail." -Alaska*

Focus group participants were not as internet savvy as online survey respondents. This may be due to a response bias since most online survey respondents were familiar with computer technology and this might have influenced their frequency of use of these technologies.

### **Use of instant messaging and Twitter**

Although less frequent than text messaging, email and Facebook, instant messaging is used by 57% of online survey respondents and of these, 32% use it on a daily basis. Among focus group participants, 42% use it on a daily basis. Not all focus group participants use instant messaging to communicate, but those who do indicated that they use it to communicate with others who are at work. Focus group participants indicated that their use of instant messaging has decreased due to connecting with others via text messaging and Facebook.

*"Yo pienso que ya, paso de moda. Ya salió el Facebook y puedes mandar esos mensajes."*  
*TRANSLATION: "I think that (Instant Messaging) is out. Now there is Facebook and you can send those messages." -Arizona*

Although Twitter is not currently used by most survey respondents and focus group participants, it may become a more popular technology once more individuals understand how to use it. To date, 83% of online survey respondents and most focus group participants have never used Twitter. Focus group participants explained that this is because they "don't know how to use it". Others have tried to use Twitter, but don't understand it.

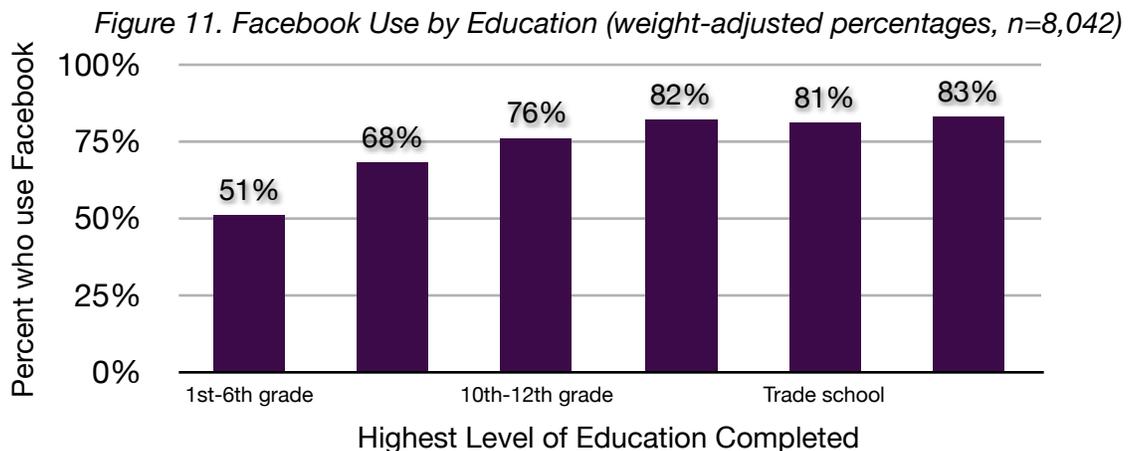
*"I don't use it because I don't know how to use it." -Oregon A*

*"La verdad yo intente abrir la pagina y no le entendí a nada." TRANSLATION: "The truth is I tried to open the page and I couldn't understand it." -Arizona*

Additional information on WIC participants' use of other, less frequently used technologies, including video chat and other social media sites are described in Appendix B.

### Facebook use varies by age, ethnicity and education

Although Facebook use was generally high among all age groups, online survey respondents in the Millennial generation (83%; ages 20-31) and younger age group (82%; ages 15-19) were significantly ( $p < .05$ ) more likely than older respondents (77%) to report Facebook use. Similarly, when the sample was divided into age categories based on five-year increments, those in the categories ranging from 15-34 years reported rates of Facebook use between 83%-84% while significantly ( $p < .05$ ) lower rates were reported by 35-39 year olds (78%) and those 40 years old or older (66%). In terms of race, American Indians/Alaskan Natives were significantly ( $p < .05$ ) less likely to report Facebook use (73% ) compared to the rest of the sample (range=80%-84%). In addition to age and race differences in Facebook use, results indicate that Facebook use also varies by education level, such that Facebook use increases as education level increases (see Figure 11). For more details about respondents Facebook use see Appendix A & B.



### Nearly all participants own a cell phone with text messaging capabilities

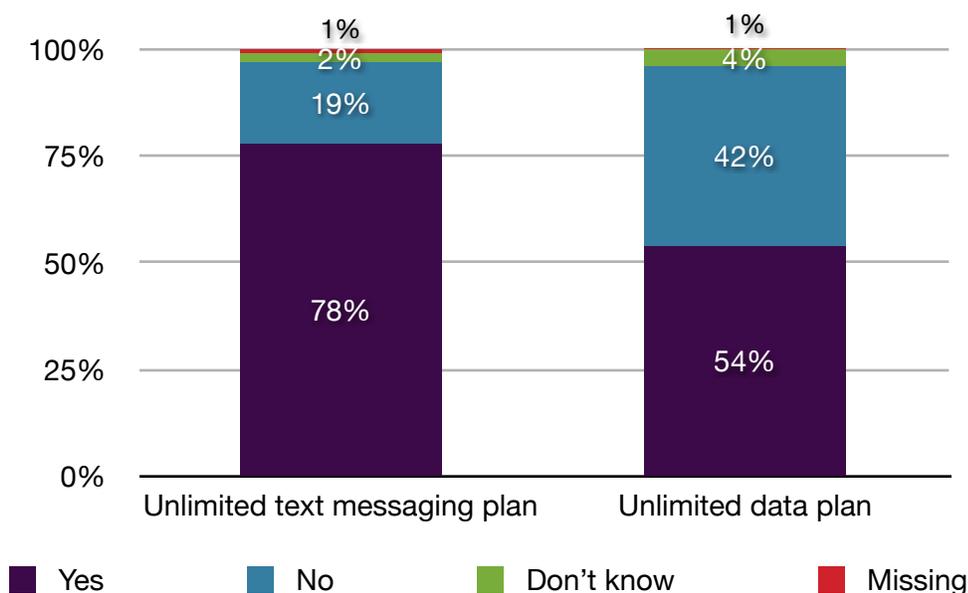
Among online survey respondents, 92% ( $n=7,518$ ) indicated that they own a cell phone. Table 9 presents the type of cell phone owned by online survey respondents. Fifty-eight percent of respondents reported owning a smartphone in contrast to 27% who own a basic cell phone without an internet or data plan and 16% who reported owning a different type of cell phone.

Table 9. Online Survey Respondents' Type of Cell Phone Owned (weight adjusted frequencies and percentages, n=7,518)

Type of Cell Phone	Frequency	Percent (%)
Android phone (HTC Evo, Motorola Droid, Samsung Galaxy, etc)	2,702	36
Basic cell phone without an internet or data plan	2,016	27
iPhone	1,111	15
Other type of cell phone	1,187	16
Blackberry or Microsoft Windows Phone	486	6

Figure 12 presents the type of text messaging or data plan used among respondents who own a cell phone. The majority of participants (78%) reported having unlimited text messaging plan and 54% reported having an unlimited data plan on their phone.

Figure 12. Online Survey Respondent's Type of Cell Phone Plan



Focus group participants commented on the importance of owning a cell phone.

*"...aquí en Estado Unidos (cell phone) también pues si sirve demasiado creo que es tan vital como el carro, son cosas que no es lujo sino necesidad."* TRANSLATION: *...Here in the US (the cell phone) is really useful and I think it is vital like a car, these things are not a luxury but a necessity.*  
 -Washington C

### Smartphone Apps

Only 31% of survey respondents use Smartphone apps for parenting and health-related information. The most popular app used for parenting and health-related information was WebMD.

In contrast, focus group participant reported an extensive list of favorite Smartphone apps. Parenting apps included "What to Expect When You're Expecting" and other pregnancy apps that provide information to

participants about their child’s development and apps that text information to participants were also popular.

### Focus group participants and online survey respondents use different devices to connect to the Internet

The cell phone is the most popular way focus group participants connect to the Internet, while a desktop computer, laptop or computer tablet is the most popular way online survey respondents connect to the Internet. As shown in Table 10, 43% of focus group participants use their cell phone to access the Internet and 28% use their desktop computer, laptop or computer tablet. The opposite pattern is shown for online survey respondents, 51% of whom mostly use a desktop computer, laptop or computer tablet and 23% mostly use a cell phone to connect to the Internet. It is important to note that online survey respondents were on a computer when completing the survey and may have biased their response.

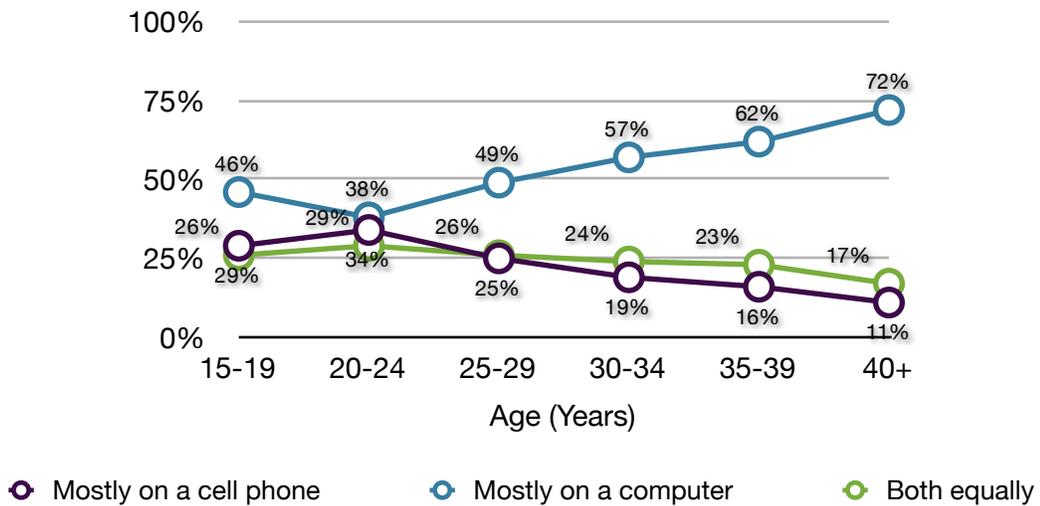
Table 10. Devices Used by Online Survey Respondents and Focus Group Participants’ to Connect to The Internet (Online survey weight-adjusted frequencies and percentages, *n*=8,144; focus groups frequencies and percentages, *n*=75)

Type of Device	Online Survey	Percent (%)	Focus Groups	Percent (%)
Mostly on a desktop computer, laptop or computer tablet	4,120	51	21	28
Mostly on a cell phone	1,901	23	32	43
Both equally	2,019	25	21	28
Missing	103	1	1	1

### Age influences the device used to connect to the Internet

Both online survey respondents and focus group participants were asked to report the types of devices used for online activities as well as the types of online activities in which they participate. Participants could choose either cell phone, computer (including laptop or tablet), or both. Results indicate that beginning at age 25, as age increases, online survey respondents are more likely to connect to the Internet using a computer and less likely to connect using a cell phone. Similarly, when comparing millennials (ages 20-31) to older respondents (age 32+), millennials were more likely than older respondents to use a cell phone and less likely to use a computer (see Figure 13) when connecting to the Internet. Importantly, the sample of younger respondents (age 15-19) is too small (5% of total sample) to allow for comparisons.

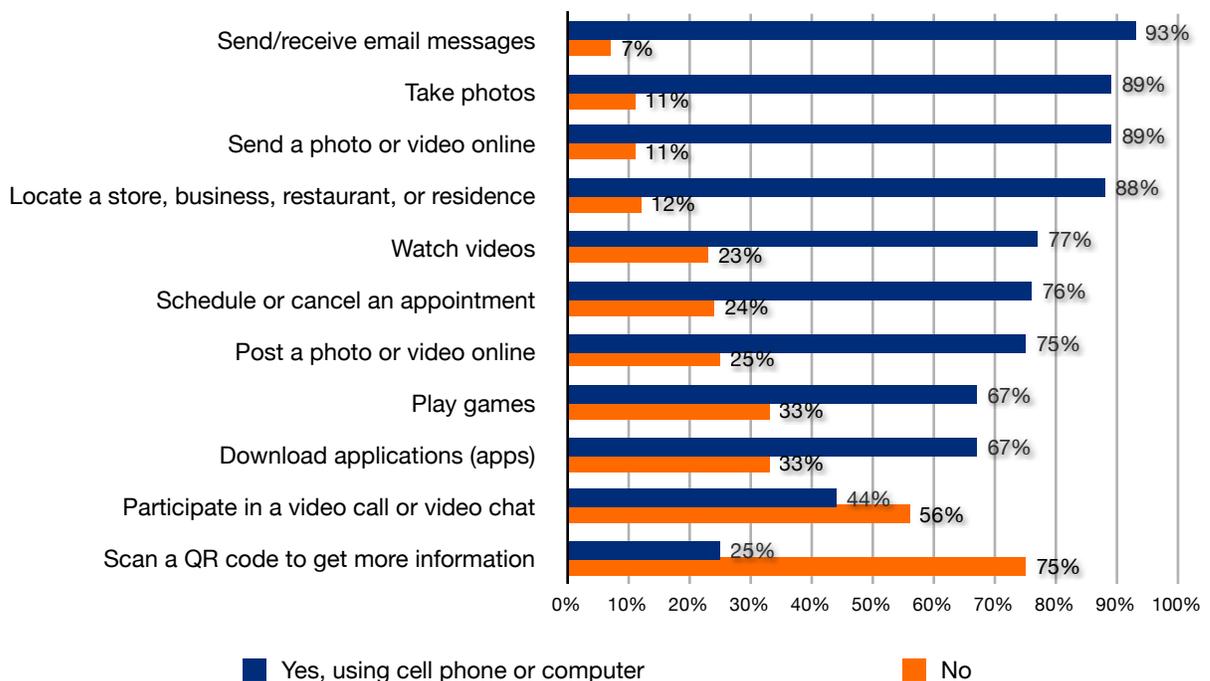
Figure 13. Age Trends in Devices Used to Connect to The Internet (weight-adjusted frequencies, n=7,785)



### WIC participants are very familiar with technology

Using a cell phone or computer, 93% send and receive email messages; 88% locate a store, business, restaurant or residence; 77% watch videos; 76% cancel or schedule appointments online, 67% play games and download apps (see Figure 14).

Figure 14. Percent of Respondents Who Perform Various Technology Tasks (weight-adjusted, n=8,144)



In some WIC focus groups (Oregon and Washington A and B), participants' technology use was similar to that of online survey respondents and WIC participants identified as "early adopters" of technology. While there was a greater amount of variability of technology use among the other WIC focus groups, these individuals still own cell phones, text message, and some have a Facebook profile.

### **Technology use varies by education level, language and ethnicity**

It is important to note that this online survey elicited responses from WIC participants who were familiar with the use of computers and the Internet, and therefore possibly have a higher level of education than participants who did not respond. Focus group participants were very concerned about less educated and less fortunate participants and their access to the internet. In addition, a few focus group participants, mainly from the Spanish focus groups and from ITCA and Oregon, mentioned not knowing how to use computer technology themselves.

*"Porque a veces venimos de pueblos muy humildes donde nunca hemos tocado una computadora, no tenemos ni idea; entonces para mí sería, las clases, asistir a las clases. A veces hay personas que no saben leer, cuando vienen de pueblos muy remotos, entonces esas personas si no pueden leer ¿cómo van a chequear en una computadora? Es cierto, como ella dice, se puede pasar al español, pero ¿qué si la persona no sabe leer? Hay personas que vienen, que hablan dialecto. Esas personas a veces tienen que ver, escuchar, a veces hablan muy poquito español." TRANSLATION: "Because sometimes we come from other towns, very humble towns, where we have never touched a computer, we have no idea; so for me, the classes, coming to classes. Sometimes there are people that don't know how to read, when they come from far away towns. So if those people - if they cannot read, how are they going to check a computer? It is true, like she says, you can learn Spanish, but what if the person doesn't know how to read? There are people who come that only speak dialects. Those people sometimes have to see, listen, and sometimes they speak very little Spanish." -Washington C*

Spanish-speaking participants reported lower education levels than English-Speaking online survey respondents and focus group participants. Spanish-speaking focus group participants had a greater variability in technology use. Some had never seen a cell phone until they immigrated into the United States. They also owned more basic cell phones than smart phones and some reported that they did not know how to use technology, but were eager to learn.

*"Me encantaría, no sé nada de tecnología yo todavía...No sé nada usar la computadora." TRANSLATION: "I would love it, I don't know anything about technology yet... I don't how to use the computer." - Washington C*

*"De eso de tecnología yo estoy bien atrasada. No sé casi nada. Yo apenas si sé usar el celular." TRANSLATION: "That about using the technology I am really behind. I don't know almost anything. I barely know how to use the cell phone." -Washington C*

*"Uno tiene que aprender como... poco a poco." TRANSLATION: "We have to learn how...little by little." - Washington C*

The lack of technology use found among Spanish-speaking focus group participants was also reported from the Inter-Tribal Council of Arizona (ITCA) focus group participants. For example, during the discussion

about smartphones and smartphone apps, some ITCA focus group participants expressed feeling overwhelmed by “all this technology”.

*"With my phone you can just give me text message, I'll be alright. You give me one of those phones and I'm not sure I'll know what to do." -ITCA*

*"How do I answer it [smartphone]?" -ITCA*

In addition to feeling overwhelmed by smartphone technologies, one participant explained that she does not have the patience to learn “technology stuff” saying,

*"I don't have the patience to want to learn about that technology stuff. Like a lot of people ask me about Facebook, eh, it's too much. I don't have the patience to learn that stuff." -ITCA*

### **Text Messaging and Twitter use among Millennial-age WIC participants is comparable to the general population of Millennials**

Millennial-age WIC survey respondents reported comparable use of text messaging and Twitter to that of Millennials in the general population. For example, sending and receiving text messages with a cell phone was equally popular among Millennial-aged WIC survey respondents (ages 20-31) who own a cell phone (95%, *n*=4,439) and a nationally representative sample of 18-29 year-old adult cell phone owners (95%, *n*=321) who participated in a 2011 Pew Research Center survey<sup>5</sup>. As noted previously, Pew Research defined the term millennial as those born after 1980 and at least age 18 at the time of the study in January of 2010. The same birth years were used in the comparisons below. Notice the shift in the age range from 18-29 to 20-31 to compensate for the time elapsed. Twitter use was very similar between Millennial-aged WIC survey respondents (13.3%) and nationally representative sample of 18-29 year-old adults (14%) who participated in a 2010 Pew Research Center survey<sup>6</sup>.

**Table 11. Comparison of WIC and non-WIC Millennials' Cell phone Usage (based on cell phone owners)**

<b>Task via Cell Phone</b>	<b>WIC Millennials</b>	<b>Pew Research Center Millennials<sup>a</sup></b>
Send/receive text messages	95%	95%
Take photos	88%	91%
Send a photo or video to someone	78%	72%
Send/receive email messages	61%	51%
Download applications or apps	56%	49%
Post a photo or video online	52%	37%

<sup>5</sup> Pew Research Center. (2011b). Americans and their cell phones. Washington, DC: Smith, A.

<sup>6</sup> Pew Research Center. (2010b). Millennials: A portrait of Generation Next. Washington, DC: Paul Taylor and Scott Keeter (Eds.).

Task via Cell Phone	WIC Millennials	Pew Research Center Millennials <sup>a</sup>
Play games	51%	53%
Watch videos	37%	44%
Participate in a video call or video chat	20%	14%

<sup>a</sup>Source: Pew Research Center, 2011b.

### WIC Millennials report higher rates of smartphone ownership and Facebook use than the general population of Millennials

The majority (93%,  $n=4,687$ ) of Millennial-aged WIC survey respondents (aged 20-31) have a cell phone. Millennial-aged WIC online survey respondents reported a higher rate of smartphone ownership (61%) as compared to a nationally-representative sample of adults aged 18-29 (52%,  $n=337$ ) recently surveyed by The Pew Research Center's Internet & American Life Project in April-May 2011<sup>7</sup>.

More Millennial-aged WIC survey respondents (83%,  $n=4,153$ ) use Facebook than a nationally representative sample of adults (71%) aged 18-29 years<sup>8</sup>. Moreover, frequency of Facebook use was higher among WIC Millennials. When asked "how often do you use Facebook?", 51% ( $n=2,538$ ) of WIC Millennial-age survey respondents reported using Facebook "several times a day". In comparison, 29% of 18-29 year-old respondents to a 2010 Pew Research Center survey reported visiting their social network profile "several times a day"<sup>9</sup>.

<sup>7</sup> Pew Research Center. (2011a). 35% of American adults own a smartphone: One-quarter of smartphone owners use their phone for most of their online browsing. Washington, DC: Smith, A.

<sup>8</sup> Pew Research Center. (2010a). *Social media and mobile Internet use among teens and young adults*. Washington, DC: Lenhart, A, Purcell, K, Smith, A., & Zickuhr, K.

<sup>9</sup> Pew Research Center. (2010b). *Millennials: A portrait of Generation Next*. Washington, DC: Paul Taylor and Scott Keeter (Eds.).

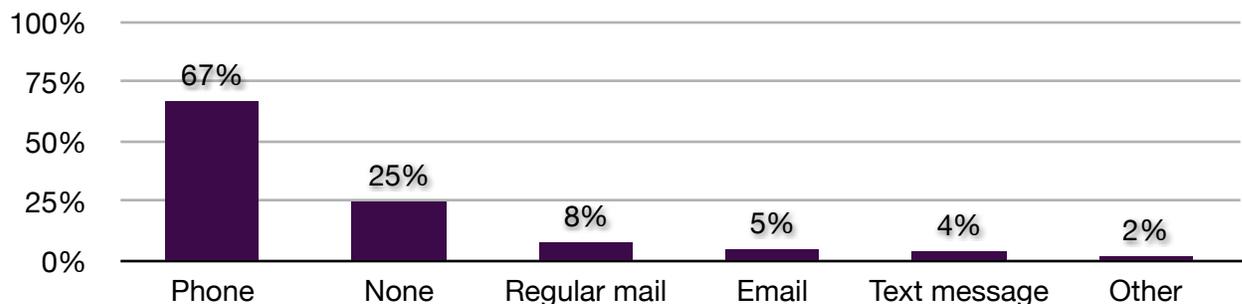
# Situations and preferred technologies for interacting with WIC

## WIC participants want to receive appointment reminders via text message

Currently, 67% of online survey respondents receive WIC appointment reminders via phone, while 25% do not receive appointment reminders of any kind. As illustrated in Figure 15, some WIC agencies are beginning to send appointment reminders via text message or email.

*“I like this just because I can’t always call back between 8 and 5, office hours, where I could do this [schedule appointment] at nighttime or whatever.” -Washington B*

Figure 15. How Online Survey Respondents Currently Receive Appointment Reminders (weight adjusted percentages, n=8,144)



Focus group participants reported that receiving WIC appointment reminders via text message was the most desired technology for interacting with WIC in the future, yet only 4% of WIC survey respondents currently receive WIC appointment reminders via text message. When asked to rate how useful receiving appointment reminders via text message would be to their WIC experience, 67% of online survey respondents reported it would be “very useful”. The desire for WIC appointment reminders via text message may be driven in part by participants’ current text messaging experiences with other types of healthcare providers. For example, some WIC focus group participants shared that they already communicate with other healthcare providers via text message and most indicated that they like receiving text messages from their health-care provider.

*"Actually, I like that I don't get a phone call, because I can check my text messages a lot faster than I can check my voicemail. I can't think there's anything I dislike about it, though. Because I mean even when I get a phone call from a doctor versus text message, it's always still just like an automated message of some sort that says, you know, "Reminder: You have an appointment." So, you're not losing anything in my opinion." -Alaska*

Receiving WIC appointment reminders via text message was popular among focus group participants. Those already receiving the messages explained how helpful the messages are and others expressed great interest in having the option to receive appointment reminders via text message. Representative responses from participants follow.

*"I like that when they send it to you, it's like a day or two before so it's a reminder and always the phone number's attached to it so if it's Smart Phone you don't have to try and find it and you know let them know if something's wrong and I do text messages so it's going to work out well for me." -Oregon A*

*"...that's (text message reminders) really helpful because I totally forget because the appointments are two months apart." -Hawaii B*

*"That would be cool because like they'll call or something and I won't answer. Most of the time I forget my next appointment and I'll have to call in like the day before I miss it and I would have to reschedule again. I think that would be helpful." -ITCA*

Receiving a text message the day before a WIC appointment was suggested by one participant who stated,

*"And I always forget...I mean I have a son and a daughter you know appointments start racking up and I just forget. So just a text the day before is really convenient." -Washington A*

### **WIC participants want to choose how they receive appointment reminders**

Focus group participants were asked if they prefer to receive appointment reminders via text message, email, regular mail or the phone. While most prefer to use text messaging to receive WIC appointment reminders, some would prefer that WIC offer a variety of options for receiving appointment reminders. Some prefer voicemail over text messaging, while others prefer email reminders and regular mail. Representative responses from participants follow.

*"...our healthcare providers they give us an option, which one we prefer, email, text message or a phone call but they still do the phone call and if we don't answer they just leave a voicemail message for the reminder. We have the option but I still don't prefer text messaging for the healthcare provider. It's just like to me it's like a voicemail message, if you don't reply back to the reminder then they're going to keep texting you until you get to your appointment..." -Hawaii B*

*"I prefer emails for reminders because they also all come to my phone so I can always look at my emails there." -Washington A*

*"But I mean for people who don't have internet access, leave snail mail so to speak an option."  
-Hawaii A*

### WIC participants want to schedule appointments online

WIC survey respondents indicated that currently they are most likely to schedule WIC appointments on the phone (66%) and in person (58%). Although 70% of respondents currently schedule and cancel other (non-WIC) types of appointments online, the Internet is only used to schedule WIC appointments by 1% of survey respondents. Among survey respondents, 58% use a cell phone and 29% use a computer, laptop, tablet to schedule and cancel other types of appointments. Given their familiarity with scheduling and canceling appointments online, both survey respondents and focus group participants indicated that they want the ability to schedule WIC appointments online. For example, 64% of survey respondents indicated that it would be “very useful” to schedule WIC appointments online. Focus group participants indicated that it would be helpful to schedule their WIC appointments online at their convenience. As one participant explained,

*"I like this just because I can't always call back between 8 and 5, office hours, where I could do this [schedule appointment] at nighttime or whatever." -Washington B*

### Most WIC participants perceive WIC counseling via video chat would be useful

To date, 44% of online survey respondents have participated in a video call or video chat using a cell phone, computer, laptop, or tablet. As illustrated in Table 12, the majority of online survey respondents indicated that it would be useful to participate in a video chat or counseling session with a WIC nutritionist (76%), other WIC staff (72%), or a breastfeeding educator (59%).

Table 12. Online Survey Respondents’ Perceived Usefulness of Video Chats/Counseling Sessions with Various WIC Staff (weight-adjusted percentages, N=8,144)

WIC Staff	Very Useful	Somewhat Useful	Not Useful	Missing
	%	%	%	%
Nutritionist	43	33	22	2
Breastfeeding Educator	33	26	37	5
Other WIC staff	38	34	24	4

### WIC participants want to receive more nutrition education via online classes, take-home lessons, and video chat

As shown in Table 13, survey respondents indicated that they prefer to receive nutrition education and breastfeeding support differently in the future. For example, 21% of online survey respondents currently

receive nutrition education on the Internet, yet even more (59%) would like to receive nutrition education via the Internet in the future.

Although the portion of those indicating a preference for video/skype one-on-one breastfeeding support (4%) and nutrition education (9%) via video chat is small, as WIC participants become increasingly tech-savvy the demand for this type of interaction will likely grow. When asked about perceived usefulness of video chat over 50% of survey respondents indicated that they thought video chat would be “very useful” or “somewhat useful” with a nutritionist, breastfeeding counselor or other WIC staff.

**Table 13. Online Survey Respondents’ Current Versus Preferred Future Modes of Nutrition Education & Breastfeeding Support (N=8,144)**

Mode of Nutrition Education and Breastfeeding	Current	Future
	%	%
In person, one-on-one with nutritionist or WIC staff	75	59
Group classes at my WIC clinic	36	26
On the Internet	21	59
In person, one-on-one with breastfeeding educator or peer counselor	10	18
Lessons I take home	7	24
Self-paced lessons I do on my own at my WIC clinic	2	8
Kiosk in waiting room at my WIC clinic	2	6
Video/Skype one-on-one counseling with nutritionist or WIC staff	1	9
Video/Skype one-on-one counseling with breastfeeding educator	0	4

Focus group participants also expressed interest in receiving nutrition education via online classes and one-on-one nutrition counseling via video chat in the future. Representative responses follow.

*“I could see myself video chatting with WIC because it is a little bit - obviously I can't fly down every time I want to make an appointment. And since we are talking about the future, I can definitely see, you know, the Internet is becoming more widespread. It's definitely more in demand and there's bigger companies doing something about it finally. So, I think that video chatting would be great, text messaging and Facebook.” -Alaska*

*“...it would be nice to have that same class online some how so that people can actually log in and the program or computer recognizes who logged in and take that classroom without actually being there. It was quite long, I don't remember how long it was but I was pregnant and miserable and I think had one of my kids with me so that made it difficult. I'm especially thinking of moms who like me have two kids, and make it easier for them to come.” -Oregon A*

*“..online would be convenient because we're home already and we don't have to worry...because all of us have kids. So we all know how difficult it is to have to bring them along or take them places, especially if they're not in the mood or they're sick like there's always excuses. But if we do a webcam where we can have classes online where we can just do it with the webcam or not, like either way, it'll be convenient for us because our kids are at home and we wouldn't have to worry about them as a mother. So it just would be more easier for us.” -Guam*

## Pregnant and breastfeeding women and those with a child less than 12 months old want breastfeeding support in person and via video chat

In the future, survey respondents want to receive more in-person, one-on-one visits with a breastfeeding educator or peer counselor (10% current vs. 18% future) and one-on-one counseling via video/Skype with a breastfeeding educator (0% current vs. 4% future).

Examining the desire for one-on-one breastfeeding education by parental status indicated that 33% of pregnant and 33% of breastfeeding online survey respondents want to receive this type of breastfeeding support from WIC in the future. These rates are significantly ( $p < .05$ ) higher than those of women who are not pregnant (15%) or not currently breastfeeding (13%).

Online survey respondents' perceived usefulness of video chat with a breastfeeding educator was analyzed based on parental status and the following significant differences emerged:

- *Pregnant respondents* were significantly more likely to think that a video chat with a breastfeeding educator would be "very useful" and less likely to think that a video chat with a nutritionist or other WIC staff would be "very useful" compared to respondents who were not pregnant.
- *Breastfeeding respondents* were significantly more likely to think that a video chat with a breastfeeding educator would be "very useful" compared to respondents who were not breastfeeding.
- *Parents/caregivers of infants less than twelve months old* were significantly more likely to think that a video chat with a breastfeeding educator would be "very useful" compared to respondents who did not have an infant.
- *Parents/caregivers of children older than one year old* were significantly less likely to report that it would be "very useful" to video chat with breastfeeding educator and more likely to report that it would be "very useful" to video chat with other WIC staff.

Importantly, some focus group participants expressed that they would feel more comfortable using video chat with WIC staff if they had the opportunity to meet the staff member in person before using this technology.

*"At first probably not. I would want to get used to my worker first and get comfortable and then take it step by step from there. Yeah, I wouldn't like my first visit have it be over computer." -ITCA*

*"It's always better to get to know a person face to face then to be on the internet or something else." -ITCA*

## Nutrition education via text message and email will be useful, particularly for those with an unlimited text messaging or data plan

When asked to rate the perceived usefulness of various methods for receiving nutrition education, most online survey respondents reported that text message and email would be useful. As shown in Table 14, 59% of survey respondents perceive that nutrition education via text message and email would be “very useful”. Given the low rate of Twitter use among respondents (13%), it is not surprising that 66% reported that receiving nutrition education via Twitter would not be useful.

Table 14. Perceived Usefulness of Various Methods for Nutrition Education (weight-adjusted percentages; n=8,144)

Nutrition education contact methods	Very useful	Somewhat useful	Not useful	Missing
	%	%	%	%
Text message	59	23	15	3
Twitter	12	13	66	10
Email	59	28	10	3

Perceived usefulness of various methods of nutrition education was further explored among online survey respondents who have a cell phone. Among cell phone users, 70% with an *unlimited text messaging plan* and 72% with an *unlimited data plan* reported that receiving nutrition education via text message would be “very useful”. Similarly, 63% of cell phone users with an *unlimited text messaging plan* and 66% with an *unlimited data plan* reported that receiving nutrition education via email would be “very useful”. Compared to those without an unlimited text messaging or data plan and those who don’t know their type of plan, cell phone users with unlimited text messaging and unlimited data plans were significantly ( $p<.05$ ) more likely to report that receiving nutrition education via text message, Twitter, and email was “very useful”.

## WIC participants want to connect with each other via social media

Among online survey respondents, 25% ( $n=1,994$ ) have joined an Internet group for moms or parents on a site such as Café Moms, Circle of Moms or Facebook. When asked about their interest in using social media to connect with other WIC parents on a variety of parenting and health-related topics, 57% indicated that they would join a virtual or online WIC group. It is important to point out two key findings related to online WIC groups: 1) the topics of interest for online WIC groups vary with respondents’ parental status in WIC and 2) respondents tend to seek topics that are a step ahead of their child’s current stage of development. For example, pregnant women want an online group about breastfeeding and newborns, breastfeeding women and respondents of children less than 12 months want an online group about infants and parenting, respondents of children over 12 months of age want an online group about toddlers, healthy eating, and parenting. Table 15 provides the online group topics online survey

respondents could select from and highlights the significant differences ( $p < .05$ ) in topic interest by respondents' parental status in **bold**.

Table 15. Percent of Online Survey Respondents Who are Interested in Joining a Virtual or Online Group on Various Topics by Parental Status\* ( $n=8,144$ )

Topic	Percent of respondents interested	Percent of those pregnant (n=1,265)	Percent of those breastfeeding (n=320)	Percent of those with infant < 12 mo (n=2,799)	Percent of those with child > 1 yr (n=6,233)
	%	%	%	%	%
I am not interested in joining a group	43	<b>48</b>	<b>38</b>	43	43
Toddlers	34	<b>25</b>	<b>37</b>	34	<b>38</b>
Healthy eating	33	<b>27</b>	<b>37</b>	32	<b>34</b>
Parenting	33	<b>29</b>	<b>40</b>	<b>36</b>	34
Exercise	31	<b>26</b>	<b>35</b>	31	32
Preschoolers	27	<b>18</b>	26	<b>25</b>	<b>30</b>
Infants	21	<b>25</b>	<b>39</b>	<b>39</b>	<b>18</b>
Breastfeeding	17	35	29	23	14
Newborns	15	<b>35</b>	<b>26</b>	<b>20</b>	<b>12</b>
Pregnancy	14	<b>37</b>	<b>18</b>	13	<b>12</b>

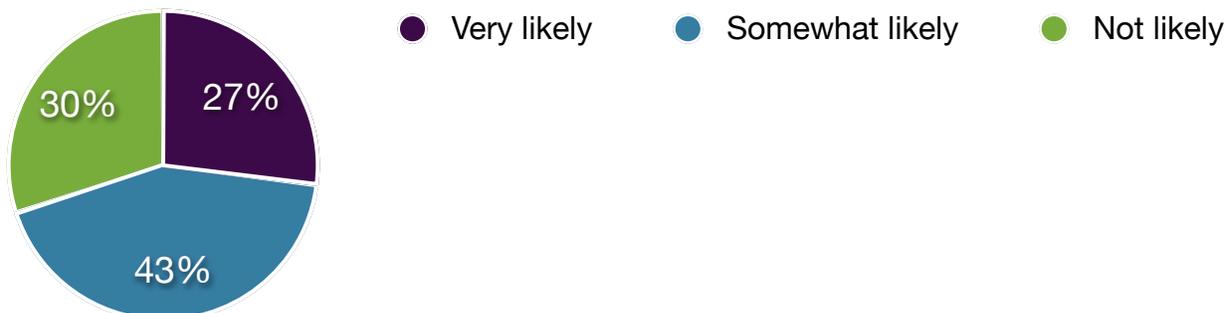
\* Note that there is some overlap between parental status categories.

\*\* Values in **bold** were significantly different than the expected values based on adjusted standardized residuals of +/-2. Significance was set a  $p < .05$ , however most comparisons were significant at  $p < .001$ .

Focus group participants are eager to participate in a forum that will provide them the opportunity to ask other WIC participants questions. Topics that focus group participants want to view on a WIC Facebook page or discuss via Facebook include normal behavior for a child, picky eaters, teething, tips for feeding children, recipes, and exercise. Other topics include child nutrition and breastfeeding nutrition information as well as breastfeeding support and picky eater/anemia prevention.

Online survey respondents were shown a visual of a potential WIC chatroom (question 28, Appendix A-1) and asked how likely they would be to join a WIC chatroom to chat online with other WIC parents. As shown in Figure 16, the majority (70%) of online survey respondents are “somewhat likely” or “very likely” to participate in an chatroom with other WIC parents.

Figure 16. Likelihood of Using a Chatroom for WIC Parents (weight-adjusted percentages, n=8,144)



### Some want to connect with WIC parents using a WIC-specific social media site, others via Facebook

In addition to asking online survey respondents about the specific forum topics that interest them, they were also asked to indicate what social media platform they want to use when discussing these topics with other parents. As shown in Table 16, 46% of online survey respondents preferred a site specifically for WIC moms and 38% preferred using Facebook discussion forums.

Table 16. Types of Social Media Online Survey Respondents Want to Use When Communicating with Other WIC Parents (n=8,144)

Social Media Site	Percent (%) of respondents interested
Site for WIC moms	46
Facebook	38
Neither	32
Other social media site	1

Some focus group participants indicated that they would consider joining a Facebook group specifically for moms.

When focus group participants were asked which social media platform they prefer to use when communicating with other WIC parents, responses were mixed. Some prefer to use a WIC-only social media platform while others prefer a WIC Facebook page, explaining that they are already on Facebook and are not interested in switching to a new social media site.

*"Porque de alguna manera seria algo mas, no más seguro, sino mas, más directo o más, porque serian puras personas del WIC." TRANSLATION: "Because somehow it [WIC social network] would be more, not more secure, but more, more direct and more, because they would only be WIC people." -Arizona*

*"Si porque si estas todo el día platicando con amigos o enterándote del día, allí vas a ver las novedades del WIC, sin necesidad de salirte, porque no todo el tiempo vas a estar pensando en WIC. En cambio,*

*todo el tiempo uno está pensando en las amistades, en lo que sea, y si ya ves una novedad del WIC, ya entras y ya te informas." TRANSLATION: "Yes because if your all day talking to your friends and finding out about the day, you can see the new things about WIC, without having to logout [of Facebook], because you don't think about WIC all the time. On the other hand, you do think about your friends, about anything and if you see WIC news/update, you could enter and inform yourself." -Arizona*

*"I don't know because there's so many different things I do already. I would probably find it really hard to get on the WIC [WIC social network]. I'd probably be less likely. It's just another place. It's almost like of having to go to another point." -Oregon B*

## Preferred technologies vary by education and ethnicity

The relationship between online respondents' preferences for future WIC services were examined by education level and ethnicity. The following significant ( $p < .05$ ) differences emerged:

- *Education and Group Classes.* Online survey respondents with the lowest levels of education (1st-6th grade and 7th-9th grade) reported higher than expected preference for group classes (53% and 38%, respectively). For all other education levels, the percent of respondents who would like group classes ranged from 24%-30%.
- *Education and One-on-One Nutrition Education.* Online survey respondents who completed 7th-9th and 10th-12th grade report higher than expected desire to receive one-on-one counseling with a WIC nutritionist (68% and 64%, respectively). Respondents who completed college and those with less than 6th grade education had lower than expected desire to receive one-on-one counseling with a WIC nutritionist (56% and 53%, respectively).
- *Education and One-on-One Breastfeeding Education.* Online survey respondents with the lowest levels of education (1st-6th grade and 7th-9th grade) reported higher than expected preference for one-on-one breastfeeding education (31% and 25%, respectively). For all other education levels, the percent of online survey respondents who preferred one-on-one breastfeeding education ranged from 16%-18%.
- *Education and Take Home Lessons.* As online survey respondents' level of education increased, so did their desire for take home lessons (percentages ranged from 17%-26%).
- *Education and Internet.* As online survey respondents' education level increased, the percentage of respondents who would prefer Internet classes also increased (percentages ranged from 21%-65%).
- *Education and Video/Skype Counseling.* Online survey respondents with a college or technical/trade school education had a higher than expected desire for nutrition education through video or Skype sessions with a nutritionist (10% and 9%, respectively).

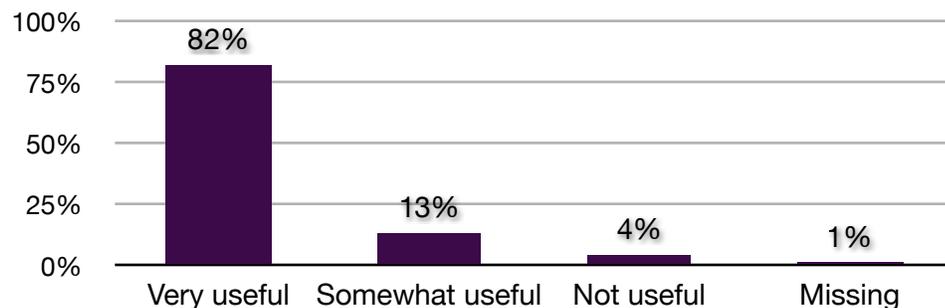
- *Hispanic Ethnicity and Internet.* Non-Hispanics had higher than expected desire to engage in Internet lessons (61% vs. 59%).

## Check the balance of WIC EBT card online will be useful, particularly for WIC participants who have a cell phone

Online survey respondents were asked how useful it would be to check a WIC EBT card balance online anytime during the month. As shown in Figure 18, the majority of online survey respondents (95%) reported this would be “very useful” or “somewhat useful”. The desire for a WIC EBT card emerged throughout the focus group visualization activities. Benefits of a WIC EBT card include that it is a discreet way to grocery shop, it is easier to access than a WIC check, their faster to check out with at the grocery store, more convenient than WIC checks.

To determine how useful it would be to check one’s WIC EBT card balance at the grocery store, an analysis examining the perceived usefulness of checking WIC EBT card balance among those who have a cell phone was conducted. Among online survey respondents who have a cell phone, those with an unlimited data plan were significantly ( $p<.05$ ) more likely to report that it would be “very useful” to check their WIC food balances online compared to those without an unlimited data plan and those who did not know whether they had an unlimited data plan (87% vs. 80% & 79%, respectively).

*Figure 17. Perceived Usefulness of Checking WIC EBT Card Balance Online (weight adjusted percentage, n=8,144)*



## Perceived Usefulness of Technologies Shown

Online survey respondents viewed mock-ups of technologies that could help participants shop for WIC foods or receive nutrition or breastfeeding education. Participants were then asked to rate the perceived usefulness of each technology.

As shown in Table 17, over 60% of online survey respondents reported that the mock-ups of technologies to shop for WIC foods are “very useful”.

Table 17. Online Survey Respondents’ Perceived Usefulness of WIC Connect Visuals (weight-adjusted percentages, n=8,144 )

WIC Connect Visuals	Very useful	Somewhat useful	Not useful	Missing
	%	%	%	%
An online authorized store locator by zip code	62	24	11	3
A WIC authorized food shopping guide online, that I could sort by category (Pregnant, Infant, Child) or sort by food type	73	19	6	2
A free app that can scan a UPC label or bar code and tell you if a WIC food is authorized	71	15	11	3

**Ranking of Technologies Seen During Focus Group**

WIC focus group participants were asked to select the top 2 mock-ups of technologies they were shown during the focus groups. Once all data was compiled a ranking was obtained from all responses. Appointment reminders via text or email (n=55) were the most popular, followed by the authorized WIC food list (n=34), online appointment scheduling (n=29), WIC nutrition education via Facebook (n=23), WIC store/clinic locator (n=10) and WIC breastfeeding support/help via text, email or video chat (n=14).

**Most Useful Technologies Seen During Focus Group**

WIC focus group participants reported that the top five most useful technologies shown during the focus group include WIC nutrition education or appointment reminders via text message (n=21), WIC nutrition education or appointment reminders via email (n=20), WIC Facebook page (n=19), WIC Smartphone app (n=8) and WIC website (n=7).

**Technologies Seen During Focus Group Most Likely to Use to Connect with WIC**

WIC focus group participants were asked “Given the way you live your life today, which of the technologies you’ve seen today will you be more likely to use to connect with WIC?” The top three technologies participants are most likely to use to connect with WIC are Facebook (n=23), Text Messaging (n=19), and WIC phone app (n=8).

# The use of technology varies by geographic location

## Facebook use is lowest among ITO's

To examine Facebook use by geographic area, American Samoa, Hawaii, Mariana Islands and Guam were grouped together to form the 'islands', ITCA, Navajo Nation, and ITCN were grouped together to form the 'ITO's', Alaska and California were analyzed separately while the remaining states were combined in a single variable, 'all other states'. As illustrated in Figure 18, similar rates of Facebook use were found among those from the islands (80%), Alaska (86%), California (80%), and 'all other states combined' (83%). Respondents from ITOs (48%) reported significantly lower rates of Facebook use.

Figure 18. Facebook Use by Geographic Group (weight-adjusted percentages, n=8,070)

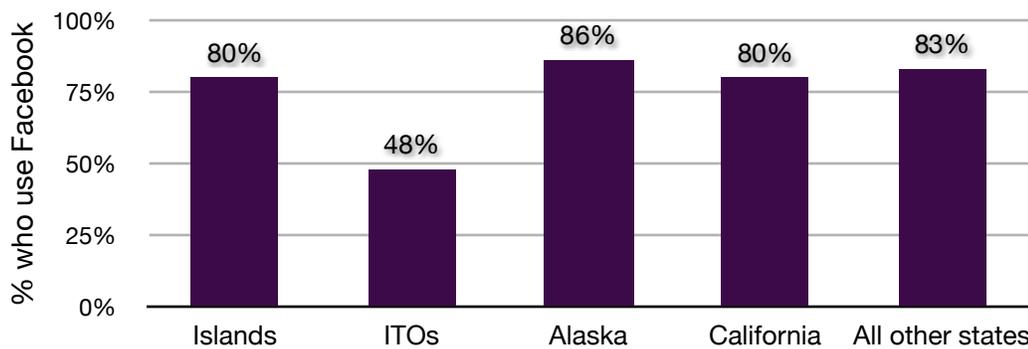


Table 18 depicts Facebook use by state or ITO. American Samoa (68%), ITCA (57%), and ITCN (50%) respondents reported significantly lower Facebook use as compared to the aggregate sample.

Table 18. Facebook Use by State (weight-adjusted percentages, n=8,071)

	Full Sample n=8071	AK n=100	AS n=25	AZ n=677	CA n=5409	GU n=30	HI n=139	ID n=175	ITCA n=42	ITCN n=6	MP n=18	NN n=45	NV n=262	OR n=422	WA n=721
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Percent who use Facebook	81	86	<b>68</b>	73	80	83	81	89	<b>57</b>	<b>50</b>	83	<b>40</b>	82	87	88

\* Values in **bold** were significantly different than the expected values based on adjusted standardized residuals of +/-2. Significance was set a p<.05, however most comparisons were significant at p<.001.

### Video chat popular among WIC focus group participants in the islands

Focus group participants in Guam and Hawaii reported more use of video chat than those in the other Western Region states. Video chat brings focus group participants’ families together during important life moments.

*“...to me it [video chat] goes more personal than that because I moved here and I was by myself with just my boyfriend and his family. So I didn’t have any of my family while I was pregnant so it got me through all of that process to chat with my family in Vegas, with all my sisters, my dad...and then when I went into labor they were like there on Google with me. So the hospital gave us Wi-Fi and I brought my laptop and ended up doing it there so they didn’t miss out on any part of my pregnancy, not even the birth. So basically they were able to stay connected the whole time.”*  
 -Hawaii B

### Video chats/counseling sessions with WIC perceived more useful for those in some locations, particularly the islands

The perceived usefulness of video chats/counseling sessions with a WIC nutritionist, breastfeeding educator, or other WIC staff were higher than expected in several states, particularly some of the islands (see Table 19). For example, Guam (77%), American Samoa (68%) and Nevada (50%) reported higher than expected perceived usefulness of video chats/counseling sessions with a WIC nutritionist. American Samoa (64%) and Guam (55%) reported higher than expected perceived usefulness of video chats/counseling sessions with a WIC breastfeeding educator. Guam (72%) and Mariana Islands (73%) reported higher than expected perceived usefulness of video chats/counseling sessions with other WIC staff.

Table 19. Online Survey Respondents’ Who Find Video Chats/Counseling Sessions “Very useful” by State (weight adjusted percentages; N=8,144)

	Full Sample	AK	AS	AZ	CA	GU	HI	ID	ITCA	ITCN	MP	NN	NV	OR	WA
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%

	Full Sample	AK	AS	AZ	CA	GU	HI	ID	ITCA	ITCN	MP	NN	NV	OR	WA
Nutritionist	43	<b>30</b>	<b>68</b>	41	<b>47</b>	<b>77</b>	44	<b>25</b>	33	71	65	40	<b>50</b>	<b>37</b>	<b>32</b>
Breastfeeding educator	33	<b>22</b>	<b>64</b>	36	<b>36</b>	<b>55</b>	39	<b>20</b>	32	60	59	<b>80</b>	32	<b>26</b>	<b>26</b>
Other WIC staff	38	<b>27</b>	60	39	<b>41</b>	<b>72</b>	39	<b>22</b>	34	71	<b>73</b>	40	<b>46</b>	<b>34</b>	<b>27</b>

\* Values in **bold** were significantly different than the expected values based on adjusted standardized residuals of +/-2. Significance was set a  $p < .05$ , however most comparisons were significant at  $p < .001$ .

### Current modes of nutrition education and breastfeeding support vary by geographic location

Online survey respondents' current modes of nutrition education and breastfeeding support vary by state and geographic region.

- American Samoa (28%) currently use take home lessons at significantly ( $p < .05$ ) higher rates than the aggregate sample (7%).
- The use of kiosks in clinic waiting rooms for nutrition education is significantly ( $p < .05$ ) higher in Guam (7%) as compared to the aggregate sample (2%).
- Nearly half of the online survey respondents from Alaska (49%) reported currently taking online nutrition education classes, which is significantly higher than the aggregate sample (21%).
- More than half of the respondents from American Samoa (56%) and 49% of respondents from Oregon reported currently receiving group nutrition education classes, which is significantly higher than the aggregate sample (36%).

### Future modes of nutrition education and breastfeeding support vary by geographic location

Online survey respondents' desires future modes of nutrition education and breastfeeding support vary by state and geographic region.

- Respondents from Nevada (76%), California (63%) and Oregon (64%) reported that they would like to receive nutrition education via the Internet. These findings are significantly higher than that of the aggregate sample (59%).
- Respondents from Idaho (12%) would like to receive nutrition education via kiosks placed in clinic waiting rooms, which is significantly higher than that of the aggregate sample (6%).
- A desire to receive breastfeeding support via video chat/Skype was significantly higher among respondents from the Mariana Islands (17%) and American Samoa (28%) than that of the aggregate sample (4%).

- In addition, the desire to receive nutrition education via video chat/Skype was significantly higher among respondents from American Samoa (32%), and Guam (19%) than that of the aggregate sample (9%).

# Technology use is similar among WIC participants and WIC-eligibles

## Devices Used to Connect to the Internet

More WIC-eligible focus group participants connect to the Internet mostly via a cell phone (56%) than do WIC focus group participants (43%) and online survey respondents (23%). However, the opposite pattern was found among those who connect to the Internet mostly via a desktop computer, laptop or computer tablet. Specifically, fewer WIC-eligibles connect to the Internet mostly via a desktop computer, laptop or computer tablet (13%) than do WIC focus group participants (28%) and online survey respondents (51%).

## Text Messaging

The majority of participants in the WIC-eligible focus groups text message multiple times per day (81%,  $n=13$ ). This finding and the comments made during the WIC-eligible focus groups were similar to that of the WIC participant focus groups. WIC-eligibles stated that they liked text messaging because it is a short, fast, and easy way to communicate. These findings also corroborate those of the 86% of online survey respondents who currently text message.

### Receiving reminders via text message

Also similar to WIC focus group participants, several individuals in both the English and Spanish WIC-eligible focus groups reported receiving reminders via text message from their healthcare provider and from others.

## Email

Nearly all (94%) of the WIC-eligible focus group participants use email, which is similar to the 92% of online survey respondents who currently use email. Similar to WIC participants, WIC-eligibles reported varying degrees of frequency of email use. For example, most participants use email on a daily basis (43%;  $n=7$ ) while others use email 1 to 5 times per week (37%;  $n=6$ ). One participant reported using email once every few weeks (6%;  $n=1$ ). Compared to WIC-eligibles, a greater percentage of online survey respondents who send or receive email do so on a daily basis (61% versus 43% of WIC-eligibles).

WIC-eligibles and WIC focus group participants reported using email for business communication, to obtain store coupons, for longer conversations. Similar to the WIC participants and WIC early adopters (of technology) focus groups, WIC-eligibles view email as a “more professional” way to communicate.

### **Use of email with health-care providers (HCP)**

Participants in both the English-speaking and Spanish-speaking groups mentioned using email to communicate with healthcare providers, specifically as a way to update HCP information. This finding is similar to those reported by the WIC participant focus groups.

### **Facebook**

Similar to the 88% of WIC focus group participants and 80% online survey respondents, 94% of WIC-eligible focus group participants have a Facebook profile. Most WIC-eligibles enjoy connecting with friends and family and those who they do not get to see often. WIC-eligibles use Facebook to update their status, share videos and photos and find out what friends and family are doing. Over half of WIC-eligibles said that Facebook was their favorite technology (56%;  $n=9$ ) and the majority reported using Facebook at least once a day (78%;  $n=14$ ). Only one participant in the WIC-eligible groups reported not having a Facebook account.

### **Joining Facebook groups and “liking” a Facebook page**

WIC-eligibles were probed specifically to obtain information regarding group membership on Facebook and whether they have ever “liked” a Facebook page. Similar to WIC participants and 76% of online survey respondents, some WIC-eligibles have joined Facebook groups. WIC-eligibles described ‘liking’ Facebook pages for various reasons, including supporting small businesses, getting notifications for discounts, coupons and sales.

### **Most Popular Parenting and Health-related Internet Sites**

BabyCenter, Google and WebMD are the top sites visited by WIC-eligible focus group participants when searching for parenting and health-related information. Similarly, BabyCenter, Google, and iVillage are the most popular Internet sites that WIC focus group participants visit to find this information. Among online survey respondents, BabyCenter, WebMD, and PBS Kids are the top parenting and health-related Internet sites. BabyCenter was a top site mentioned across all three groups and Google was a top site for both WIC-eligibles and WIC focus group participants. From this, it appears that WIC would benefit from reviewing the BabyCenter website when developing WIC education topics related to parenting and child health.

### **Video Chats**

Similar to the WIC focus group participants, WIC-eligibles who currently use video chat do so to communicate with family. Both English and Spanish speakers reported using Skype to speak with family members. WIC-eligibles also reported using QIK, Tango and FaceTime video messaging services.

### **Gaming Activities**

Similar to the WIC focus group participants, most WIC- eligibles mentioned using gaming applications on their Smartphone to entertain their children. Applications mentioned include Zoodles, Star Plus, Learn Something, and ABC's.

## Twitter

To date, 83% of online survey respondents and most WIC focus group participants have never used Twitter. Although WIC-eligible focus group participants reported using Twitter more frequently than WIC focus group participants, WIC-eligibles also expressed that Twitter is complicated and difficult to follow.

*"Yo me he metido al Twitter pero se me hace muy difícil." TRANSLATION: "I've gotten on Twitter but I think it's too hard."*

# Ranking of Technologies

A review of the Online Participant Survey data indicates that survey respondents are most interested in the following technologies/services to interact with the WIC program in the future.

**Table 20. Technology and Percentage of Online Survey Respondents that Ranked this Technology as Very Useful (n=8,144)**

Technology	Percentage Ranked as “Very Useful”
WIC EBT Card Balance	82%
Online WIC authorized food shopping guide	73%
UPC scanning app to check if food is authorized	71%
Appointment reminders via text message	67%
Online recipes and cooking demos	63%
Online authorized store locator	62%
Nutrition education via email or text	59%
Appointment reminders via email	57%

The preferences for these technologies are similar to the preferences expressed in the WIC participant focus groups. In the WIC participant focus groups, participants were asked to select their top 2 technologies from those shown during the focus groups. Several participants included more than two technologies in their ranking so the overall number of responses was 165 instead of 150. Once all data was compiled a ranking was obtained from all responses. Overall the technology with the most responses was appointment reminders via text or email ( $n=55$ ), followed by the authorized WIC food list ( $n=34$ ), online appointment scheduling ( $n=29$ ), WIC nutrition education via Facebook ( $n=23$ ), WIC store/clinic locator ( $n=10$ ), and WIC breastfeeding support/help via text, email or video chat ( $n=14$ ).

Table 21. Ranking of Top 2 Technologies by Focus Group Participants (*n*=165)

Ranking	Technology	Number of participants who ranked the technology as a top priority
1	Appointment reminders via text or email	55
2	Online WIC authorized food list	34
3	Online appointment scheduling	29
4	Nutrition education via Facebook	23
5	WIC Breastfeeding support via text, email or video chat	14
6	Online authorized store locator	10

The WIC-eligible focus group participants were asked about the technology that they felt would be most useful to help them connect with WIC. Responses included a WIC phone app with a web-based appointment system, online videos of WIC services and advertising on websites such as Facebook.

Based on the online survey responses, WIC participant focus group responses, and WIC-eligible focus group responses, the following technologies should be reviewed for inclusion in the cost analysis and feasibility study:

- Text message and email reminders
- Online appointment scheduling
- A WIC authorized food shopping guide
- A free phone application that can scan a UPC label or bar code and tell a participant if a WIC food is authorized
- The ability to check WIC EBT card balance online
- Nutrition education via email/text message
- Online recipes and cooking demos
- WIC social media site or WIC Facebook page
- Video chat with nutritionists and/or breastfeeding peer counselors
- Outreach to WIC eligibles via web and mobile technology

# Conclusions

Based on the results of the WIC Participant Online Survey, the WIC participant focus groups, and the WIC-eligible focus groups, WIC programs in the Western Region should consider implementing the use of text messaging and email for appointment reminders and nutrition education. In addition, WIC should explore using Facebook as a way to provide outreach to WIC-eligibles and nutrition education to current WIC participants. Other emerging technologies to be explored include video chat, mobile websites and Smartphone apps. Mobile websites or Smartphone apps, among other things, can help WIC participants access WIC services at their convenience and shop for WIC foods. Video chat is a promising option to counsel WIC participants who live in remote areas and often have transportation issues.

WIC participants want to receive appointment reminders via text message. Given that nearly all WIC participants have a cell phone with text messaging capabilities, WIC should explore using text messaging for appointment reminders. However, the preference for text message reminders is not universal, as some participants prefer email or phone reminders instead of text messages. The Western Region WIC programs should investigate offering participants options for appointment reminders that include text messaging, email, and phone. Oregon and Hawaii recently implemented text messaging appointment reminder programs. Importantly, however, many of the focus group participants in Hawaii and Oregon were unaware that they could receive an appointment reminder via text message. This highlights the importance of including a clear messaging strategy to inform participants about the use of new technologies and how they can be accessed.

WIC participants are interested in receiving nutrition education via text message and email. Participants' preference of using one technology over the other is not universal, therefore agencies implementing education via email and text message should look at utilizing systems that offer participants a choice. Potential systems and campaigns to review include the National Campaign to Prevent Teen and Unplanned Pregnancy's Bedsider initiative, Text 4 Baby, and BabyCenter.com.

Based on current participant use and desired future use, Facebook appears to be a promising platform to communicate with WIC participants and reach WIC-eligibles. For example, nutrition education and breastfeeding education and support can be provided on a Facebook page or through Facebook groups, that provide participant updates about topics related to the WIC program. In considering the use of Facebook for providing nutrition education and breastfeeding support, it is important to note that of the WIC programs who currently use Facebook pages and include WIC in the title, most have a low number of

page “likes” and low interaction compared to the number of local agency participants. This may be due to 1) a lack of marketing to WIC participants about the Facebook page, 2) a lack of relevant information on the page, 3) a disconnect between WIC participants’ intention and action to “like” a page or 4) concerns expressed by some participants in the focus groups related to the stigma associated with “liking” a WIC Facebook page. It is difficult to know which of the above issues is key. Additional research is warranted to explore the use of Facebook by the WIC program and leverage participants current use of Facebook.

In addition, Facebook seems like an appropriate avenue to advertise to WIC-eligible participants, as the majority of WIC eligibles stated that it was their favorite technology. Further investigation should look at ways that Facebook advertisements can be customized to reach WIC-eligibles such as the use of key words, a Facebook page targeted at WIC-eligibles, and the success of Facebook advertising campaigns to increase participation. Other online venues to consider advertising to WIC-eligibles include sites frequently visited by pregnant and breastfeeding mothers such as WebMD and BabyCenter; and physician websites. In addition, establishing partnerships with social programs such as Medicaid, Children’s Health Insurance Program (CHIP), and HeadStart to advertise on their sites can also help increase enrollment into the WIC program.

WIC participants want to be able to schedule their appointments, attend nutrition education classes, and check their WIC EBT balance online. Participants in both the online survey and WIC focus groups indicated that they are also interested in accessing recipes and food demonstration videos online. Additionally, WIC participants also want to be able to access the WIC foods shopping guide and be able to scan foods and find out if the item is a WIC approved food using their Smartphone while at the store, in an effort to avoid the embarrassment of holding up a line at the grocery store. Since many WIC participants access the Internet via their cell phone the Western Region should investigate the use of a mobile website or a WIC phone application where participants can receive these services online. Optimizing program videos for mobile viewing will be a necessity.

Focus groups participants expressed great interest in using video chat for breastfeeding support and nutrition education, especially those in the islands and more rural areas. In contrast, a low percentage of survey respondents showed a preference for video/skype one-on-one breastfeeding support (4%) and nutrition education (9%). However, when asked about perceived usefulness of video chat over 50% of survey respondents indicated that they thought video chat would be “very useful” or “somewhat useful” with a nutritionist, breastfeeding counselor or other WIC staff. As participants become increasingly tech-savvy the demand for this type of interaction will likely grow. Yet, focus group participants also had concerns about video chatting with a nutritionist or breastfeeding educator that they had not met in person. The Western Region should further investigate the feasibility of using of video chat with WIC participants and the potential for connecting participants via video chat with their local WIC agency staff.

Incorporating the use of technology will not eliminate the need to provide one-on-one WIC services. Remote places such as villages in Alaska and ITOs have difficulty accessing the Internet and cellular

technology. In addition, as highlighted by many focus group participants, there are many participants with limited resources and lower levels of education who do not currently access the Internet. As such, it is imperative that WIC offers multiple options when it comes to delivering WIC services.

The Western Region WIC programs will need to decide which technologies make more sense to implement for each of the services they offer. For example, this research strongly suggests to implement appointment reminders via text message and email, as well as the creation of web-based applications and mobile-based websites that allow participants to access scheduling and appointment services online. These services may be more pressing than creating nutrition education contacts via email, text messaging and Facebook, as also suggested by participants in this research project. A feasibility and cost benefit analysis is warranted to determine and give direction about which services should be implemented first.

# Future Directions & Next Steps

The WIC Participant Online Survey, the WIC participant focus groups, and the WIC-eligible focus groups, suggest participants have particular patterns of technology use. Investigating these patterns of technology use would give further understanding into the ways individuals communicate using technology, how participants use technology and for what purposes, and how they want to use these to engage with the WIC program. For example: Breastfeeding moms who want to video chat with a WIC breastfeeding peer counselor might also seek social support via Facebook or access websites for breastfeeding information.

The present study was not designed to capture technology use of WIC teen parents further investigations could help clarify how these WIC participants use technology and understand the situations in which they want to use technology to engage with the WIC program and learn if they are different from older WIC participants examined in this study.

The assessment of technology use broken down by language subgroups was not an initial priority of this study. However, in an effort to enhance the understanding of the Spanish-speaking WIC participants within the Western Region of WIC the participant online survey and three focus groups (one with early adopters of technology and two with regular WIC participants) were conducted in Spanish. This allowed a limited - representation of Spanish-speakers throughout the Western Region. However, the survey data for Spanish-speaking participants was inconclusive because of the low number of participants from states and regions other than California. It is recommended that future research targets Spanish-speaking participants, particularly those who are not bilingual, in an effort to understand their technology use. The online survey data indicates that these individuals had lower education levels than the bilingual and English-speaking counterparts. Moreover, the focus group data suggested that these individuals were not as tech-savvy, therefore research would help clarify how these individuals use technology, where they access technology, determine their willingness to learn and use new technologies and whether or not they would use technology to access WIC program services. The WIC participant online survey targeted participants who were already familiar with the internet. A survey of non-users is warranted to better understand the barriers to technology use. The survey items could be drafted from the focus group findings conducted as part of this project, in order to obtain a better understanding of the reasons and situations behind their lack of technology use.

The current research studied two focus groups of WIC-eligible participants in the state of Arizona. The number of focus groups conducted with WIC-eligible participants and the single geographic location are limitations of the study. However, these two groups allowed capturing the voice of non-WIC participants

within the Western Region. Many similarities in technology use were found between current WIC participants and WIC-eligible focus group participants. For example, technologies, such as texting, resonated well with the WIC participants and also appeared to resonate strongly with the WIC-eligible sample from Arizona. These groups also gave insight into the reasons why WIC-eligible participants choose not to enroll in the WIC program. Three of the barriers cited in both focus groups include 1) witnessing how WIC participants are treated at the grocery store; 2) perceiving they were taking the place of others who are more needy and 3) they were unaware that they qualified. Findings from these focus groups also suggested that receiving nutrition education was more important than the WIC food and formula benefits. Additional research of WIC-eligible participants in different geographic locations would help verify whether WIC-eligibles would be more interested in participating in WIC if technology made it easier to attend classes or make appointments and create programs and materials that better target these concerns

Research<sup>10,11,12,13</sup> suggests that electronic technologies are as or if not more effective than other methods in educating and promoting behavior change. The findings from this project demonstrate that WIC participants and WIC-eligibles use technology to help navigate their daily lives and want to use technology to access and interact with WIC services and information. A cost and feasibility analysis of the top technologies included in this report such as the use of texting, email, and Facebook is warranted to give direction on which services should be implemented first.

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<sup>10</sup> Fogg B. *Persuasive Technology*. San Francisco: Morgan Kaufman, 2003. Print

<sup>11</sup> Stockwell, M.S. et. al. Text4Health: impact of text message reminder-recalls for pediatric and adolescent immunizations. *Am J Public Health*. 2012 Feb;102(2):e15-21. Epub

<sup>12</sup> Fogg B and Eckles E *Mobile Persuasion*. Palo Alto: Stanford University, 2007. Print

<sup>13</sup> Russell, T No significant Difference Phenomenon North Carolina State University: IDECC 2001 Print. (and online companion [www.nosignificantdifference.org](http://www.nosignificantdifference.org))

# Prioritized Technologies Summary

## - Prepared by Altarum Institute

Under a subcontract with Western Michigan University, Altarum Institute was to conduct a feasibility and cost benefit analysis of technologies that may be applicable to WIC program operations that would be identified and prioritized by the Western Region project Advisory Board members. The different technologies to be prioritized were to be identified through qualitative research completed by Amanda Hovis & Co. and Limetree Research LLC (Hovis report). Altarum provided input to the report, and the report by Hovis et. al was presented to the Advisory Board. However, before Altarum began tasks for which it was contracted, the Project Director and the Steering committee issued a stop-work order and halted additional work on the project prior to the feasibility and cost benefit analysis. In order to close out the existing work on the contract Altarum was requested to prepare this document, which is a summary of the technologies identified in the Hovis report and prioritized by Altarum staff. This report can only provide a limited assessment of the technologies, which is based on findings from the Hovis report regarding WIC participant use of communication and social networking technologies, and Altarum's own experience examining how states have used these technologies to provide WIC services. While the scope of this report is very limited and constrained by a lack of a prioritized list of technologies of interest for which the Western Region Advisory Board was to have completed, Altarum believes that the technologies identified herein can function as a starting point and could be explored in the future by the Western Region to determine their feasibility and effectiveness in a WIC environment, and develop strategies to employ some or all of these technologies to enhance WIC services across the region.

### Top Three Technologies Used by WIC Participants

The research from this project revealed that the top three technologies used by current WIC participants are:

- **Email** is used by 92% of WIC online respondents
- **Text messaging** is used by 86% of WIC online respondents
- **Facebook** is used by 80% of WIC online respondents

These types of communication technologies are also very popular with the general population, but confirm through the Hovis research that they are widely used by low-income WIC participants within the Western Region. Working from a baseline that any prioritization of technologies must start with acceptance by the population, the research can serve as a basis for considering workable applications for a WIC environment.

### **Technologies and Functions of Particular Interest to WIC Participants**

Acknowledging the technologies' use in daily life does not necessarily mean that their use can automatically be applied to a WIC function. There must be a matching of the technologies to WIC functions, which would require an analysis of technologies' matches to operational features. Since this was not done, one can only rely on WIC participant interests identified in the Hovis report as to the potential use of these technologies to enhance a WIC function. The research question applied to the study objectives and directed at WIC participants was, "What types of technology do WIC participants want to use when interacting with the WIC program?" The results revealed that WIC participants are most interested in the following WIC applications:

- Text message and email appointment reminders
- Online appointment scheduling
- Online WIC authorized food list
- Text message and email nutrition education messages
- UPC scan application for Smartphone to check WIC foods in grocery store
- Online recipes and cooking demonstrations
- Nutrition education via Facebook

### **Technologies Prioritized by Project Advisory Board**

As was noted earlier, the process identified by all parties in this contract to move forward was for the Advisory Board to review the Hovis report and make recommendations to Altarum as to which of these technologies should be subject to further research and analysis. The prioritization of these technologies was to become the basis for the feasibility study and cost benefit analysis that was to take place to further "flesh out" these technologies to determine the extent to which these approaches could be applied to WIC functions, the benefits of doing so, the barriers inherent in State government IT rules that might be barriers to implementation, and the cost to implement the applications. Since this prioritization was not accomplished, and the contract tasks for this process were cancelled, Altarum was unable to do further analysis. In its place we are presenting a much less completed assessment of these technologies that is solely based upon our experience and observation of state attempts to implement these types of technologies and our understanding of how WIC programs operate.

## High Priority Technologies for Western Region States

There are several technologies and accompanying functionalities that emerge as high priority technologies from the *Western Region WIC Participant Survey and Focus Group Report*. These include:

- **Text messaging with functionality for appointment reminders and nutrition messages.** Altarum is aware of some states that have text messaging capacity built within their WIC systems, and some local WIC agencies in various regions have made successful attempts to apply this technology for appointments. Additionally, the “Text for Baby” function supported by USDA has been used by some states. The authors of [wichealth.org](http://wichealth.org) have recently developed *Table Talk*, a tailored text messaging platform currently being piloted in all WIC agencies in Illinois and Michigan. *Table Talk* is a robust system that provides for scheduling of individual stage of change based messages tailored to characteristics of WIC participants. Initial pilot evaluation results show promising interest by participants; after only a few months enrollment in the program, a majority of participants indicated the text messages they received helped them to offer their children more fruits and vegetables.
- **Secure website with access to online scheduling and online nutrition education classes.** Some of the newer WIC systems, such as the WIC Crossroads project in North Carolina, Virginia, West Virginia, and Alabama will have this functionality built in. Again, Altarum has not studied the feasibility documentation for these systems, nor have these systems been fully implemented and tested. The Western Region states may want to follow the implementation of these systems, especially the North Carolina system implementation, to obtain information on cost and effectiveness of these functions.
- **Smart phone applications to locate nearby WIC offices and WIC vendors; to access WIC food lists; to scan WIC foods at the store.** Again, Altarum is aware of the current availability of this type of application, but has not studied the cost of implementing or how effective it might be.
- **Facebook presence to interact with WIC participants to support breastfeeding, nutrition and healthy lifestyles; and to market WIC to families not yet on WIC.** Some local WIC agencies in the Mid-Atlantic and Mid-West FNS regions were identified as using Facebook as a technology for informing WIC participants. Detailed examination of this application has not taken place.

## Next Steps for Western Region Consideration

The four technologies noted above have some potential for improvement in WIC operations, since they do exist in some form and could be evaluated to determine their effectiveness and acceptability. In order to better understand the opportunities and challenges that might face the states, ITO's, and territories in implementing any of the high priority technologies, the activities that may be considered in a future analysis include the following.

### **Examine the capacity of the identified high priority technologies to perform functions better or at less cost than current practices**

Each technology has the capacity to streamline communications and information between WIC program staff and participants. However, an examination of the functionality of these technologies in the WIC setting is necessary to determine if performance delivers desired outcomes and the costs associated with such. Implementing any of these high priority technologies requires an evaluation of the degree of effort required to bridge to existing IT systems for necessary participant-specific information (e.g., appointment reminders, nutrition and breastfeeding education related to participant goals, WIC foods scanning app related to participant's food prescription). All of these technologies hold infrastructure requirements, maintenance and support efforts, and resource commitments. There is likely a wide range in infrastructure support and resource capacity for implementing these high priority technologies throughout the Western Region. This should be explored as an important component of understanding overall feasibility of successful use of any of these technologies.

### **Conduct an analysis of existing applications that examines how the use of technology differs from existing, less technical approaches, and if the benefit of using the technology improves programmatic outcomes.**

A strong research plan is needed to examine how existing WIC agency use of these applications is working. The approach that was originally identified for this project is a good way to obtain information. The Western states should consider a single focused study of these applications that measures how well they function and how well they are accepted by WIC clients. It is highly unlikely that states using these applications currently planned any evaluation of this nature, so new research will be required.

### **Identify barriers and opportunities for implementation**

Addressing capacities of the high priority technologies will undoubtedly identify barriers to implementing these technologies. Are barriers geographic in nature, policy related, technology driven, or resource related? Identifying and understanding the barriers involved is a recommended first step in gathering information necessary for analyzing the cost benefit related to implementing any of the high priority technologies.

Equally compelling are opportunities that may exist in implementing the high priority technologies. Several of the listed technologies are in various stages of use currently throughout the region. States can learn from each other as individual state's projects progress by putting into place a process whereby states communicate their efforts and experiences regularly throughout implementation efforts. Building an evaluation tool to monitor outcomes of technology changes on program participation and effectiveness would be a valuable way to assess whether the technology is working as anticipated and was a worthwhile effort. As a region, there are opportunities to leverage knowledge, experience and resources to benefit all.

### **Conduct cost benefit and feasibility of prioritized technologies**

Identifying the technology capacities, barriers and opportunities, and gathering data from each state, ITO and territory is recommended to analyze the basic costs involved, expected benefits and overall feasibility to implementing each of the high priority technologies. Although there may be interest in launching into some of these identified stable or emerging technologies, an analysis may show it is feasible, but not cost effective; or it may be cost beneficial, but not feasible in light of other compelling circumstances. A thorough analysis is warranted in order to proceed confidently.

The research collected from this project to date has yielded valuable information on the current use of technology by WIC participants, and ways in which participants would like to interact with WIC in the future. We hope that continued interest will spark the next steps so that implementation of the most cost effective, feasible, and desired technologies can indeed enhance WIC services to participants in the Western Region and attract families that have yet to participate in WIC.