

# ConnectHome Initiative

## Final Report

May 2018



PD&R



# **ConnectHome Initiative**

Final Report

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Prepared by  
Insight Policy Research

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## **Baseline Internet Access Among ConnectHome Communities: Results From the National Evaluation of ConnectHome**

High-speed internet access at home has become increasingly important to ensuring educational opportunity for all children regardless of their economic status. According to the Pew Research Center, low-income households with school-aged children are four times more likely to be without high-speed internet access than their middle- or upper-income counterparts.<sup>1</sup> Without internet access, many low-income students face a “homework gap,” and their families are at a disadvantage for finding jobs, getting health information, or accessing other key information.<sup>2</sup>

The ConnectHome initiative is a collaboration between communities, the private sector, and the Federal Government to expand high-speed internet access to more families across the country. The initiative is bringing affordable broadband access, technical training, digital literacy programs, and electronic devices to thousands of low income households living in HUD-assisted housing. ConnectHome has launched in 28 communities across the United States, including metropolitan areas, cities, counties, and a tribal nation.<sup>3</sup>

As a first-step in assessing the success of ConnectHome in bringing high-speed internet to Americans across the country, HUD administered a Baseline Internet Access Survey. The purpose of the survey was to obtain baseline measures of in-home high-speed internet access in public housing communities targeted for ConnectHome services prior to implementation of the initiative. The baseline survey, administered to 22 of the 28 communities, measured how many households had internet access in the home, types of devices used to connect to the internet, and reasons for lack of internet access among households not connected.<sup>4</sup> This brief provides a summary of the results of this Baseline Internet Access Survey of ConnectHome communities.

### **What are the Baseline Levels of Internet Access Across ConnectHome Communities?**

Slightly more than two-thirds (69 percent) of public housing households in ConnectHome communities have some form of home internet connection, including by smartphone (see figure 1). However:

- Only one-third (34%) of all households have high-speed internet access, defined as having a high-speed internet connection in addition to a computer, laptop, or tablet.
- Another third (35%) of all households are “underconnected,” or without high-speed access. These households may have smartphone-only access—defined as when a household’s only

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<sup>1</sup> Pew Research Center. (2015a). The numbers behind the broadband ‘homework gap’ [Web page]. Retrieved from <http://www.pewresearch.org/fact-tank/2015/04/20/the-numbers-behind-the-broadband-homework-gap>.

<sup>2</sup> Pew Research Center. (2015a). The numbers behind the broadband ‘homework gap’ [Web page]. Retrieved from [www.pewresearch.org/fact-tank/2015/04/20/the-numbers-behind-the-broadband-homework-gap](http://www.pewresearch.org/fact-tank/2015/04/20/the-numbers-behind-the-broadband-homework-gap). Pew Research Center. (2015b). Broadband adoption [Web page]. Retrieved from <http://www.pewInternet.org/files/2015/12/Broadband-adoption-full.pdf>.

<sup>3</sup> White House (2015). Fact sheet: ConnectHome: Coming together to ensure digital opportunity for all Americans [Press release]. Retrieved from <https://www.whitehouse.gov/the-press-office/2015/07/15/fact-sheet-connecthome-coming-together-ensure-digital-opportunity-all>.

<sup>4</sup> The remaining six ConnectHome communities did not participate because they administered their own surveys separately from the national survey or because they were not targeting public housing households for the first year of ConnectHome implementation.

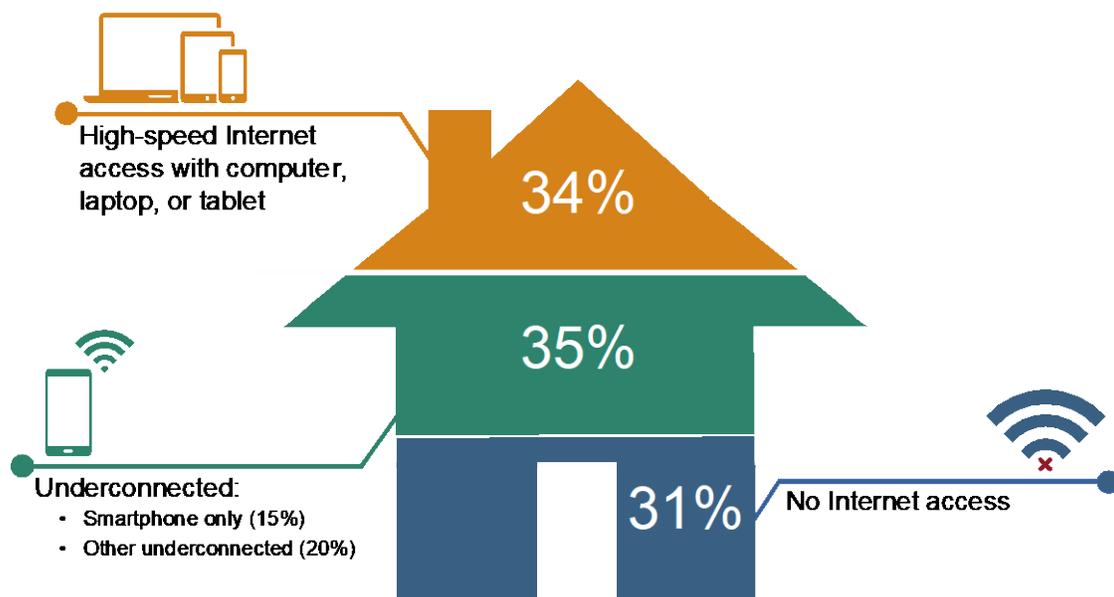
device to access the internet is a smartphone and its only connection to the internet is through a smartphone data plan—or another combination of devices and connection types—such as a tablet with a data plan only, or a high-speed internet connection but only a smartphone device.

- And, one-third (31%) of all households have no internet access at home.

Households targeted to receive ConnectHome services are those that are underconnected as well as those with no internet access at home.

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**Figure 1. ConnectHome Baseline Internet Access**



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Source: ConnectHome Baseline Internet Access Survey; conducted November 2015–June 2016.

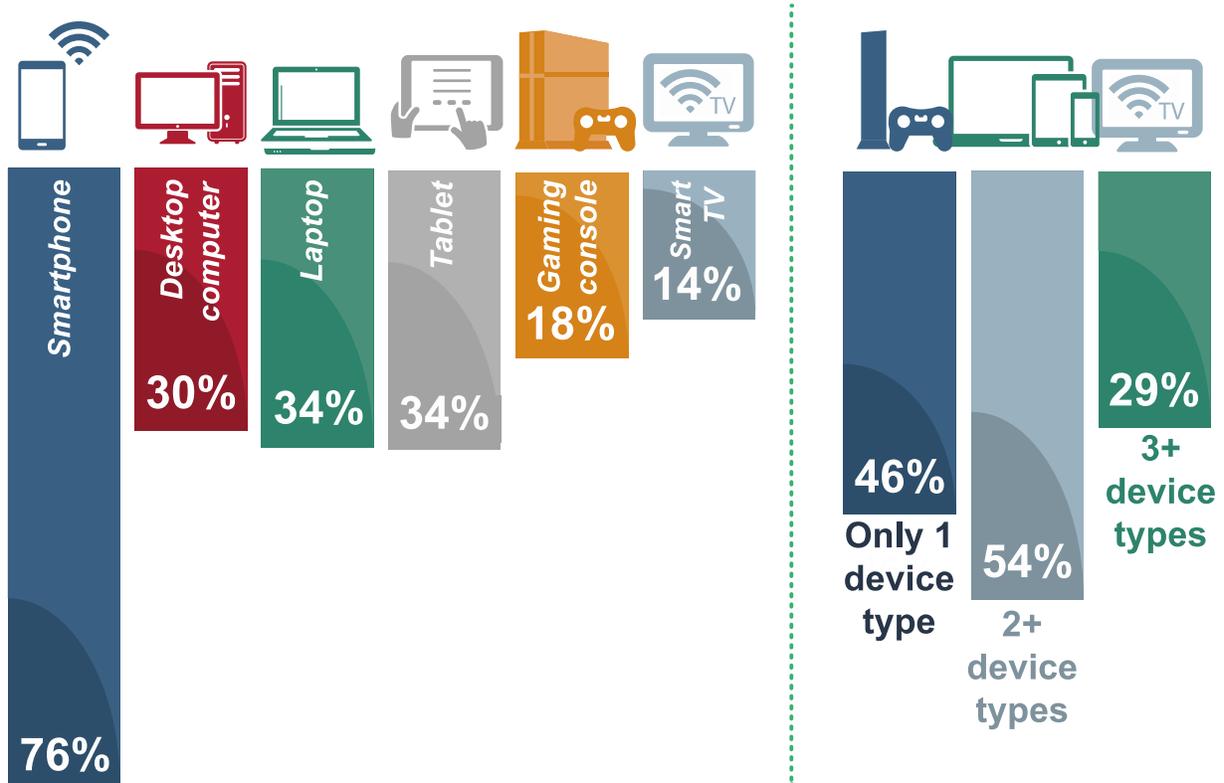
### **What Devices Do Public Housing Households Use To Connect to the Internet?**

About three-quarters of connected households use smartphones to access the internet at home (see figure 2).

Approximately one-third use a laptop or tablet to access the internet at home, and about one-third use a desktop.

Almost half of connected households (46%) have only one type of device to connect to the internet.

**Figure 2. Devices Used to Access the Internet, Among Connected Households**



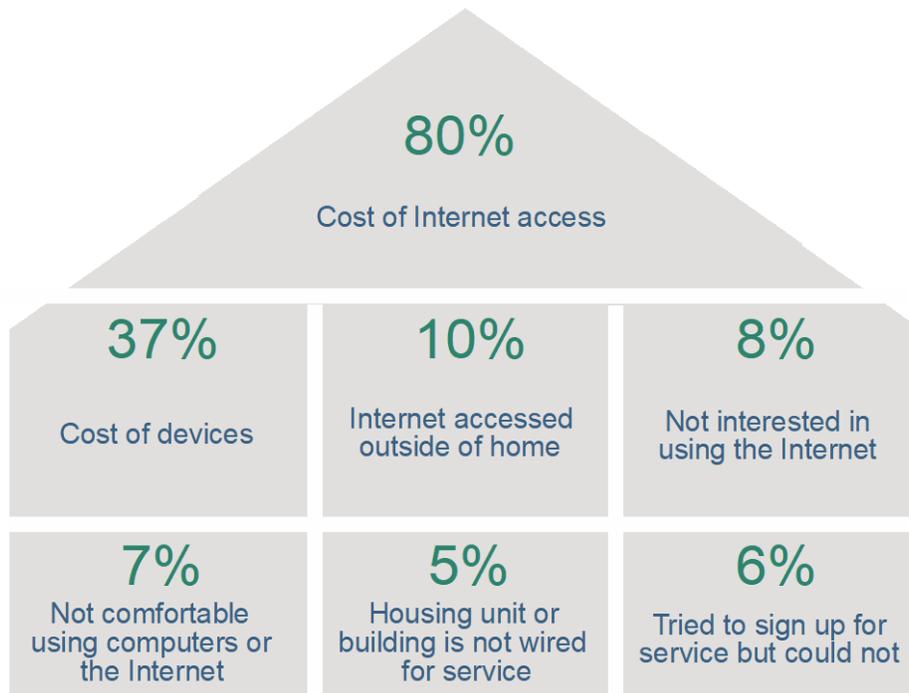
Source: ConnectHome Baseline Internet Access Survey; conducted November 2015–June 2016.  
 Note: Respondents could check more than one category.

### Why Are Public Housing Households Not Connected to the Internet?

Cost is the major reason households are not connected to the internet at home. Among households without home internet access: 80 percent cite the cost of access, and 37 percent cite the cost of devices as a reason for not having in-home internet access.

Ten percent of unconnected households access the internet outside the home, 8 percent are not interested in using the internet, and 7 percent are uncomfortable using computers or the internet (see figure 3). However, slightly more than one-third (35 percent) of households without internet access at home have had such access in the past.

**Figure 3. Reasons For Lack of Internet Access in the Home, Among Households Not Connected**



Source: ConnectHome Baseline Internet Access Survey; conducted November 2015–June 2016

Note: Respondents could check more than one category.

### **Moving Forward**

The ConnectHome initiative will help bridge the digital divide: it will increase internet access for unconnected households and improve access for underconnected households. During the first year of the initiative, ConnectHome communities have made progress toward developing plans and partnerships for establishing high-speed connections for low-income families with children, and many communities have begun implementing the initiative, distributing devices, establishing internet connections, and providing digital literacy training.

Future evaluation efforts will assess how the ConnectHome initiative has expanded high-speed internet access and narrowed the digital divide in these communities. In the coming months, the evaluation team will conduct a phone survey and focus groups with families newly connected through the program to better understand how ConnectHome has affected their lives, particularly in terms of creating education, employment, health, and other opportunities that did not exist without home internet access.

### **Study Methods**

The Baseline Internet Access Survey instrument was developed by HUD, with input from Insight Policy Research (Insight). Insight selected a random sample of households in each ConnectHome target community for participation in the survey; a census was drawn in communities with smaller ConnectHome target populations (i.e. all households in the target populations were

selected). Twenty-two of the 28 communities participated in the survey: Albany, Baltimore, Baton Rouge, Boston, Camden, Choctaw Nation, Cleveland, the District of Columbia, Denver, Durham, Fresno, Kansas City, Little Rock, Macon, Memphis, Nashville, New Orleans, Newark, Rockford (IL), San Antonio, Seattle, and Tampa. The other six ConnectHome communities that did not participate in the survey were: Los Angeles, Meriden (CT), Atlanta, Springfield (MA), New York City, and Philadelphia. Data were collected between November 2015 and June 2016. The survey was administered by mail from HUD, with in-person or telephone follow-up to nonrespondents by local public housing agencies. Completed surveys were returned in pre-paid envelopes directly to Insight. Insight entered the data, constructed analytic weights, cleaned and processed the data, and tabulated the results. The analysis includes 3,857 completed surveys. For more information on Insight, please visit our website: <http://www.insightpolicyresearch.com/>.

## ConnectHome Case Studies: Resident Experiences in the First Year

High-speed internet access at home has become increasingly important to ensure educational opportunity for all children regardless of their economic status. Without internet access, many low-income students face a “homework gap,” creating an uneven playing field in the classroom; low-income households with children are four times more likely to be without broadband than their middle- or upper-income counterparts.<sup>5</sup> This lack of in-home internet access presents these families with other disadvantages in finding and applying for jobs, obtaining health information, and accessing other key information. To address these disadvantages and narrow the digital divide, the U.S. Department of Housing and Urban Development (HUD) launched ConnectHome, a public-private collaboration that provides affordable broadband access, digital literacy programs, and electronic devices to low-income families with school-aged children who live in HUD-assisted housing in 28 communities across the United States. For more information about ConnectHome, see <http://connecthome.hud.gov>.

To better understand early outcomes of ConnectHome, HUD contracted with Insight Policy Research to conduct case studies of five ConnectHome communities. The case studies explored residents’ experiences with the program, including their use of the internet, their perceived benefits of in-home high-speed internet access, and their digital literacy. The case studies also explored Public Housing Authorities’ experiences implementing the initiative.

### Choctaw Nation

This brief presents results from a case study of the Choctaw Nation’s ConnectHome initiative conducted in December 2016.<sup>6</sup> Insight held two focus groups with residents with internet access at home through ConnectHome (referred to as ConnectHome participants), and one focus group with residents who had either no home internet or access only through a cell phone data plan (referred to as underconnected residents).<sup>7</sup> The case study also included an interview with staff from the Choctaw Nation Housing Authority (CNHA) working to implement the initiative. The Choctaw Nation communities from two counties across the geographically dispersed, rural region participated in the focus groups.

ConnectHome participants in the focus groups had received internet service through the initiative for varying periods of time, ranging from 2 weeks to approximately a year. Because of the qualitative nature of this study, these preliminary results should not be extrapolated to the broader Choctaw Nation ConnectHome population.

### Background on Choctaw Nation’s ConnectHome Initiative

In July 2015, HUD launched the national ConnectHome initiative in Durant, Oklahoma—part of Choctaw Nation, a federally recognized Native American tribe in Oklahoma—during a rally focused on expanding economic opportunities in rural communities. After accepting an invitation from HUD to participate in the ConnectHome initiative, Choctaw Nation’s Chief and tribal

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<sup>5</sup> Pew Research Center. (2015). The numbers behind the broadband “homework gap.” *FACTANK: News in the numbers*. Retrieved from <http://www.pewresearch.org/fact-tank/2015/04/20/the-numbers-behind-the-broadband-homework-gap/>.

<sup>6</sup> Insight gratefully acknowledges the time and efforts of the Choctaw Nation Housing Authority in supporting the data collection efforts.

<sup>7</sup> In total, 17 ConnectHome participants and 4 underconnected residents participated in focus groups.

council gave CNHA the task of connecting and training low-income families and tribal elders living in public housing across more than 10 counties covering approximately 25,000 square miles. Because no single provider serviced the entire geographic area, CNHA partnered with several internet service providers (Pine Telephone, Vyve Broadband, Sudden Link, Cherokee Communications, and Verizon) to implement the initiative. As of December 2016, CNHA had connected approximately 288 of the 379 households and planned to connect the remaining households in 2017. During the first year, service was free to participating households; monthly data limits for ConnectHome participants varied by provider. CNHA also provided free tablets to residents and conducted one-on-one trainings with every ConnectHome household.

### **Benefits of Participating in ConnectHome**

ConnectHome participants had a uniformly positive opinion of the initiative. They reported that high-speed internet access at home through ConnectHome—

- **Provided educational supports for children.** ConnectHome helped children complete their schoolwork by increasing access to online resources for answering questions, solving problems, and conducting research. The initiative also provided learning opportunities for preschool-aged children through math and phonics learning games and applications.
- **Introduced children to a world beyond their community.** Participants noted the internet provided opportunities that would otherwise be unavailable to their children. One participant described recently looking up images of alligators and other animals not found in Oklahoma. Another participant described her family watching a live feed of an eruption of the Old Faithful geyser, an event that otherwise would have required a drive of more than 1,000 miles to witness.
- **Addressed families' health and employment needs.** ConnectHome helped families search and apply for jobs, buy and sell goods and services, and find information to help manage the health of their families.
- **Decreased travel burden.** Choctaw Nation residents live in rural areas without easy access to public libraries and other amenities; for example, several people reported driving 25 minutes or more to the closest library to get online, prior to ConnectHome.
- **Enhanced connection with family, friends, and community.** Home internet access enabled participants to stay in touch with family and friends living far away, a benefit particularly valuable in their rural community. Many people also cited ways ConnectHome facilitated more ready engagement with their community, such as to learn when Pow Wows were held, to follow stickball games, and to keep track of school events.
- **Provided opportunity to learn about heritage.** Participants also cited ways in-home internet access facilitated greater learning about the Choctaw culture and language. One person, for example, described a word-of-the-day email that helps recipients learn Choctaw words and includes a sound clip to demonstrate pronunciation.

### **Internet Access**

ConnectHome participants typically accessed the internet from home for several hours each day. Participants in one community frequently exhausted the 25-gigabyte monthly data limit associated with the ConnectHome internet plan offered in their community, which can cause slower or interrupted service during some months.

Underconnected residents also accessed the internet from home each day, mainly using cellular data plans. However, slow connection speeds, monthly data limits, and the inability to perform

online activities requiring the use of tablets or computers constrained the variety and volume of online activity that underconnected residents engaged in from home relative to ConnectHome participants.

ConnectHome participants accessed the internet using an assortment of devices, including computers, tablets, phones, televisions, and game consoles. ConnectHome participants typically used smartphones for simple operations, such as checking social media or communicating with friends and family, but they used computers or tablets for tasks such as responding to work emails or completing schoolwork. School-aged children in ConnectHome households primarily used the tablets provided through the ConnectHome initiative.

Underconnected residents nearly exclusively used smartphones for accessing the internet from home. One resident living in an underconnected household reported using a cellular hotspot to enable multiple devices to connect concurrently, but most households either shared one smartphone or purchased separate smartphones for each member of the household. Underconnected residents accessed the internet from work, school, gyms, or libraries, either through public-access computers or through wireless networks accessible through their smartphones. One resident, for example, described leaving her phone's Wi-Fi option on at all times so the phone would automatically use wireless networks if available instead of her data plan.

### **Use of the Internet at Home**

ConnectHome participants accessed the internet from home for a variety of purposes. When asked broadly how they used the internet, ConnectHome participants indicated they most frequently used the internet from home for the following reasons:

- Help school-aged children with homework, especially in more advanced subjects such as algebra.
- Find information about healthy cooking and living.
- Look up information about their health or the health of others in the household.
- Purchase and sell goods and services.
- Use social media or video communication applications such as Facebook and Skype.
- View entertainment websites or applications (for example, Netflix, Hulu, or YouTube).

Because of monthly cellular data limits and more limited functionality of mobile devices for typing and viewing information, underconnected residents used the internet from home less frequently and for fewer purposes than their ConnectHome counterparts. Most underconnected residents engaged in online activities that did not have significant data requirements and could be easily performed on a smartphone, such as reading email, accessing social media, looking up directions, checking the weather, and performing simple Google searches. More complex uses of the internet such as streaming music or video quickly exhausted monthly data limits.

Underconnected residents also used the internet less frequently because multiple household members could not access the same cellular data plan at the same time. As a result, even if they accessed the internet every day, residents in underconnected households had more constrained internet use.

### **Use of the Internet at Home for Education, Employment, and Health-Related Activities**

ConnectHome policymakers are particularly interested in use of the internet for children's education, adult education, employment, and health-related purposes. During the focus groups, ConnectHome participants were asked how frequently people in their household used the internet

at home for activities in these areas. Figure 4 shows the most frequently reported uses of the internet in larger text and less common uses in smaller text. Activities related to children’s education and health were mentioned more frequently than others.

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**Figure 4. Frequency of Choctaw Nation Internet Use for K–12 Education, Adult Education, Employment, and Health Activities**



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Note: Larger text corresponds to more frequent usage.

### ***Children’s Education***

Underscoring the importance of home internet access for addressing children’s educational needs, nearly all ConnectHome participants reported using the internet to help children with homework, answer children’s questions, provide young children with learning opportunities, or help older children search for colleges or financial aid opportunities. Most ConnectHome participants supplemented their own instruction with online information or tutorials to help school-aged children in their household prepare for a test or complete school assignments. For instance, one parent from a ConnectHome household said she “wasn’t very good at math,” so she used instructional YouTube videos and online problem sets to help her daughter with algebra. Another parent used Google to demonstrate to her children the correct pronunciations of words and phrases. School-aged children in ConnectHome households also used the internet as a resource for meeting their educational needs. For example, a ConnectHome participant commented that her daughter used the internet recently to “look up the rainforest and what’s actually [there] ... so we know how to [complete her assignment] for school.”

Underconnected residents were more limited in their ability to meet their children’s educational needs without high-speed internet access at home. For example, these residents were not able to access learning applications and tutorial supports from home. As a resident of an underconnected household commented, “[My daughter] likes really learning how to say her numbers and her shapes and stuff like that. So I think apps that would teach her stuff like that would be more helpful [than television].” An underconnected parent of a high school student commented, “[It would] be better if I had internet access at home so that way [my son] can start looking at different colleges and his options, start putting [in] applications.”

Home internet access also enabled parents to keep track of activities at their children’s school and made it easier to monitor children’s academic progress. One parent explained, “You can

check into their grades online ... to see what [children] are doing.” Underconnected residents found it more difficult to access the schools’ websites and communicate with teachers using only a smartphone. One underconnected resident noted, “I don’t even hear anything from [my son’s] teacher. So I guess if we had internet access, I [could] communicate with them directly.”

### ***Adult Education***

Most focus group participants were not currently using the internet to further their own education at the time of data collection. However, one ConnectHome participant used an online adult learning application, Lumosity, to help maintain an older parent’s mental acuity, whereas another participated in online training on web page design. A few underconnected residents suggested home internet access would be helpful for achieving their educational goals. For example, one resident indicated it would make going back to school in the rural location more convenient because “it’s hard to get to class in the first place. But it’d be easier to do it at home.” Similarly, a few ConnectHome participants noted home internet access could expand educational opportunities for adults and high school students in their rural community by providing access to coursework not offered through the local community college.

### ***Employment***

Both ConnectHome participants and underconnected residents reported access to the internet at home was helpful for obtaining employment. Most ConnectHome participants searched and applied for jobs through the Choctaw Nation’s website; however, a few also indicated they applied directly through an employer’s site. Underconnected residents believed having internet at home would make searching and applying for jobs easier.

ConnectHome participants used the internet from home to buy and sell goods and services through the Choctaw Nation’s website, which they described as an “online yard sale” that functions similarly to an auction. Buying and selling goods through the Choctaw Nation’s website enabled ConnectHome participants to more easily sell things they no longer needed and to save money by purchasing used items at a discount. Underconnected residents did not buy or sell goods online.

### ***Health***

One of the most common uses of the internet nearly all residents reported was to search for information about strategies for managing their families’ health, including looking up information on medications or diagnoses, symptoms they were experiencing, or information on healthy diet and lifestyle. One ConnectHome participant, for example, reported searching for information about the medications prescribed to treat her heart condition. She had recently identified through this research that two medications prescribed to her could interact and needed to be taken at different times of day. Another person accessed the internet to find nutritious and affordable recipes that “cut half the calories and half the sugars” as a mechanism for managing diabetes.

Both ConnectHome participants and underconnected residents appreciated the ability to quickly look up medical records and lab results online. Despite their reliance on cellular data plans and consequently more limited data for internet access, underconnected residents reported health-related uses of the internet at home with the same frequency as ConnectHome participants. This situation underscores the priority residents placed on home internet access for obtaining information to manage the health of their families.

## **Concerns Related to Home Internet Use**

Residents from both ConnectHome and underconnected households expressed concerns that home internet access increased children's exposure to inappropriate content and cyberbullying and made protecting one's identity more difficult. Many residents were concerned about their ability to effectively protect their families against online security and privacy threats and suggested a need for safety trainings on topics such as "how to change settings [on devices] ... to monitor your children's [use of the internet]." Several residents reported frustrations with malware, spam, and popup ads and were unfamiliar with how to prevent these problems. Many residents did not feel comfortable entering financial and personally identifiable information online, and most were unaware of precautions to mitigate risks to their security and privacy. Some ConnectHome participants also found that excessive internet use had resulted in a breakdown of interpersonal communication within and between households. As one ConnectHome user explained, "It's taking away people's face time with families; people are losing their ability to communicate."

## **Digital Literacy**

Focus group participants were also asked about their comfort level and skills with the internet and computers. Nearly all adult ConnectHome participants and underconnected residents felt most comfortable using their smartphones to access the internet from home. Although they felt computers and tablets were more functional for complex tasks, some residents did not feel comfortable using these devices. School-aged children were reportedly highly proficient at using all types of devices and often helped the adults in their households use computers and tablets by solving technical problems or demonstrating how to perform specific functions.

Adult residents' comfort level using the internet depended on the type of online activity. Most residents felt comfortable accessing the internet for basic activities, such as communicating with friends and family, checking social media, performing Google searches, and accessing entertainment applications. However, many residents were less comfortable going online for more complex tasks such as accessing medical records or paying bills. Residents' reluctance to perform complex tasks online resulted, in part, from their discomfort using computers and tablets, which are often required for the tasks. The primary deterrent, however, was anxiety about potential threats to security and privacy.

School-aged children were reportedly more comfortable using the internet than their parents or guardians. One ConnectHome participant reported that even young children were able to effectively navigate online learning applications such as ABC Mouse using the tablets provided by the ConnectHome initiative. However, despite children's purported proficiency, many adults were concerned that children might inadvertently access inappropriate content online or download malware and viruses. Their concern resulted from a lack of understanding about how to monitor or regulate the use of the internet in their households, and several people suggested training in this area would be beneficial.

## **Computer and Internet Training Through ConnectHome**

When the initiative first launched, CNHA provided each ConnectHome participant with a short one-on-one training on how to log on to the internet using the tablet provided through the initiative. To supplement that initial training, CNHA and Oklahoma Public Television hosted a training session for parents and their children. This training focused on operating the tablets,

using the internet to download educational applications, and accessing the public television website. Because many ConnectHome participants were unable to attend that training, CNHA began offering additional group trainings at each housing site in 2016, with plans to continue those training events in 2017.

Recognized in 2015 at the national ConnectHome stakeholder summit in Washington, D.C., members of Choctaw Nation's Youth Advisory Board learned how to provide digital literacy training to tribal elders via a digital literacy initiative. Developed as a collaboration of CNHA and Southeastern Oklahoma State University, the initiative prepares high school students who participate on the Youth Advisory Board to provide tribal elders in their communities with one-on-one assistance in using tablets and navigating the internet. The initiative has been successful and well received by both the youth and the elders. The program has also provided the youth with the opportunity to learn from their elders about their heritage and culture through this community connection.

### **Moving Forward**

In Year 2, CNHA plans to build on its first-year successes as follows:

- Expand training opportunities for ConnectHome participants through partnerships with various stakeholders.
  - Continue the partnership with Southeastern Oklahoma State University to teach another cohort of Youth Advisory Board members to provide digital literacy training to tribal elders.
  - Offer more frequent CNHA-led group trainings at each ConnectHome site.
  - Expand partnerships to provide technical training in computer science and robotics to school-aged children.
- Expand the initiative to additional families not yet connected.
- Identify additional funding sources to extend the no-cost benefit beyond the first year. (Residents were provided no-cost access to the internet during the first year of the initiative, and CNHA plans to partner with a stakeholder to cover the costs of the second year.)

### **Study Methods**

Insight Policy Research, an independent research organization contracted by HUD, conducted case studies in five ConnectHome communities, including Choctaw Nation, as one component of its evaluation of the national ConnectHome initiative. Each case study included an interview with Public Housing Authority staff and three focus groups with residents. The purpose of the focus group data collection was to gather detailed information from residents of HUD-assisted housing about their knowledge, attitudes, and beliefs about and use of the internet and about their experiences with the ConnectHome initiative. Each focus group lasted 90 minutes and included no more than 11 participants. Focus group participants signed a consent form prior to participating in the focus groups and received a \$50 gift card as a token of appreciation for their participation. Focus group participants were recruited by Public Housing Authority staff and were required to be at least 18 years old and have at least one child under age 18 living in their household. Brittany McGill, Jackson Miller, and Rachel Gaddes of Insight Policy Research authored this brief. For more information about Insight Policy Research, visit <http://www.insightpolicyresearch.com/>.

## **Cleveland**

This brief presents findings from the case study of Cleveland's ConnectHome initiative conducted in January 2017.<sup>8</sup> Insight held two focus groups with residents with high-speed home internet access through ConnectHome (referred to as ConnectHome participants), and one focus group with residents who had either no home internet access or access only through a cell phone data plan (referred to as nonparticipants).<sup>9</sup> The case study also included an interview with staff from the Cuyahoga Metropolitan Housing Authority (CMHA) working to implement the initiative. Because of the qualitative nature of this study, these preliminary results should not be extrapolated to the broader Cleveland ConnectHome population.

### **Background on Cleveland's ConnectHome Initiative**

CMHA launched its ConnectHome initiative in May 2016, partnering with Sprint to provide K–12 students with 3 gigabytes of free data every month using a Sprint Wi-Fi hotspot. CMHA purchased the hotspots and provided them to the students at no cost. CMHA also provided each student with a free tablet with a built-in keyboard. CMHA purchased some of the tablets and GitHub gave others as in-kind donations. Because of limited funding to purchase hotspots and tablets, CMHA targeted distribution to students participating in afterschool and community center programs and students in intergenerational households. As of January 2017, CMHA had brought the ConnectHome initiative to seven of its family properties, distributing approximately 370 tablets and hotspots to about 150 households. Each child in a participating household received his or her own hotspot and tablet. With data limitations, the hotspots were intended only for the child's use, although other individuals in the household sometimes used them. CMHA is actively working toward expanding ConnectHome to include additional households, developments, and partners.

### **Benefits of Participating in ConnectHome**

ConnectHome participants cited multiple ways in-home internet access improved their daily lives, such as the following:

- Helped meet children's educational needs by increasing access to online educational resources they could use to complete their schoolwork, conduct research, and continue their learning outside of school.
- Helped parents to assist their children with homework and find supplementary educational materials (for example, learning games or research school subjects or assignments).
- Improved adults' abilities to search and apply for jobs.
- Eliminated or reduced travel to libraries or the housing development's computer lab to access the internet.
- Facilitated participants access to the internet for long, uninterrupted periods of time to complete schoolwork or job-related tasks.
- Enhanced safety by enabling parents to better monitor their children's internet use, as opposed to relying on unsupervised internet access outside the home.

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<sup>8</sup> Insight gratefully acknowledges CMHA's time and efforts in supporting the data collection.

<sup>9</sup> In total, 20 people participated in the three focus groups. All ConnectHome participants in the focus groups had received internet service through a Sprint Wi-Fi hotspot for approximately 5 months.

## **Internet Access**

ConnectHome participants indicated that their households typically accessed the internet daily from home, both through their ConnectHome hotspot and their smartphone data plan. However, some participants found the educational and employment needs of their household quickly exhausted the hotspot's 3GB data limit, requiring them to purchase additional internet service for their homes despite the cost. This situation was especially true for participants who needed the internet to conduct contract work. CMHA reported that approximately 45 percent of ConnectHome participants exhausted their hotspot's data limit before the end of their monthly data cycle. As one participant noted, "[I pay for] internet in my house because [the hotspot] is not enough for me to do job applications and resumes, and my son has work to do in school." Participants in one housing development described difficulty connecting to the internet in their apartments using the hotspot, and that they could get only a good connection in certain areas of their home.

ConnectHome participants accessed the internet using an assortment of devices, including computers, tablets, smartphones, smart televisions, and game consoles. Children frequently used the tablets that they received through ConnectHome to access the internet, whereas adults typically relied on computers, tablets, and smartphones.

Most nonparticipants also accessed the internet from home daily but only by using their smartphones. Nonparticipants accessed the internet outside the home using desktops at school, libraries, or their housing development's computer lab. Although many nonparticipants had home internet access in the past, they discontinued service when their introductory rate expired, and their internet costs more than doubled.

## **Use of the Internet at Home**

ConnectHome participants accessed the internet from home for a variety of purposes. When asked broadly how they used the internet, participants indicated the following uses most frequently:

- To help their school-aged children learn or complete schoolwork, often through the use of educational websites or applications.
- To monitor school events and children's academic performance.
- To search and apply for jobs.
- To use social media to communicate with family and friends (for example, Facebook).
- To view entertainment websites or applications (for example, YouTube) and play games.

Participants who paid for additional internet service often used their ConnectHome hotspot to access the internet when the power went out or when they were outside their home, such as in the car, at the park, or when visiting relatives. Participants also used the hotspot for their children's education or to keep them entertained when outside the home.

Nonparticipants did not use the internet at home in the same ways as their ConnectHome counterparts. Most nonparticipants engaged in online activities that did not have significant data requirements and could be easily performed on a smartphone, such as conducting quick searches for information, checking children's grades online, and accessing social media. They traveled to the library or a computer lab if they needed to do more complex tasks, such as applying for jobs or completing homework assignments using a desktop with a high-speed internet connection.

## Use of the Internet at Home for Education, Employment, and Health-Related Activities

ConnectHome policymakers are particularly interested in use of the internet in four areas: children’s education, adult education, employment, and health-related purposes. During the focus groups, facilitators asked ConnectHome participants how often people in their household used the internet at home for activities in these four areas. Figure 5 shows the most frequently reported uses of the internet in larger text and less common uses in smaller text. Activities related to children’s education and employment were mentioned more frequently than others.

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**Figure 5. Frequency of Cleveland Internet Use for K–12 Education, Adult Education, Employment, and Health Activities**



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Note: Larger text corresponds to more frequent usage.

### *Children’s Education*

Home internet access helped adult ConnectHome participants meet the educational needs of school-aged children in their households and facilitated children’s engagement in educational activities. Many participants reported their children used a variety of websites and applications at home (such as ABCmouse, First In Math, or Reflex: Math Fact Fluency) to improve their learning or download extracurricular work. These websites and applications were especially helpful for some participants in continuing their children’s education on weekends and during school breaks. Participants also found home internet access helpful in answering their children’s questions on topics such as writing, vocabulary, and math. As one participant described, “I forgot the [math] formulas for algebra and geometry ... [My child is] in the 4th grade now ... so I’m definitely going to be on the internet trying to figure out those formulas again.” Participants indicated that home internet access made it easier for their older children to conduct research and learn how to complete certain assignments. As one participant noted, “It’s so much easier for these children to find out how to do certain types of work [such as] reading... [and writing] essays.”

Home internet access made it easier for children to complete homework assignments. Although many families used the library as an educational resource, they no longer had to make special trips to use a computer or try to schedule around its operating hours. Parents also appreciated the convenience of being able to learn about school functions and monitor their children’s academic performance from home.

Nonparticipants were more limited in their ability to meet their children's educational needs. Nonparticipants' older children were sometimes required by their schools to conduct research online, type reports, and print them. These tasks proved difficult for those who lacked internet in their homes and had insufficient internet access within their community. The housing development's computer lab had a limited number of computers and limited hours for children. As one nonparticipant described, "All the kids here ... they're all trying to use the computer room. ... They have to do it in shifts, and they might not get done what they need to do in that 20 minutes or half an hour that they get." The library also had limited hours, and sometimes patrons had to wait to use a computer and could use it for only 30 minutes at a time, which made completing school assignments difficult.

### ***Adult Education***

Most CMHA focus group participants were not using the internet to further their education at the time of data collection. For the few who did, they reported that home internet access had the same benefits for them as for their children: It helped them conduct research and complete homework assignments for school. Several residents indicated that home internet access made educational opportunities, such as GED or college courses, more accessible to those with long or unpredictable work hours. A few participants also noted they advanced their own education and understanding of computers through the process of helping their children use the tablets they received through ConnectHome: "[My child] does a lot of First in Math [an app that helps K-8 students learn math]. That kind of helps me ... because I'm not good [at math] ... I'm trying to obtain my GED, so it's like they're helping me and constantly showing me how to do things."

### ***Employment***

CMHA residents regularly accessed the internet at home for employment-related activities. ConnectHome participants found in-home internet access increased their ability to search and apply for jobs from home at times that worked with their busy schedules. As one participant explained, "I can just stay in the house and get it done. And I can just do it at my leisure time, anytime I want to do it. I don't have to wait for a specific time, [such as] for the library to open up or [if] it's going to close in the evening." Nonparticipants also looked for jobs online but had more difficulty applying through their smartphones. Instead, they often had to travel to a computer lab or library to complete job applications, which was sometimes difficult because of the limited hours of each facility. As one nonparticipant described, "[At home,] you have more time to do your applications and probably get more interviews."

A few ConnectHome participants who paid for additional in-home internet access used it to earn income. These individuals found in-home access to be critical to completing their work. For instance, two freelance workers used the internet to look for contracts and to find resources to successfully complete tasks. As one of them noted, "You only get so much time to be on the computer at the library if it's full because you have to sign in and then somebody else might need to use it next."

### ***Health***

CMHA residents used the internet to find doctors, identify health problems, access medical records, refill prescriptions, and obtain information about medications and home remedies. For example, one participant described how she went online from home to learn how to treat her stomach flu instead of going to the doctor or emergency room. One nonparticipant who accessed

the internet through his smartphone stressed the importance of having in-home internet access to respond to emergencies at home, such as how to provide first aid or respond to an asthma attack.

### **Concerns Related to Home Internet Use**

CMHA residents expressed concern that in-home internet access might expose their children to inappropriate content or endanger their safety. Parents were particularly worried that their children might view adult content, encounter sexual predators online, or download viruses or malware. A small number of parents responded to these concerns by limiting the amount of time their child could use the computer and instructing them to use it only for specific tasks. A few parents who were highly proficient with computers limited their children's access to the internet by assigning each child a user account that blocked certain content, depending on the child's age. Other parents did not restrict access but monitored their children's internet use by checking their internet history or social media accounts or requiring them to use the internet on a desktop or television visible to the parent.

Some residents felt the internet may negatively affect a child's social skills. In particular, parents were concerned that children may lose their interpersonal skills if constantly on the internet. Although these individuals generally agreed that overusing the internet could be harmful to children, they also described how the internet provided opportunities to interact with family and friends across the country.

Nonparticipants voiced concerns that in-home internet might lead to a more sedentary lifestyle for their children. Many described how their children were enthusiastic about internet use and wanted to get online whenever they were home. As one nonparticipant described, "When I was younger, we went outside and played or interacted with our friends ... but now, it's like as soon as they come in and they eat, [they] need to get on the internet."

### **Digital Literacy**

Focus group participants were asked about their comfort level and skills with the internet and computers. Most CMHA residents were comfortable using a variety of devices. Those residents who had received some formal training on computers, either in school or through on-the-job training, were more confident using computers than their peers who had not been trained. Most ConnectHome participants were comfortable using smartphones and tablets but recognized computers as useful for completing more involved tasks, such as filling out job applications. Some nonparticipants preferred tablets or computers to complete complex tasks and print documents, but other nonparticipants preferred smartphones for most tasks because they were more familiar with them.

ConnectHome participants were generally more comfortable using the internet than nonparticipants. Although both groups knew how to perform basic functions online, many asked their children for help if they did not know how to perform certain tasks.

Parents reported that school-aged children were proficient at using all types of devices and often helped adults navigate technical issues and demonstrated how to perform certain functions. Adults reported children were also more adept at using the internet and often taught parents how to perform various tasks and explained the internet's capabilities. As one nonparticipant described, "A lot of things these kids know, I don't know. And the computer ... [and] smartphone, I've never even [taken] the time to learn [how to use them]."

## **Computer and Internet Training Through ConnectHome**

As of January 2017, CMHA had provided an initial 1-hour orientation to school-aged children and their parents who received hotspots and tablets through the ConnectHome initiative.<sup>10</sup> This orientation included information on how to set up the hotspot and connect it to their devices, the hotspot's data limits, and how to use and care for their new tablet. CMHA also provided ConnectHome participants with a phone number to call if they required technical support or had further questions about the devices.

Although CMHA residents were generally comfortable using the computer and internet, a few individuals with limited proficiency expressed an interest in receiving additional training than what was offered through ConnectHome. Focus group participants noted that training on basic computer functions, navigating search results, and typing would enable them to use the internet more, assist young children with tasks, and rely less on others. As one ConnectHome participant described, "I know how to do some things, but there's a lot more I could learn. I get tired of having my daughter do this for me and do that for me ... I need to learn a lot of things." Residents who felt proficient with the computer and internet also expressed a need for further training in some specific areas, including setting up parental controls to limit children's internet use, how to use cloud storage, and Microsoft Office Suite. Focus group results also suggest that additional training on how to manage the amount of data they use might be beneficial, given the number of ConnectHome participants who exhausted their hotspot's data limit.

## **Moving Forward**

In Year 2, CMHA plans to expand on the first year's progress as follows:

- Develop new partnerships, both with internet service providers and digital literacy trainers.
- Provide high-speed internet access to 800 additional residents through a partnership with a local internet service provider, and explore using that infrastructure to provide internet to neighboring buildings.
- Identify ways to expand free or low-cost internet access to all 55,000 residents CMHA serves.

## **Study Methods**

Insight Policy Research, an independent research organization contracted by HUD, conducted case studies in five ConnectHome communities, including Cleveland, as one component of its evaluation of the national ConnectHome initiative. Each case study included an interview with Public Housing Authority staff and three focus groups with residents. The purpose of the focus group data collection was to gather detailed information from residents of HUD-assisted housing about their knowledge, attitudes, and beliefs about and use of the internet and about their experiences with the ConnectHome initiative. Each focus group lasted 90 minutes and included no more than 11 participants. Focus group participants signed a consent form prior to participating in the focus groups and received a \$50 gift card as a token of appreciation for their participation. Focus group participants were recruited by Public Housing Authority staff and were required to be at least 18 years old and have at least one child under age 18 living in their household. Brian Estes, Allyson Corbo, Brittany McGill, and Rachel Gaddes of Insight Policy Research authored this brief. For more information about Insight Policy Research, visit <http://www.insightpolicyresearch.com/>.

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<sup>10</sup> Cleveland Public Library developed the training curriculum and assisted with the implementation.

## **Kansas City**

This brief presents findings from the case study of Kansas City’s ConnectHome initiative conducted in December 2016.<sup>11</sup> Insight held two focus groups with individuals with high-speed home internet access through ConnectHome (referred to as ConnectHome participants), and one focus group with individuals who had either no home internet or access only through a cell phone data plan (referred to as nonparticipants).<sup>12</sup> The case study also included an interview conducted with the Housing Authority of Kansas City’s (HAKC) staff involved in implementing the program. Because of the qualitative nature of this study, these preliminary results should not be extrapolated to the broader Kansas City ConnectHome population.

### **Background on Kansas City’s ConnectHome Initiative**

Shortly after the launch of the national ConnectHome initiative, Kansas City implemented its local ConnectHome initiative in 2015 to bridge the digital divide within its communities. Prior to ConnectHome, some HAKC residents paid for high-speed internet access, whereas others relied only on cellular data plans to access the internet or lacked access entirely. With a focus on connecting families with children to high-speed internet, HAKC selected five of its six family developments in August 2015 for initial implementation and partnered with GoogleFiber to provide free high-speed internet access to all residents in these developments.<sup>13</sup> Google hosted events explaining the service, installed the necessary hardware in all housing units, and enrolled residents who chose to participate in the service. In July 2016, HAKC partnered with Sprint to provide internet access to the remaining family development. Sprint provided hotspots to HAKC, which were distributed to families with school-aged children. As of December 2016, HAKC had connected more than 1,200 households with high-speed internet through partnerships with Google and Sprint. HAKC also provided ConnectHome households with access to free or low-cost computers and conducted weekly trainings at each of the properties participating in the ConnectHome initiative.

### **Benefits of Participating in ConnectHome**

ConnectHome participants had a uniformly positive opinion of the initiative. They reported that high-speed internet access at home through ConnectHome—

- Eliminated or reduced travel to libraries or schools for accessing the internet.
- Helped families meet the educational needs of children, such as by helping children complete school assignments and helping parents monitor children’s academic progress.
- Made it easier to search for and apply for jobs.
- Assisted families in meeting routine health needs.
- Reduced financial burdens by making it possible to cut or eliminate expenses such as cable subscriptions, public transportation, and cellular data plans.
- Enhanced safety by enabling children to access the internet from home under adult supervision.

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<sup>11</sup> Insight gratefully acknowledges HUD’s time and efforts in supporting data collection.

<sup>12</sup> In total, 26 people participated in the three focus groups. All ConnectHome participants in the focus groups had received internet service through GoogleFiber for approximately 9 to 12 months.

<sup>13</sup> GoogleFiber also provided high-speed internet to HAKC’s senior developments.

## **Internet Access**

All ConnectHome participants accessed the internet from home several times a day. They reported heavy internet use within their households, with multiple users accessing the internet simultaneously. Nonparticipants accessed the internet from home using smartphones, but they used it less frequently than their ConnectHome counterparts because of cellular data limits or shared smartphone use. One nonparticipant reported, “My data plan is kind of short. I use mine up in less than a week.” Nonparticipants did, however, report heavier internet use outside the home such as at the library or school, and it was more burdensome because of travel costs and time. For both groups, internet use was a regular part of their daily lives.

ConnectHome participants accessed the internet using an assortment of devices, including computers, tablets, smartphones, smart televisions, and game consoles. Nonparticipants with a cellular data plan typically accessed the internet from home using their smartphone, but a few were unable to access the internet from home because they had no data plans or had low data limits that quickly expired. For activities that required a computer or tablet, such as completing homework assignments or applying for jobs, nonparticipants accessed the internet from the local public library, a family member’s home, or a school. Both participants and nonparticipants reported that computers are better than tablets or smartphones for certain activities, such as completing job applications or responding to work emails.

## **Use of the Internet at Home**

When asked broadly how they used the internet, ConnectHome participants indicated the most frequent uses of internet in their households were to—

- Help children with schoolwork and help parents monitor children’s progress in school.
- Look up information about their health or the health of others in the household.
- Search and apply for jobs.
- Communicate with family and friends, including some who live abroad, using social media or instant messaging applications.
- View entertainment websites or applications (for example, Netflix, Hulu, or YouTube) and play games.

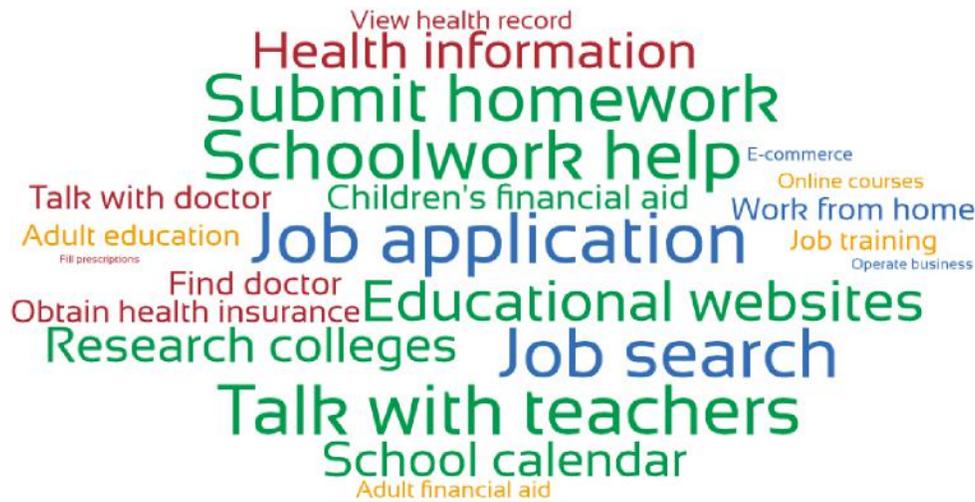
Because of monthly cellular data limits and limitations of mobile devices, nonparticipants did not use the internet in the same ways as their ConnectHome counterparts. Most nonparticipants who accessed the internet through their smartphone used it to read email, access social media, and search the web—activities that required less data and could be easily performed on a smartphone.

## **Use of the Internet at Home for Education, Employment, and Health-Related Activities**

ConnectHome policymakers are particularly interested in use of the internet for children’s education, adult education, employment, and health-related purposes. During the focus groups, ConnectHome participants were asked how frequently people in their household used the internet at home for activities in these areas. Figure 6 shows the most frequently reported uses of the internet in larger text and less common uses in smaller text. Activities related to children’s education and employment were mentioned more frequently than others.

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**Figure 6. Frequency of Kansas City Internet Use for K–12 Education, Adult Education, Employment, and Health Activities**



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Note: Larger text corresponds to more frequent usage.

### ***Children’s Education***

Home internet access helped adult ConnectHome participants meet the educational needs of school-aged children in their households. Home internet access enabled children to fulfill the demands created by a connected school environment, when students must complete and submit homework online through school websites or email with teachers. Parents and guardians were better able to monitor the academic progress of the children in their households because they could access homework and grades and communicate with teachers online. Adult participants were also able to access educational resources for children in their household. For instance, one parent used the internet to help her young child learn the alphabet, whereas another used it to help her high school student with homework assignments.

Nonparticipants often had to leave their homes to access a connection and device capable of meeting the educational needs of the school-aged children in their households. Travelling outside the home created a burden for some parents and sometimes made it more difficult for students to complete homework assignments.

### ***Adult Education***

For many ConnectHome participants and nonparticipants, pursuing adult education opportunities online was not an immediate priority because of financial constraints, limited time, and competing priorities. However, one participant indicated home internet access facilitated completing and submitting assignments, checking test results, and communicating with course instructors. Another noted ConnectHome broke down barriers to attending school by making it easier to sign up for courses and communicate with advisors. This theme was echoed in the nonparticipant group, where one individual indicated she would be more likely to pursue her GED if she had home internet access.

## ***Employment***

ConnectHome participants regularly accessed the internet at home for employment-related activities. Participants reported that employers primarily advertise jobs online through their websites or other job search engines, requiring applicants to upload resumes, create profiles, and complete applications online. Accordingly, ConnectHome participants relied heavily on the internet to search and apply for jobs and appreciated the ease of doing so from home. They found that computers were better suited for these tasks than other devices, such as smartphones.

Although nonparticipants conducted similar employment activities at home, some residents noted that applying for jobs and completing job assessments on a smartphone was often difficult and sometimes impossible. Some nonparticipants occasionally needed to leave their household to access a computer: “It takes so long to do an application, especially just on the phone, and then I get a text that says, ‘You’ve used all your data.’” Some nonparticipants also encountered barriers in preparing for work and completing work-related trainings.

## ***Health***

ConnectHome participants accessed the internet at home to help identify health problems and determine the need for medical attention. Multiple participants looked for home remedies prior to buying over-the-counter medicine or seeking more expensive medical care. Participants also used the internet to look up medical records and lab results, schedule appointments with doctors, and fill prescriptions online. As one participant explained, “I can access my kids’ health records [on the internet at home]. It’s easier for me, especially [to compile the required paperwork] for daycare. I just print it out and take all their stuff there.”

Nonparticipants who lacked any internet access at home (that is, no cellular data plan) were unable to research health issues to see if they warranted medical attention. These few nonparticipants appeared to err on the side of caution and visit a doctor or emergency room when a family member became ill: “With my children, I’ll have to get them all ready and take them to the hospital. I have to sit in the hospital... [when] I could have been looking [their symptoms] up [online].”

## **Concerns Related to Home Internet Use**

ConnectHome participants and nonparticipants expressed concerns about the internet’s effect on their children and others in their household. Several participants worried their children would access inappropriate content, either by accident or deliberately, or download viruses or malware. Some participants also indicated that unfettered access to the internet resulted in more sedentary lifestyles and a breakdown of traditional interpersonal communication both within and outside their homes. As one individual noted, “[Our parents] would have to yell to us to come in the house. But with the kids [now], you have to basically push them out.” Despite these concerns, participants generally believed the benefits of increased connectivity outweighed the potential negative effects on their security, privacy, and lifestyle.

## **Digital Literacy**

Focus group participants were also asked about their comfort level and skills with the internet and computers. ConnectHome participants and nonparticipants of various ages were comfortable using a variety of devices, including smartphones, tablets, and computers. Although some individuals described difficulty using a laptop or desktop computer because of slow typing speeds, they recognized these devices are useful for completing more involved tasks, such as

searching and applying for jobs. Both ConnectHome participants and nonparticipants frequently noted their children were comfortable using all devices and had greater proficiency in typing and texting across platforms.

Although both participants and nonparticipants reported they were comfortable using the internet, some individuals experienced difficulty navigating search results and identifying credible sources of information online. This difficulty was particularly problematic when searching for jobs online. Both ConnectHome participants and nonparticipants indicated job search engines often led to spam, unsolicited telemarketing calls, or unwanted sites (for example, private student loan pages) that hindered their job search. One nonparticipant suggested that training on how to navigate job search engines and employer websites might improve their ability to find employment. Participants also discussed frustrating experiences with viruses, malware, and other security or privacy issues, suggesting additional training may be needed on how to manage or safeguard devices and personal information.

Adults reported children were also more comfortable using the internet than many adults; younger children were less skilled than older ones and required more assistance or supervision from parents. Older children were more adept at using the internet and helped their parents or guardians use devices and navigate the internet.

### **Computer and Internet Training Through ConnectHome**

As of December 2016, HAKC provided approximately 1 hour of training per week at each ConnectHome property's computer lab. Community-based organizations provided some additional after-hours training. One of the primary barriers to offering more frequent training was a lack of funding to keep the computer labs open throughout the day and on weekends. As a result, only a few ConnectHome participants in this case study had attended training through HAKC's ConnectHome initiative.

The interest in additional computer and internet training varied; some participants did not express a need for additional training, whereas others wanted help improving their typing skills, honing online queries, and restricting access to websites. When asked how likely they would be to participate in training on computers or the internet, if offered, residents were equally divided as to whether they would participate.

### **Moving Forward**

In Year 2, HAKC plans to enhance the local ConnectHome initiative by—

- Increasing the frequency and broadening the content of trainings offered to participants.
- Working with partners to raise money for additional trainings to address the lack of funds, listed as one of HAKC's primary challenges in Year 1.
- Expanding the ConnectHome initiative by providing reduced-cost internet service to families with school-aged children participating in its voucher program. HAKC plans to reach out to other internet service providers about partnerships to provide low-cost service for these families.

### **Study Methods**

Insight Policy Research, an independent research organization contracted by HUD, conducted case studies in five ConnectHome communities, including Kansas City, as one component of its evaluation of the national ConnectHome initiative. Each case study included an interview with

Public Housing Authority staff and three focus groups with residents. The purpose of the focus group data collection was to gather detailed information from residents of HUD-assisted housing about their knowledge, attitudes, and beliefs about and use of the internet and about their experiences with the ConnectHome initiative. Each focus group lasted 90 minutes and included no more than 11 participants. Focus group participants signed a consent form prior to participating in the focus groups and received a \$50 gift card as a token of appreciation for their participation. Focus group participants were recruited by Public Housing Authority staff and were required to be at least 18 years old and have at least one child under age 18 living in their household. Brian Estes, Jackson Miller, Brittany McGill, and Rachel Gaddes of Insight Policy Research authored this brief. For more information about Insight Policy Research, visit <http://www.insightpolicyresearch.com/>.

## San Antonio

This brief presents results from a case study of San Antonio’s ConnectHome initiative conducted in January 2017.<sup>14</sup> The case study included three focus groups with residents about their internet usage. Some residents had received internet access at home through devices provided by ConnectHome, whereas others had no home internet access or had paid for home internet access outside of the ConnectHome service.<sup>15</sup> Some residents had also received digital literacy training through ConnectHome, whereas others had received no training or only their children had received training. This case study also included an interview with the San Antonio Housing Authority (SAHA) staff involved in implementing the initiative. Because of the qualitative nature of this study, these preliminary results should not be extrapolated to the broader San Antonio ConnectHome population.

### Background on San Antonio’s ConnectHome Initiative

San Antonio launched its ConnectHome initiative to enhance digital inclusion efforts in its public housing communities. Led by a Digital Inclusion Fellow,<sup>16</sup> San Antonio’s initiative was implemented in multiple locations across the city, targeting families with children and seniors. San Antonio’s ConnectHome services are based on a three-pronged approach: (1) comprehensive digital literacy training, (2) provision of devices, and (3) provision of in-home high-speed internet access. SAHA considers residents to be fully “connected” only when all three components are in place; training participants “earned” a laptop and/or hotspot at the conclusion of their training. SAHA will continue to build on its first year’s progress during subsequent years.

- **Digital literacy training.** SAHA provided comprehensive, multiple-session computer and internet training classes to ensure all participating residents received the maximum benefit from internet connectivity. The housing authority partnered with several banks to provide financial literacy and management training and with Café College, a local nonprofit organization, to provide workshops on applying for college and financial aid through the ConnectHome program. SAHA also implemented a digital ambassador program that trained

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<sup>14</sup> Insight gratefully acknowledges the time and efforts of SAHA in supporting the data collection activities.

<sup>15</sup> In total, 25 people participated in the three focus groups. All participants in the focus groups had received internet service through Sprint hotspots for several weeks up to 6 months.

<sup>16</sup> This fellow, sponsored by Google Fiber and the Nonprofit Technology Network, focused on working with communities to get more people connected to the internet.

residents to provide computer assistance to their peers. As of December 2016, 412 individuals had received at least some ConnectHome training, and 17 digital ambassadors were fully trained to provide computer assistance and education to residents at computer labs within the housing communities. For more information on SAHA's ConnectHome training, see the section titled, "Computer and Internet Training Through ConnectHome."

- **Devices.** SAHA partnered with Goodwill of San Antonio to provide refurbished laptops at no cost to residents who completed the ConnectHome digital literacy training. As of December 2016, SAHA had distributed devices to 263 individuals, including graduates of the digital ambassador training program. The housing authority also opened onsite computer labs supplied with Chromebooks in four communities.
- **In-home high-speed internet access.** SAHA distributed Sprint Wi-Fi hotspots to households with school-aged children in 5 of its 71 communities at no cost. As of December 2016, SAHA had connected 269 households with high-speed in-home internet access, which included 150 Sprint hotspots distributed to students in grades K–12 and buildingwide access in two senior citizen communities.

### **Benefits of Participating in ConnectHome**

The ConnectHome initiative was well received by residents, particularly those who completed the comprehensive training program. The perceived benefits to having high-speed internet access at home were many:

- **Increased educational supports for children, including those with special needs.** Home internet access provided increased opportunities to meet children's educational needs by facilitating online research and submission of assignments and by supporting parents' ability to monitor academic progress. For children with special needs, in-home internet access enabled families to use online learning tools and create optimal learning environments.
- **Improved employment opportunities.** Home internet access helped teens and adults search for and apply for jobs and improve job readiness by maintaining certifications for employment.
- **Decreased travel burden.** Home internet access reduced travel to libraries or job centers to access the internet, leaving more time for homework and other tasks.
- **Increased time at home with family.** Home internet access enabled residents to spend more time at home, which was particularly helpful for parents of young children.
- **Reduced financial burdens.** Home internet access through ConnectHome reduced or eliminated expenses such as cable subscriptions, costly internet service plans, travel, and phone bills (by replacing phone use with communication applications, which reduced data costs).

### **Internet Access**

Most residents, regardless of ConnectHome participation, reported accessing the internet from home every day through various modes. Residents with in-home internet access used Sprint hotspots that were distributed to children of middle and high school age. Although residents were grateful for the hotspots, their internet use was constrained by slow connection speeds and data limits. Because of such limitations, several residents with hotspots also paid for their own internet subscription despite the associated costs. These residents realized the value of in-home internet access. One resident described how the hotspot was most useful when trying to stay connected during lapses in service: "There's times where I can't pay my internet [bill] on time,"

she said, “so I use the hotspot. That’s like my backup for my kids. They have homework to do ... online. I have to use [the hotspot] and it’s kind of slow.” Because hotspots were provided directly to children in the household, some adult residents who had not received ConnectHome training knew little about the devices and reported using them sparingly or not at all.

Many residents who accessed the internet from home through Wi-Fi service they paid for were concerned about the high cost. Although many found it necessary to purchase additional Wi-Fi service, its high cost was worrisome. One resident explained how her internet access at home came via her daughter’s paid Wi-Fi subscription, but she was “always complaining about the [high] bill, so it’s going to be disconnected.” For residents who do not pay for their own internet service, the most commonly cited reasons for not having in-home internet access were high subscription costs, safety and security concerns, and difficulty managing children’s use of the internet. Residents who did not pay for their own internet subscription accessed the internet at the library, through local public Wi-Fi, while riding the bus, or at bus stops.

Residents with in-home internet access used a variety of devices including computers, tablets, game consoles, smart televisions, and smartphones. Overall, residents reported smartphones were better for social media and watching videos, but computers were preferred for applying for jobs and education-related activities. Residents who completed the ConnectHome training course earned their own computers, and most used them to get online from home. In addition to these devices, some children received a Raspberry Pi. SAHA distributed these simple computers, which a partnership of SAHA, NOWCastSA, and The Raspberry Pi Foundation provided, to middle school students and provided device-specific training. One resident described the device as “a little computer that connects to your TV. We were taught how to put it together and connect it to the TV. [My daughter] loves to get on it because it’s a big screen.”

### **Use of the Internet at Home**

Residents with home internet access used it for a variety of purposes. When asked broadly how they used the internet from home, residents most frequently mentioned the following activities:

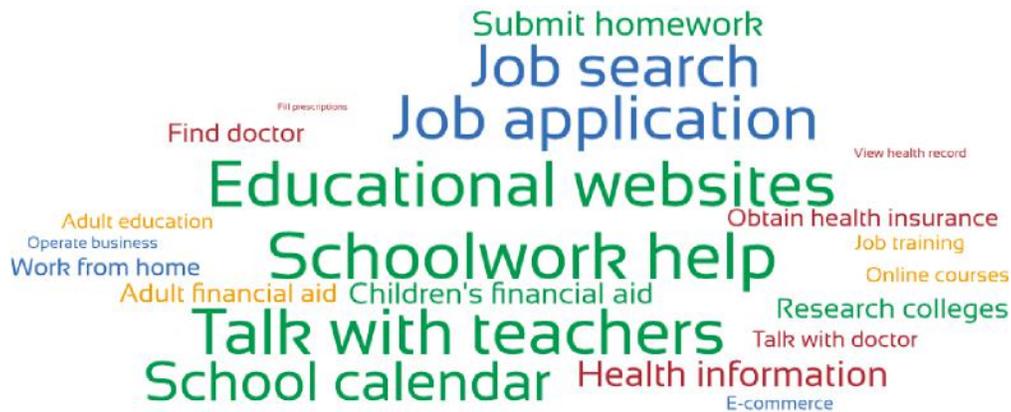
- Help children with schoolwork, use educational websites, and monitor children’s progress in school.
- Search for and apply for jobs and maintain online certifications for employment.
- Communicate with family and friends using social media and communication applications.
- Find information about healthy recipes.
- Search for coupons to save money on products, services, and family activities.
- View entertainment websites or applications (for example, YouTube, movies, or music).

### **Use of the Internet at Home for Education, Employment, and Health-Related Activities**

ConnectHome policymakers are particularly interested in use of the internet for children’s education, adult education, employment, and health-related purposes. During the focus groups, Insight asked residents how frequently people in their household used the internet at home for activities in these areas. Figure 7 shows the most frequently reported uses of the internet in larger text and less common uses in smaller text. Activities related to children’s education and employment were mentioned more frequently than others.

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**Figure 7. Frequency of San Antonio Internet Use for K–12 Education, Adult Education, Employment, and Health Activities**



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Note: Larger text corresponds to more frequent usage.

### ***Children’s Education***

The in-home internet access and training provided by ConnectHome was instrumental in helping households meet the educational needs of their children. Residents described how children in their households used educational websites and completed homework online. For example, one parent did not know her elementary school student had online homework until she participated in ConnectHome. A few parents explained how in-home internet was helpful when they could not answer their children’s questions: “[The internet] teaches him stuff I don’t know,” said one parent. Residents also saw their children’s grades improve while participating in ConnectHome. One father explained his daughter’s improvement: “She has gone from making Cs and Bs to making As. ... She’ll come to me with questions, and I’ll say, ‘you have Google’ ... I want her to be able to help herself ... she’s used Google for vocabulary ... I think that’s made a difference for her.” Several parents with older children also reported using the internet from home to search for and apply for scholarships and information about colleges.

**Additional benefits for children with special needs.** Several residents believed in-home internet access was particularly beneficial for children with special needs. For example, one parent said using learning apps at home helped with language development for her child who had been born prematurely, and another parent explained how her child with attention deficit hyperactivity disorder—ADHD—could now more successfully complete his schoolwork from home without the distractions of busy public spaces. Parents also touted the ability to monitor their children’s progress, attendance, and behavior through applications that let them communicate with teachers. One parent described “a very helpful app that will keep me in contact with the teacher at all times.” This application helped her monitor her son’s behavioral disorder while he was at school.

### ***Adult Education***

Most focus group participants were not using the internet to further their own education at the time of the data collection. However, one resident described using home internet to communicate with professors and turn in papers for online coursework. A resident without in-home internet access noted she would be able to obtain her GED if she had internet access at home. In reference to furthering her education, this resident noted, “You always want to pursue a better

career, and having internet access [at home] gives you the ability to do that ... pursuing your education.” Because the GED test must be completed on a computer, having access to a device and in-home internet could help residents prepare for the test from home.

### ***Employment***

Most residents with in-home internet access used it for employment-related activities. They reported that searching for and applying for most jobs must be completed online, so lacking in-home internet is a challenge. As one resident without in-home access said, “You’ve got to apply for jobs online everywhere now, and not having [internet] access [at home], that makes it hard.” Parents with very young children found in-home internet access particularly beneficial for employment, describing the difficulty of bringing their children with them when submitting job applications in person. One participant said, “My son just turned 1, and I was out of work since I had him. ... It was hard for me to take him out into the vehicle, take him out in the cold, and it was just way easier to have the internet at home and to still apply everywhere.” In addition to job searches and applications, residents also described using the internet to buy and sell goods such as furniture using online garage sales and other sites. Others earned financial compensation by participating in online surveys and market research panels to test new products and campaigns. Some also used in-home internet access to complete trainings for employment and maintain certifications. For example, they took online courses and tests needed to maintain their credentials and mandatory online training on tobacco and alcohol use in the workplace.

**Additional benefits for teenagers.** Many participants also described how in-home internet access improved employment prospects for their teenaged children. Because SAHA provided ConnectHome hotspots to high school students enrolled in a SAHA job-readiness program, many teens used the internet to search for and apply for jobs. In this way, parents felt that in-home internet access boosted teens’ confidence and job readiness. One participant explained that her son “got a job using the internet,” and another participant’s son was pursuing a career in music online.

### ***Health***

Residents regularly used the internet at home for health-related activities, including managing and refilling their prescriptions, finding doctors, searching for home remedies, and setting up or changing medical appointments. Once they identified healthcare providers, residents used the internet to check doctors’ ratings and identify which practices accepted their insurance. Some residents also went online to renew benefits such as Medicaid and nutritional assistance through the Supplemental Nutrition Assistance Program (known as SNAP or as food stamps). Before in-home internet access, this task required a trip to the local benefits office, which was time-consuming and difficult with small children because it involves waiting in long lines at social service offices and paying for transportation.

### **Concerns Related to Home Internet Use**

Several residents voiced concerns about the potential disadvantages of increased internet connectivity within the home related to children and other family members. Some were concerned about security risks, such as being hacked or having their identities and financial information stolen or compromised. Some parents worried about the potential for their children to access inappropriate or illicit content with unlimited and unrestricted internet access, whereas others cited the internet’s addictive nature as something that could limit face-to-face communication. Some parents also feared that unlimited exposure to the internet could distract

children from other obligations, such as homework and chores. Several parents who had not yet completed the ConnectHome training did not know how to use the parental controls on their hotspot devices. These untrained parents had more concerns about safety and security than their peers who had completed the ConnectHome training. Despite concerns, residents generally believed the benefits of increased connectivity outweighed the potential negative effects on their security, privacy, and lifestyle.

### **Digital Literacy**

Focus group participants were also asked about their comfort level and skills with the internet and computers. Digital literacy varied substantially between those residents who had received ConnectHome's comprehensive training and those who had not. Most who had received training felt generally comfortable accessing the internet but agreed that certain software platforms were easier to use than others. Parents indicated children were highly skilled and more digitally fluent, whereas older adults and grandparents in the household were more likely to find computers and the internet frustrating. As one mother described, "It is a lot easier for the children to actually access and maneuver themselves around through the internet than it is for my mother." Some residents found computers easier to use than smartphones, which were sometimes hard to navigate when working on complex tasks.

Most residents who had not completed the ConnectHome training lacked fluency in basic computer functions, such as changing passwords. They described frustration with not knowing how to use computers and therefore resorted to their phones for most tasks. One resident who had not completed training was perplexed when her daughter brought home her new ConnectHome device: "She set it up because I didn't have the patience for it. When she first got it ... we couldn't do anything. It was saying something about a password. I said 'turn [it] off; that's why we have our phones.'"

### **Computer and Internet Training Through ConnectHome**

Comprehensive digital literacy training is a central component of San Antonio's ConnectHome initiative. Before receiving a computer through ConnectHome, adult residents were required to complete a training course of nine sessions (2 hours, once per week) covering the following topics:

- Basic hardware, software, and internet skills (mouse, keyboard, browsers, URLs, and so on).
- Google productivity suite (Gmail, Google Drive, Google Hangouts).
- Online safety and security.
- Internet resources.
- Device-specific training (participants complete the training on the device they will take home at the end of the course; these sessions focus on how to use the device's operating system).
- Electives (offered through partners, these sessions cover financial literacy and workforce readiness).

During the training, residents were required to complete a test at the end of each weekly class to earn a computer. Some experienced computer users felt the training provided helpful refreshers, whereas others with lower initial digital literacy reported gaining newfound proficiency in computer and internet use. In addition to this training, several community members received supplementary instruction to become digital ambassadors, which provided the skills to teach fellow residents about computers and the internet and further improve digital literacy throughout the community. Residents unanimously received the classes and instructors well.

Children who received a computer and hotspot through ConnectHome were also required to complete digital literacy training. Older high school students completed classes through a work program sponsored by SAHA. Although this summer youth program was focused on job readiness, computer skills were a key component of the curriculum.

Middle school students also received instruction on basic internet skills and device-specific training. Through a partnership with Girls, Inc., SAHA is teaching female students coding skills.

All residents who had not already received ConnectHome training reported interest in learning how to better use the internet and computers. Some described taking computer classes while in school, but most had forgotten much of the information and had lost many skills through being out of practice. One resident who had not received training was discouraged while helping her daughter submit a job application because she could not format the resume in the format required. Residents like this were generally interested in receiving a refresher on basic computer skills and learning to do work independently without having to rely on others. Specifically, they wanted to learn the following tasks:

- Use Microsoft Office Suite.
- Cut and paste text.
- Convert files to different formats; for example, to convert resumes from Microsoft Word to PDF for online submission.
- Burn CDs.
- Download files from the internet.
- Conduct virus scans.

### **Moving Forward**

In Year 2, SAHA plans to expand on the first year's progress as follows:

- Connect three more SAHA buildings with high-speed internet access.
- Continue plans to connect additional residents with Google Fiber.
- Broaden the base of partners that support delivery of computer and internet training.
- Build additional national and local partnerships to further increase resident access to connectivity, devices, and training.

### **Study Methods**

Insight Policy Research, an independent research organization contracted by HUD, conducted case studies in five ConnectHome communities, including San Antonio, as one component of its evaluation of the national ConnectHome initiative. Each case study included an interview with Public Housing Authority staff and three focus groups with residents. The purpose of the focus group data collection was to gather detailed information from residents of HUD-assisted housing about their knowledge, attitudes, and beliefs about and use of the internet and about their experiences with the ConnectHome Initiative. Each focus group lasted 90 minutes and included no more than 11 participants. Focus group participants signed a consent form prior to participating in the focus groups and received a \$50 gift card as a token of appreciation for their participation. Focus group participants were recruited by Public Housing Authority staff and were required to be at least 18 years old and have at least one child under age 18 living in their household. Rachel Gaddes, Allyson Corbo, and Brittany McGill of Insight Policy Research authored this brief. For more information about Insight Policy Research, visit <http://www.insightpolicyresearch.com/>.

## **Tampa: A Spotlight on a Creative Solution To Expand Connectivity**

This brief presents findings from a case study of Tampa's ConnectHome initiative conducted in January 2017, drawing on focus groups with Tampa Housing Authority (THA) residents and interviews with THA staff.<sup>17,18</sup> This case study highlights THA's creative solution to a challenge many public housing authorities (PHAs) encounter when expanding broadband access to residents: physical infrastructure in older housing (for example, thick walls) preventing the transmission of Wi-Fi signal to individual housing units. To overcome this issue, THA established internet cafés in two developments as a way to enhance connectivity for residents.

This brief provides an overview of the Tampa ConnectHome initiative; a description of the benefits of internet access through in-home connections and through the internet cafés; and qualitative data on residents' experiences with internet access, including their most frequent uses of the internet, their concerns about the internet, and their digital literacy.

### **Overview of Tampa's ConnectHome Initiative**

For more than a decade, THA has enhanced residents' computer and internet access through one HUD grant and another National Telecommunications and Information Administration grant that preceded ConnectHome.<sup>19</sup> These grants enabled THA to provide services that included 3 years of free in-home broadband in all Tampa public housing communities and training on the use of computers and the internet. When free broadband access through the previous grant-funded programs ended, some residents were unable to afford in-home service and therefore did not have internet access when ConnectHome started. However, because of their experience with these prior initiatives, THA was able to launch ConnectHome expeditiously in the summer of 2016.

Tampa's ConnectHome initiative first connected residents from three of THA's public housing developments to free high-speed in-home internet services through Verizon Fios Wi-Fi antennae and modems. At the time of the case study data collection, THA had connected 257 households in these developments with in-home high-speed internet access. THA also provided these residents with desktop computers<sup>20</sup> housed in secured, built-in kiosks or desks in their housing units.

In the fall of 2016, THA sought to implement ConnectHome in two additional properties. However, the same in-home services could not be offered in these locations because of physical infrastructure challenges, such as thick walls preventing the transmission of Wi-Fi signals. As a workaround to expand connectivity in these older developments, THA partnered with another internet service provider, Spectrum, to establish internet cafés, offering a free alternative for web access. These cafés serve as computer labs and communal gathering spaces, with computers and printers for residents' use and wireless internet for use on residents' own

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<sup>17</sup> Insight gratefully acknowledges THA's time and efforts in supporting the data collection.

<sup>18</sup> In total, 22 people participated in focus groups. Because of the qualitative nature of this study, these preliminary results should not be extrapolated to the broader Tampa ConnectHome population.

<sup>19</sup> THA received a 2005 grant through HUD's Neighborhood Networks Program, which provided grants to PHAs to establish, expand, and/or update community technology centers. THA also received a 2010 grant through the Broadband Technology Opportunities Program (BTOP) to provide free internet access to residents through a partnership with Bright House Networks. When the BTOP grant ended in 2013, residents could elect to pay a discounted rate for continued Bright House broadband access. This discounted rate was offered for 2 years (2013 to 2015).

<sup>20</sup> THA used Energy Performance Contracting funds, a HUD-supported financing technique, to upgrade computers in all five ConnectHome communities.

devices. Although these internet cafés do not offer the in-home high-speed access THA seeks for all its residents, they offer a connectivity alternative for 883 households in the two developments.

THA will continue to build on its first year's progress during subsequent years by expanding ConnectHome to additional properties. The findings below primarily reflect the perspectives of residents without in-home high-speed internet access because most focus group participants lived in communities served by the cafés or relied on their cell phone data plans.<sup>21</sup>

### **Benefits of Participating in ConnectHome**

Focus group participants from ConnectHome communities in Tampa all reported benefits of the initiative. Residents without in-home internet access reported that their community's internet café brought the following benefits:

- A nearby option for residents to access a high-speed internet connection, as an alternative to the library or another offsite location.
- Access to desktop computers and printers to conduct tasks that might be challenging on a smartphone or other small device.
- Support for completion of children's schoolwork (for example, providing designated times for children to use the café for homework and projects).
- Helpful employees who could provide technical assistance as needed to residents using the internet café (for example, how to navigate online or how to use the printer).

Although residents perceived the internet cafés as beneficial, they believed in-home access would be more convenient and offer the following benefits:

- Increased educational supports for children and enhanced communication with schools and teachers.
- Reduced travel burdens and costs associated with accessing the internet in a public place.
- Enhanced ability to find employment and complete job-related online tasks.
- Improved access to money-saving resources, such as coupons and instructional videos.

### **Internet Access**

During the focus group discussions, nearly all residents reported they used the internet regularly and considered it an everyday necessity. However, the ways they got online varied. A few focus group participants had in-home high-speed internet and devices through ConnectHome, but most had to use a cellular data plan to get online in their housing unit or had to seek access outside their homes either at the internet café in their neighborhood or by traveling to other locations in the community.

Residents with access to an internet café felt it was a helpful resource, although they often sought internet access elsewhere for several reasons:

- Limited computer availability during peak times.
- No access to the café on evenings and weekends.
- Privacy concerns for residents needing to fill out confidential forms online or take care of personal business.

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<sup>21</sup> Of the 22 total focus group participants, 2 had in-home high-speed internet access through ConnectHome.

Residents without in-home internet services faced several additional challenges getting online. They relied heavily on their cellular data plans and often exceeded their data limits. They also sought free access in public locations such as libraries, workplace, stores, or restaurants. This reliance on cellular data or free access outside the home also limited how often residents could get online.

Residents accessed the internet with a range of devices but used smartphones most frequently for everyday tasks (for example, email, general online searching, or browsing). Tablet use was also common, particularly popular among children and older individuals. Residents agreed that larger devices such as desktops or laptops were better suited to more complex activities, such as taking online courses and completing assessments, tests, and applications for jobs or benefits. They felt that it was difficult to conduct some tasks on a smartphone because of the small size and limited capabilities. For example, a resident without in-home internet who attempted to upload a resume via her smartphone discovered the file needed to be a Microsoft Word document—a file type incompatible with her device. Some residents perceived computers as more secure than smartphones.

The few focus group participants who had in-home access faced occasional challenges associated with their computers being housed in secured cases or desks in their units (for example, being unable to access the computer's power button to restart it after power outages). However, such challenges were rare, and residents were able to get online more easily and more often than their counterparts without in-home high-speed internet.

## **Use of the Internet**

Focus group participants accessed the internet for a variety of purposes:

- Searching for jobs and completing applications and job-related assessments.
- Completing children's homework or submitting assignments to children's schools.
- Using educational applications targeting young or school-aged learners.
- Applying for or managing public assistance program benefits (for example, using the ACCESS Florida portal).<sup>22</sup>
- Communicating with family and friends (for example, using social media or email).
- Viewing entertainment websites and applications (for example, playing games or watching videos).
- Completing household tasks (for example, watching instructional videos about home repairs, finding coupons, or shopping online).

## **Use of Internet for Education, Employment, and Health-Related Activities**

ConnectHome policymakers are particularly interested in use of the internet for children's education, adult education, employment, and health-related purposes. During the focus groups, facilitators asked ConnectHome participants how often members of their household used the internet for activities related to these four areas. Figure 8 shows the most frequently reported uses of the internet in larger text and the least common uses in smaller text. Activities related to children's education and health were mentioned more frequently than others.

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<sup>22</sup> The ACCESS Florida portal is a website state residents can use to apply for or manage government benefits, including food assistance (such as the Supplemental Nutrition Assistance Program, or SNAP, website), medical assistance, and cash assistance. See <https://dcf-access.dcf.state.fl.us/access/index.do?performAction=init>.

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**Figure 8. Frequency of Tampa Internet Use for K–12 Education, Adult Education, Employment, and Health Activities**



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Note: Larger text corresponds to more frequent usage.

### *Children's Education*

In an increasingly connected educational environment, internet access is a necessity for school-aged Tampa children. For example, to graduate from high school, students across the state must complete at least one course through online learning.<sup>23</sup> Focus group participants reported that internet access played a critical role in facilitating their children's education. Many schools require school-aged children to complete assignments online, with teachers collecting homework online or monitoring time spent practicing concepts in online portals (for example, IStation, myON, or Edsby). Children of all ages supplemented their learning through educational apps and games (for example, PBS Kids app, ABCmouse, or Sight Words), and parents frequently used the internet to communicate with schools and teachers or to research ways to help children with schoolwork.

Some residents appreciated that internet access facilitated their children's independent and self-paced learning online. They observed that the internet has "unlimited patience," so students working online can repeat problems or questions until they have mastered a concept. One resident's grandson improved his reading scores and boosted his confidence in the classroom after practicing sight words online, where he was not afraid to make mistakes.

Residents with no in-home internet connection found it more challenging to meet their children's educational needs. These residents had to either use their limited cellular data plan or travel to a café, library, or other public location to access the internet and a computer for children's schoolwork. This lack of in-home internet connection created a burden for some parents and made it more difficult for students to complete homework assignments and other learning activities, particularly given time limits for computer use in public locations. As one resident stated, home internet access helps families because it provides them with "an extra tool ... [without it] you don't have the access or the time to ... get your kids to school, take them to the library, do this and that. But if you have [home] internet access, then you're able to go home ... and help your child."

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<sup>23</sup> A description of the online course requirement can be found on the Florida state at [http://www.leg.state.fl.us/Statutes/index.cfm?App\\_mode=Display\\_Statute&Search\\_String=&URL=1000-1099/1003/Sections/1003.4282.html](http://www.leg.state.fl.us/Statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=1000-1099/1003/Sections/1003.4282.html).

### ***Adult Education***

In addition to supporting children's learning, some residents reported using the internet to complete adult education activities. For example, a few residents completed online training in fulfillment of food assistance work program requirements. Another resident completed continuing education courses to maintain a Certified Nursing Assistant certification. Others reported web-based educational activities, including learning other languages, viewing tutorials, building life skills (for example, instructional videos on doing hair, fixing cars, or household repairs), and GED-related efforts (for example, locating courses or completing practice tests). Because the GED test must be completed on a computer, having access to a device and in-home internet could help residents prepare for the test from home. Residents reported that many of these activities were more challenging without in-home internet access. As one resident explained, "It can affect you if you're trying to do an online class, if you don't have the internet at home. You have to rely heavily on maybe going to the library or something like that. If they're not open, you're stuck ... What takes some people maybe 2 days will take me 4 or 5, just because of not having internet."

### ***Employment***

Residents commonly used the internet for employment-related activities and reported that online access was helpful and sometimes necessary to complete these tasks. Residents most frequently used the internet to search for jobs and submit job applications. One observed, "You [can't] go to a job and fill out a paper application. They want you to go fill it out online." Other online employment-related activities included completing or submitting employee paperwork, taking job-related assessments such as typing tests, communicating with employers, and renewing business licenses. One resident with an in-home internet connection had engaged in video interviews for a few jobs, whereas another had worked from home doing medical transcription during a time when she had in-home internet access.

Residents without internet access faced challenges completing job-related tasks. One resident, for example, described her frustrating experience applying for a business loan, which required frequent back-and-forth trips to the library because she was unable to view, download, or print documents from home. Another resident was unable to access the online weekly shift schedule at her new job.

### ***Health***

Residents sometimes used the internet to complete basic health-related tasks online, but many limited these activities because of privacy or internet safety concerns. Residents reported making medical appointments, filling prescriptions, finding doctors, and seeking information about symptoms or medication side effects on the internet. One resident, whose granddaughter had sickle cell anemia, participated in several online groups for support and to stay informed about the medical condition.

Many residents had safety and security concerns related to using the internet for other health-related tasks, such as accessing health records or completing medical-related paperwork online. Several residents disliked that their medical records were available online, both because of their difficulty accessing that information and because they worried that "anyone could find out [their] health issues." Many residents also expressed concern that health records kept online might somehow be lost or deleted, and they preferred to keep their information in physical files or on a flash drive.

## **Concerns Related to Internet Use**

Although many residents used the internet to pay bills, complete applications for jobs or benefits, or shop, they had concerns about the safety of their personal information when performing these activities online. Some residents struggled to distinguish between legitimate and illegitimate websites, whereas others described being scammed into giving their credit card information through advertisements or fake web pages and suffering fraudulent charges as a result. Two residents experienced identity theft. Others worried generally about popup ads and viruses on their devices. They felt ill equipped to deal with these issues and wanted more information about how to self-protect online.

Residents also shared concerns about the internet's effect on their children, including exposure to online threats. Many adults felt their children's internet and computer skills outstripped their own and were challenged in adequately monitoring their children's internet activities. Although nearly all residents wanted in-home internet access, some thought it could increase their children's exposure to inappropriate content. For example, one resident worried that having in-home internet access in her community might increase the possibility of young women being targeted by sexual predators online. Most parents took steps to limit and monitor internet access, such as having password-locked devices or apps a child could access only when a parent was present, or they expressed a desire to learn more about parental control options.

Despite residents' concerns about the internet, however, all felt it was a necessity, and the benefits of in-home access outweighed the risks. Cost, rather than concern, was the primary reason most residents without in-home access chose not to obtain high-speed broadband services outside of ConnectHome.

## **Digital Literacy**

Focus group participants gauged their comfort level and skills with the internet and computers. Residents had a wide range of experience with the internet and varying levels of digital literacy. Most individuals used the internet frequently and generally felt knowledgeable enough to meet most of their needs online. However, some residents experienced confusion navigating the web or challenges completing particular tasks. For example, a few residents struggled to effectively navigate and search for content on the internet and described the overwhelming amount of information yielded by a single Google search. Others were confused about concepts such as "the cloud," use of cell phones as a hotspot, and ramifications of using a neighbor's unsecured Wi-Fi network. As noted previously, parents reported children were often better at using technology and accessing the internet than adults.

## **Computer and Internet Training Through ConnectHome**

At the start of the ConnectHome initiative, Verizon Fios offered residents in the initial three ConnectHome communities (that is, residents with in-home access) a brief, optional training about internet use. For residents hoping to further develop their skills, THA offered ongoing, comprehensive trainings 3 days a week, 4 hours a day, for approximately 8 to 12 weeks. THA's program manager, who has expertise in computer engineering and technology training, leads these comprehensive courses. Based on community input, classes are tailored to residents' interests. A recent training concentrated on online content management, including how to create a blog or YouTube channel, how to conduct e-commerce, and how to create a multimedia

production. When a widely recognized, global certification for a course (such as A+ certification, another course offered by THA) has been available, THA has paid the test fee for some students.

Most residents did not strongly desire additional computer- or internet-related training from THA. However, throughout the focus group discussions, residents identified topics and raised questions that ongoing THA trainings could continue to address. They wanted to learn more about online safety (for example, avoiding scams and viruses, setting effective parental controls, or protecting bank account information), helping older adults use online applications, and using the internet to save money (for example, finding coupons, learning home repair skills, or identifying household tips and tricks). Residents eagerly swapped information, asked questions, and shared tips on these topics and others during the focus groups.

### **Moving Forward**

THA plans to provide free or low-cost internet access and devices to as many residents as possible that need them, including residents currently served only by the internet cafés. In the second year of the initiative, THA's goal is to deploy ConnectHome in at least four more communities and expand service provision in the following ways:

- Identify additional internet service provider partners to offer residents discounted, high-speed, in-home internet access (specifically, identifying partners willing to work directly with residents rather than using THA as an intermediary).
- Identify donors to further expand the initiative.
- Enlist an AmeriCorps VISTA<sup>24</sup> (Volunteers in Service to America) fellow to support the program manager.

### **Study Methods**

Insight Policy Research, an independent research organization contracted by HUD, conducted case studies in five ConnectHome communities, including Tampa, as one component of its evaluation of the national ConnectHome initiative. Each case study included an interview with PHA staff and three focus groups comprised of residents. The purpose of the focus group data collection was to gather detailed information from residents of HUD-assisted housing about their knowledge, attitudes, and beliefs about—and use of—the internet and about their experiences with the ConnectHome initiative. Each focus group lasted 90 minutes and included no more than 11 participants. Focus group participants signed a consent form prior to participating in the focus groups and received a \$50 gift card as a token of appreciation for their participation. Focus group participants were recruited by PHA staff and were required to be at least 18 years old and have at least one child under age 18 living in their household. Rachel Holzwart, Elaine Wilcox-Cook, Brittany McGill, and Rachel Gaddes of Insight Policy Research authored this brief. For more information about Insight Policy Research, visit <http://www.insightpolicyresearch.com/>.

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<sup>24</sup> VISTA fellows focus on building the organizational, administrative, and financial capacity of organizations that fight illiteracy, improve health services, foster economic development, and otherwise assist low-income communities. THA has secured a VISTA fellow for the second year of ConnectHome.

## Summary of Key Findings From the ConnectHome Telephone Internet Use Survey

This summary report is from a telephone survey of internet usage among residents in ConnectHome communities. The target population for the survey included households with high-speed internet access in their homes through ConnectHome and children under age 19 living in the home. The survey was fielded over a 12-week period between February and April 2017 to a sample frame of 2,738 ConnectHome households.

The first section describes the characteristics of the study respondents. The second section highlights key findings from the survey, including how frequently ConnectHome participants access the internet and what devices they use; internet use related to children's education, employment, adult education and training, health, and other purposes; and technological and internet literacy. The third section summarizes themes from open-ended responses provided by survey respondents at the conclusion of the survey. The fourth section describes the methodology used for the data collection. Appendix A summarizes results from a nonresponse bias analysis.

### Descriptive Characteristics of Survey Respondents

In total, 433 ConnectHome households in 7 ConnectHome communities completed the Internet Use Survey.

- Slightly less than one-half of the survey respondents (47 percent) were ages 18 to 35, and slightly more than one-half (51 percent) were ages 36 to 64. Only 2 percent were over age 64.
- A majority of respondents were employed either full time (30 percent) or part time (28 percent); 19 percent had less than a high school degree, 40 percent had a high school degree, and 41 percent had at least some college. Only 4 percent had 4 or more years of college.
- English was the primary language spoken at home for most respondents (83 percent), followed by Spanish (15 percent). Either Somali or Arabic was the primary language for 2 percent of respondents.

### Key Findings

This section presents a summary of key findings for each section of the survey.<sup>25</sup>

#### Internet and Technology Access at Home

- Most ConnectHome households access the internet at home every day (79 percent) or a few times a week (15 percent; figure 9) using a variety of devices, including smartphones (87 percent), tablets (64 percent), laptops (48 percent), or desktops (42 percent). More than two-thirds of ConnectHome households (70 percent) used three or more devices to access the internet at home during the last 30 days (figure 10).
- Among the small portion of ConnectHome households that did not connect to the internet very often (6 percent connected only a few times or not at all over the last 30 days), most were concerned that the internet may expose their children to things they do not want them to

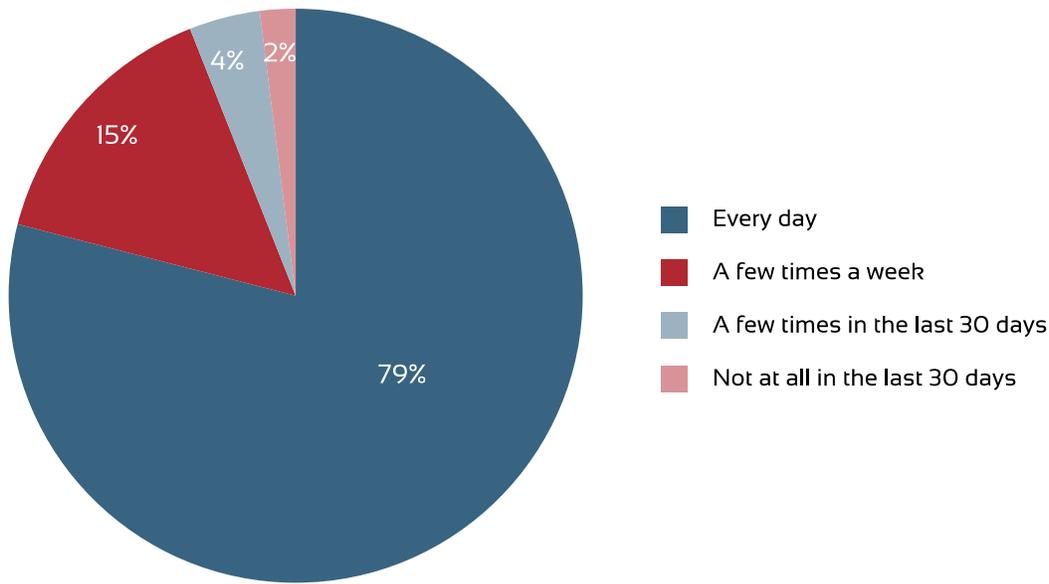
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<sup>25</sup> The percentages reported in this analysis exclude missing or other nonresponses from the universe for each question. The total number of responses to each question varies based on the number of nonresponses and logical skip patterns.

see (84 percent). More than one-half of the 6 percent that did not connect to the internet very often reported their household’s internet connection was not good (58 percent), or they were worried about someone stealing their personal information (56 percent).

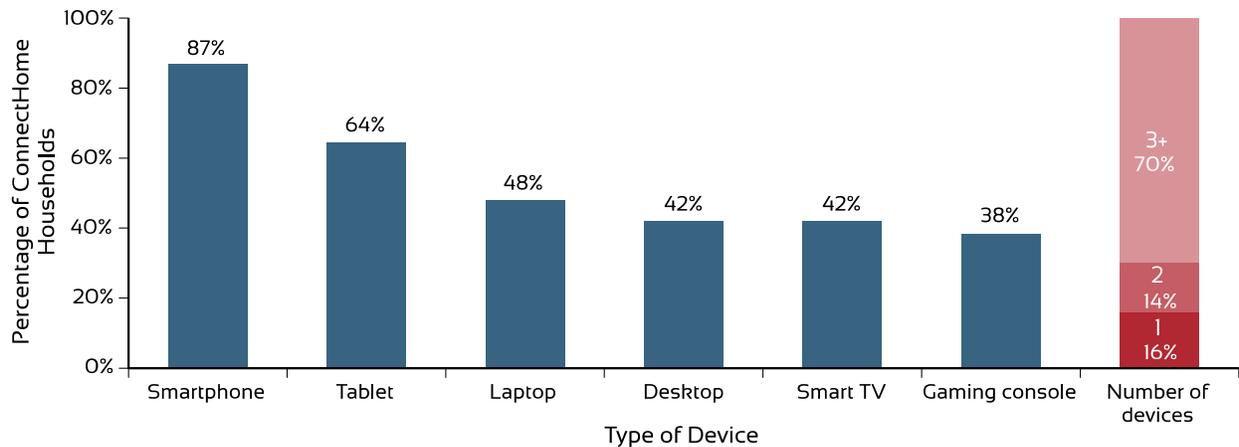
- Before receiving ConnectHome services, many households connected to the internet only through a cell phone data plan (71 percent) and faced data limits that constrained the type and amount of online activities they could do (72 percent). Many now use the internet for activities they could not do prior to ConnectHome (85 percent; figure 11).

**Figure 9. Frequency of Home Internet Use by ConnectHome Households During the Last 30 Days**



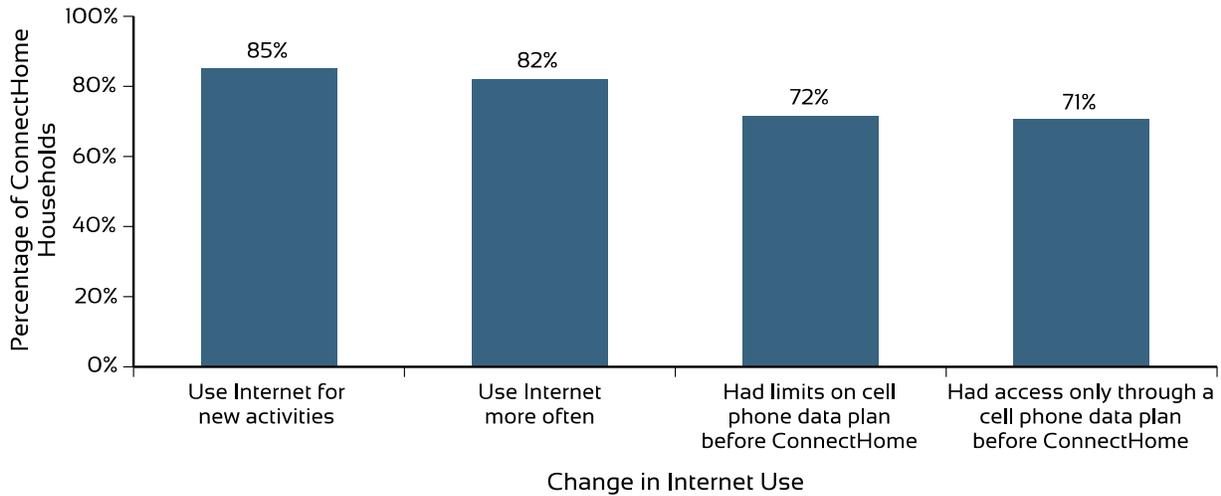
Source: Tabulations of ConnectHome Internet Use Survey

**Figure 10. Devices Used To Access Internet at Home for ConnectHome Households During the Last 30 Days**



Source: Tabulations of ConnectHome Internet Use Survey

**Figure 11. Changes in Home Internet Use With ConnectHome**



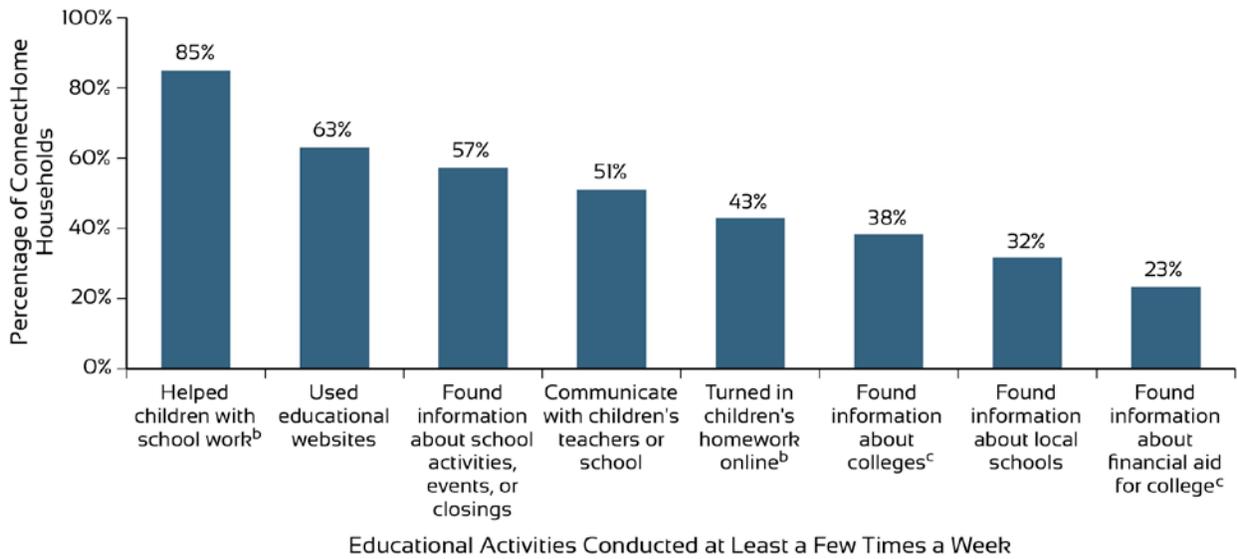
Source: Tabulations of ConnectHome Internet Use Survey

### **Home Internet Use Related to Children’s Education**

- Nearly all ConnectHome households (92 percent) have used the internet at home for activities related to their children’s education.
- Of the 92 percent of households that have used the internet for children’s education, most accessed the internet at least a few times a week in the last 30 days (figure 12) to—
  - Help children with schoolwork (85 percent).<sup>26</sup>
  - Use educational websites, such as ABCmouse.com (63 percent).
  - Find information on school activities or events (57 percent).
  - Communicate with teachers (51 percent).
- The vast majority of these ConnectHome households that have used the internet for children’s education agree or somewhat agree that using the internet at home helps children do better in school (98 percent) and helps adults get more involved in their children’s education (95 percent; figure 13).
- However, close to one-half of these ConnectHome households agree or somewhat agree that their children spend too much time on the internet (48 percent).

<sup>26</sup> For households with children age 5 and older.

**Figure 12. Uses of Home Internet for Children's Education at Least a Few Times a Week in Last 30 Days<sup>a</sup>**



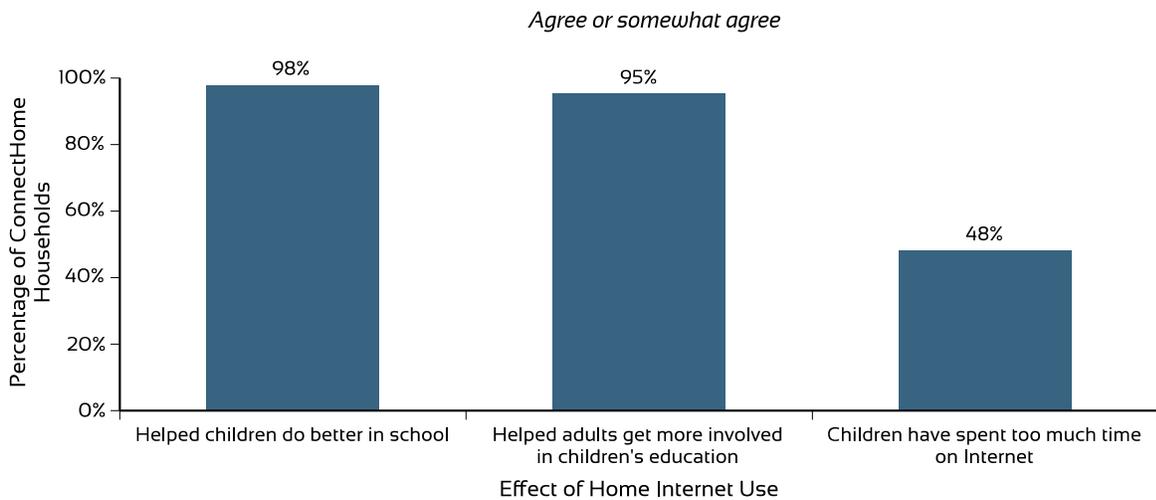
<sup>a</sup> Among households that have used the internet at home for children's education.

<sup>b</sup> For households with children age 5 and older.

<sup>c</sup> For households with children age 15 to 18.

Source: Tabulations of ConnectHome Internet Use Survey

**Figure 13. How Home Internet Use for Children's Education Has Affected ConnectHome Households**



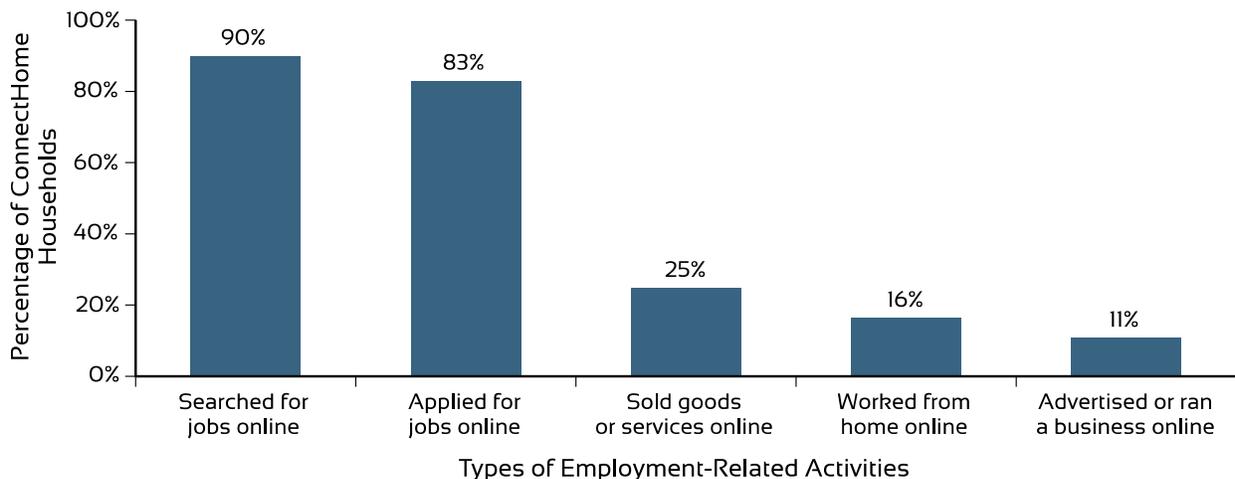
Note: Among households that have used the internet at home for children's education.

Source: Tabulations of ConnectHome Internet Use Survey

## Home Internet Use Related to Employment

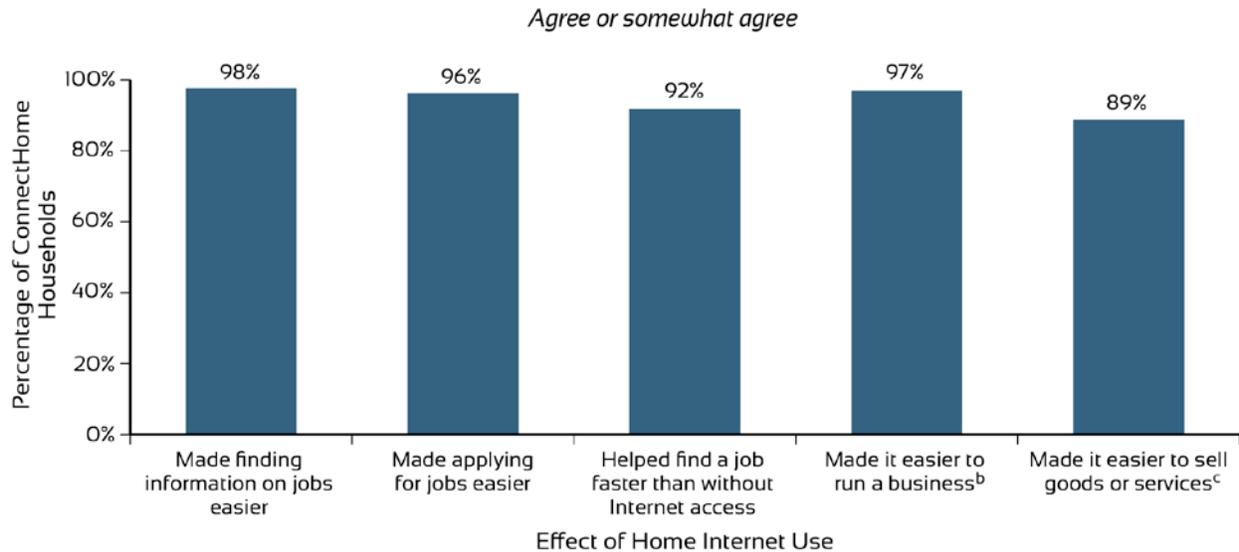
- Most ConnectHome households have used the internet at home for employment-related activities (86 percent).
- Of the 86 percent of households that have used the internet for employment-related activities, most used the internet in the past 30 days to search for jobs online (90 percent) and to apply for jobs online (83 percent; figure 14).
- Among the ConnectHome households that have used the internet for employment-related activities, almost all agree or somewhat agree that using the internet at home makes it easier to find information on jobs (98 percent) and to apply for jobs (96 percent; figure 15). Similarly, 92 percent of these households agree or somewhat agree that home internet access helped someone in their household find a job faster than they would have without having access to the internet.
- Among the ConnectHome households that have used the internet at home for employment-related purposes, one-fourth used the internet in the past 30 days to sell goods or services online (25 percent).
- Among the 25 percent that used the internet in the past 30 days to sell goods or services online, 89 percent agree or somewhat agree that using the internet at home makes it easier to sell those goods and services.

**Figure 14. Uses of Home Internet for Employment-Related Activities in the Last 30 Days**



Note: Among households that have used the internet at home for employment-related activities.  
Source: Tabulations of ConnectHome Internet Use Survey

**Figure 15. How Home Internet Use for Employment-Related Activities Has Affected ConnectHome Households<sup>a</sup>**



<sup>a</sup> Among households that have used the internet at home for employment-related activities.

<sup>b</sup> Among those who sold goods or services online in the last 30 days.

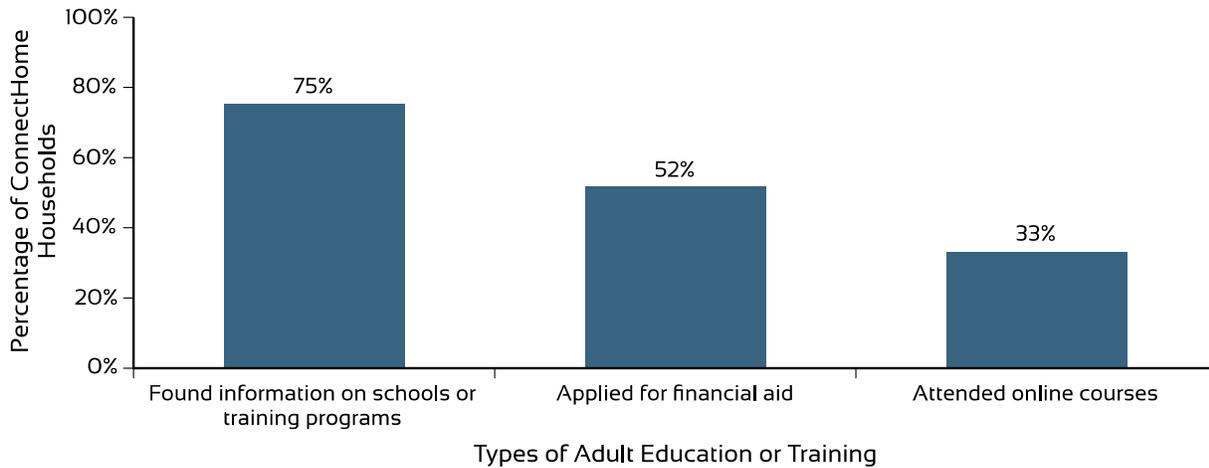
<sup>c</sup> Among those who advertised or ran a business online in the last 30 days.

Source: Tabulations of ConnectHome Internet Use Survey

### Home Internet Use Related to Adult Education and Training

- Almost two-thirds of ConnectHome households (63 percent) have used the internet at home for adult education or training activities.
- Of the 63 percent of households that have used the internet for adult education or training activities, a majority used the internet over the past 30 days to find information on adult training programs, such as GED programs or college courses (75 percent), or to apply for financial aid for adult training (52 percent; figure 16).
- Most of the ConnectHome households that have used the internet for adult education and training activities agree or somewhat agree that using the internet at home helped someone in their household develop a skill that makes it easier to find a job (90 percent) or to earn credits toward a degree or certificate (69 percent; figure 17).

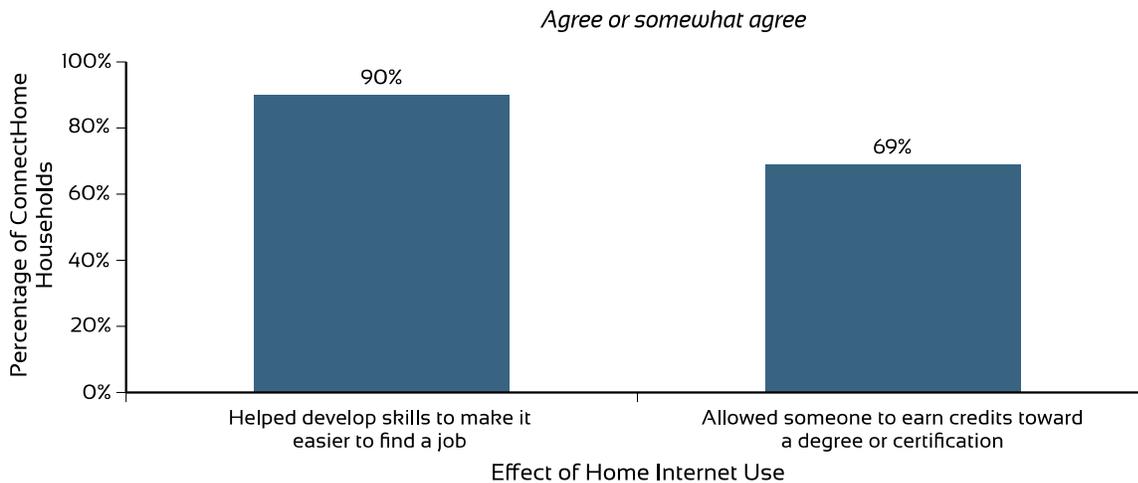
**Figure 16. Uses of Home Internet for Adult Education or Training Activities in the Last 30 Days**



Note: Among households that have used the internet at home for adult education or training activities.

Source: Tabulations of ConnectHome Internet Use Survey

**Figure 17. How Home Internet for Adult Education or Training Activities Has Affected ConnectHome Households**



Note: Among households that have used the internet at home for adult education or training activities.

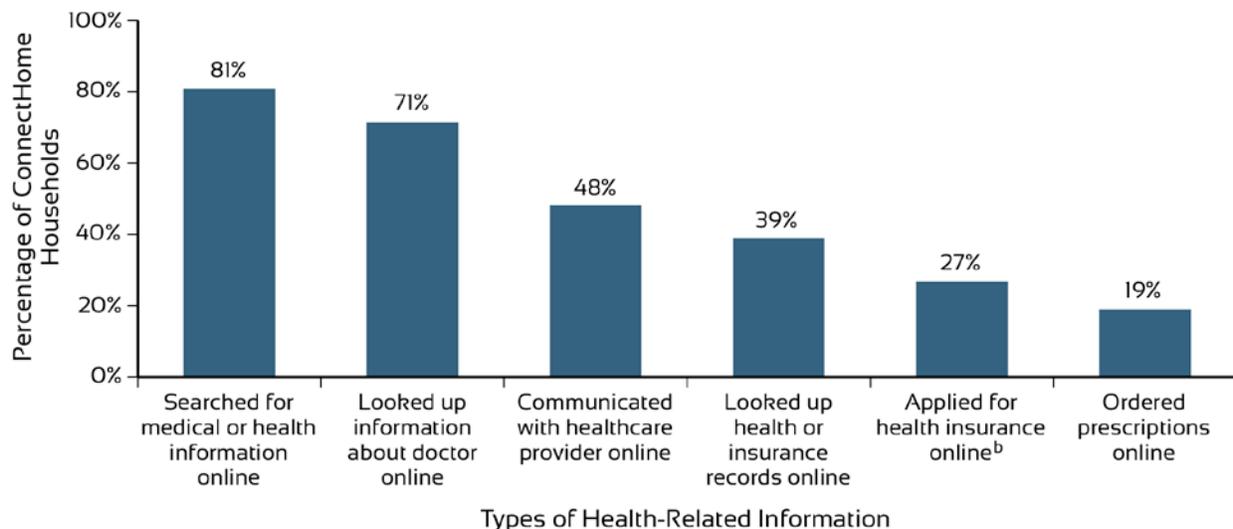
Source: Tabulations of ConnectHome Internet Use Survey

### Home Internet Use Related to Health

- Three-fourths of ConnectHome households have used the internet at home to search for health-related information (75 percent).
- Among the 75 percent of ConnectHome households that have used the internet to search for health-related information, many used the internet in the past 30 days to (figure 18)—
  - Search for medical or health information (81 percent).
  - Look up information about a doctor or healthcare provider (71 percent).
  - Communicate with a healthcare provider (48 percent).

- Look up healthcare or insurance records online (39 percent).
- Among the households that have used the internet to search for health-related information, more than one-fourth (27 percent) used the internet to apply for health insurance online from home in the past year (figure 18).
- A large majority of the ConnectHome households that have used the internet to search for health-related information agree or somewhat agree that home internet access helps them care for their family’s health (86 percent).

**Figure 18. Uses of Home Internet To Find Health-Related Information in the Last 30 Days<sup>a</sup>**



<sup>a</sup> Among households that have used the internet at home to search for health-related information.

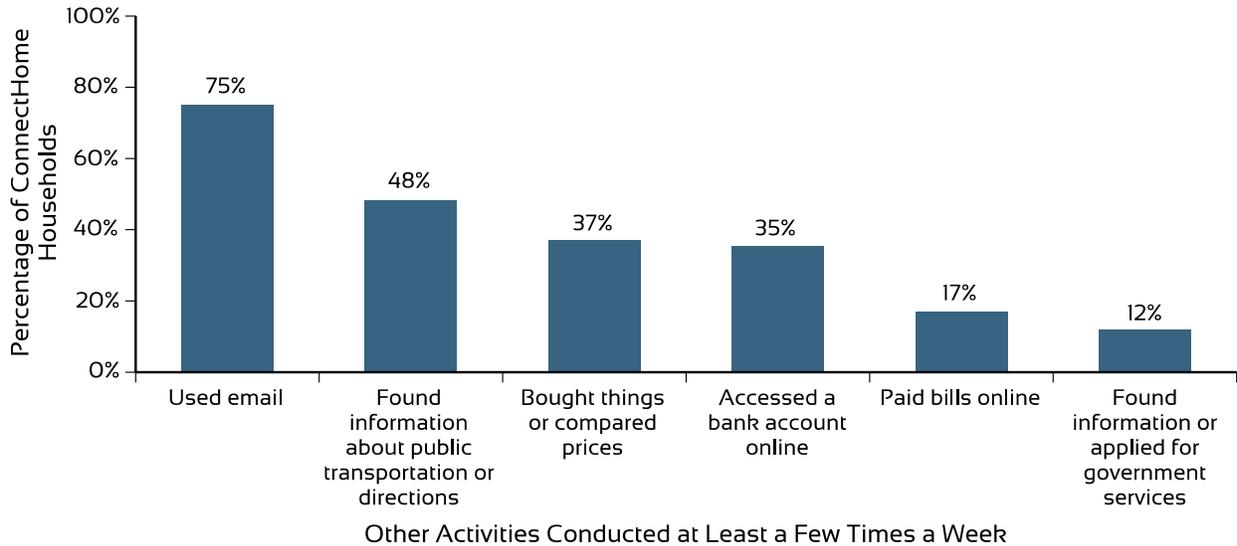
<sup>b</sup> In the past year.

Source: Tabulations of ConnectHome Internet Use Survey

### Other Uses of the Internet at Home

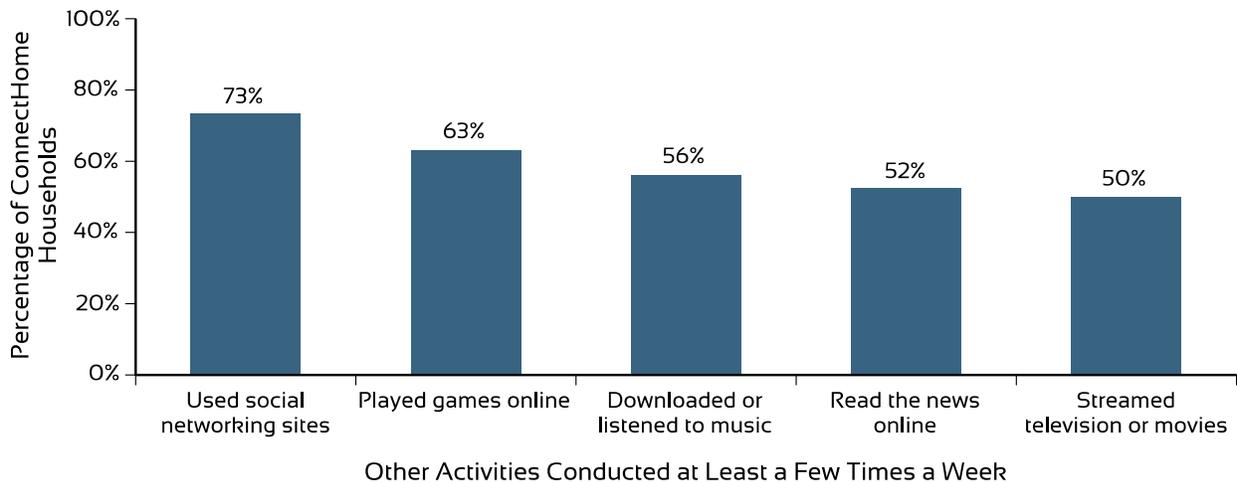
- ConnectHome households use the internet at home for other activities in addition to education-, job-, or health-related activities. For example, most ConnectHome households used the internet to access email at least a few times a week over the past 30 days (75 percent; figure 19). About one-half used the internet to find information on public transportation or to find directions (48 percent), and more than one-third used the internet to purchase things or compare prices (37 percent).
- ConnectHome households also used the internet at home to access online entertainment activities at least a few times a week over the past 30 days including using social networking sites (73 percent), playing games (63 percent), and downloading or listening to music (56 percent; figure 20).

**Figure 19. Other Uses of the Internet at Home at Least a Few Times a Week in the Last 30 Days**



Source: Tabulations of ConnectHome Internet Use Survey

**Figure 20. Uses of the Internet at Home at Least a Few Times a Week in the Last 30 Days for Entertainment**



Source: Tabulations of ConnectHome Internet Use Survey

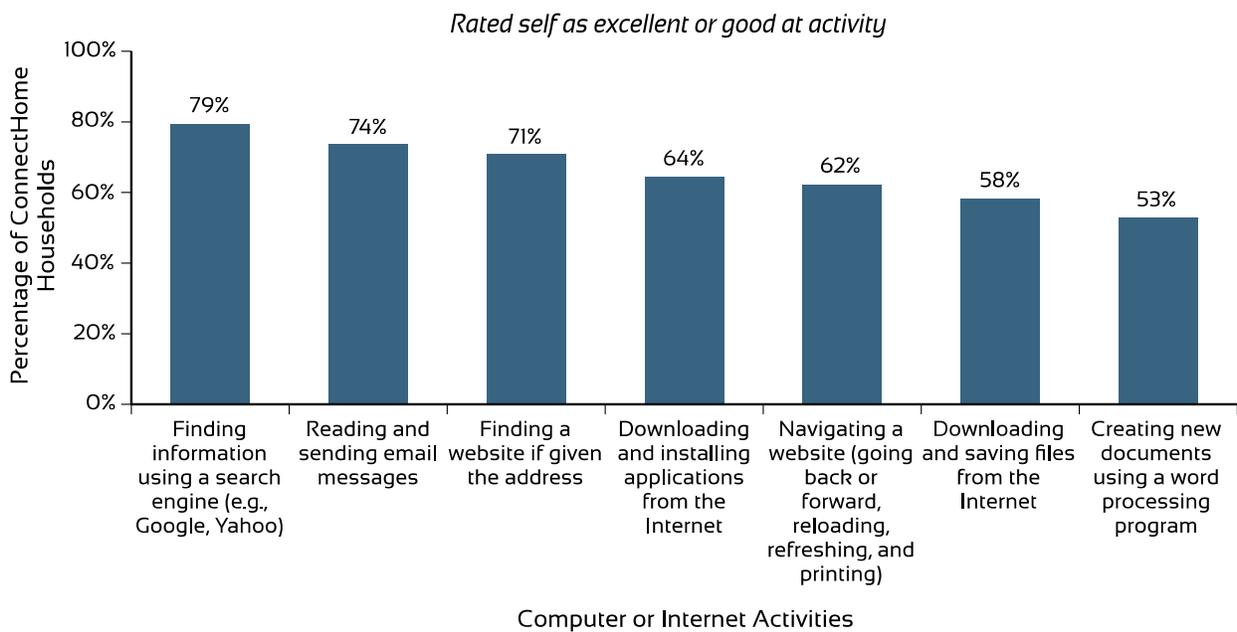
### Technology and Internet Literacy

- More than 70 percent of survey respondents rated themselves as excellent or good at doing most computer- and internet-related activities, such as finding information using a search engine (79 percent), reading and sending email messages (74 percent), or finding a website if given the address (71 percent; figure 21).
- Between one-half and two-thirds of respondents rated themselves as excellent or good at activities such as downloading and installing applications (64 percent), navigating and printing

from a website (62 percent), downloading and saving files from the internet (58 percent), and creating a new document using a word processing program such as Microsoft Word (53 percent).

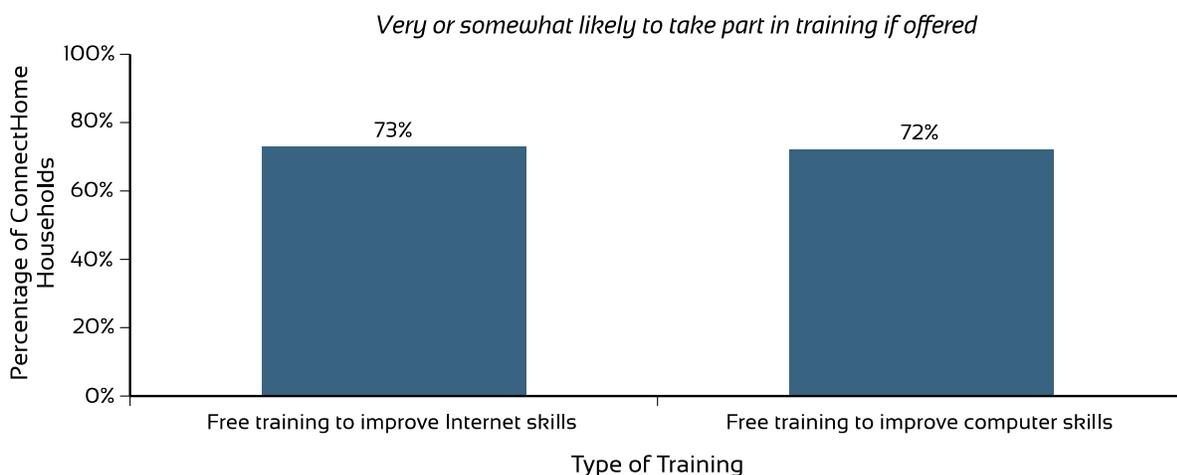
- Despite the high percentage of survey respondents who rated themselves as excellent or good at basic computer- and internet-related activities, most expressed interest in improving their skills. Almost three-fourths indicated that if free training were offered on improving their internet or computer skills (73 and 72 percent, respectively), they would be very likely or somewhat likely to participate (figure 22).

**Figure 21. Ability of ConnectHome Participants To Complete Digital Activities on Computer or Internet**



Source: Tabulations of ConnectHome Internet Use Survey

**Figure 22. Likelihood of Taking Part in Free Internet or Computer Training**



Source: Tabulations of ConnectHome Internet Use Survey

## **Additional Comments Provided by Survey Respondents About ConnectHome**

At the end of the Internet Use Survey, respondents were asked if there was anything else they would like to say about their household's experience with ConnectHome. Below is a summary of those comments.

- Many ConnectHome households indicated that having home internet access through ConnectHome has been very helpful to their family, particularly for helping children with homework and improving learning; for example—
  - “It has helped us to bond. She has taken the time to teach me how to do things like looking for a job and stuff on the internet, and we have bonded. I can now watch that she is getting her work done and help her when she needs. I don't have to send her over to her friend's place and just have her tell me it is done. I can watch her work.”
  - “It is just wonderful. The kids are Googling things online now. They are watching things on YouTube like how to make electricity using a potato.”
  - “Since I didn't have to worry so much about having to pay for an internet bill, or pay so many bills, it gives the opportunity to go further in school and develop my own business. I feel it has been like a stepping stone to get to where I will never again need any government assistance.”
  - “It is very dangerous in our neighborhood, so it is important to have internet at home. It is very violent in our neighborhood. With the internet, we do not have to walk to the library. We can do research at home.”
  - “ConnectHome has provided good service for my family. It has helped a lot in getting internet access for the kids when they do homework and for me with my community college courses.”
  - “ConnectHome's internet service has been helpful, especially in regard to completing our children's school work. It has improved our internet access.”
  - “We appreciate the access to the internet that we have through the ConnectHome program. I wish that the program could be extended for an additional 4 years so that all of my kids could benefit from it. One of my children, through the help of the ConnectHome internet program, has greatly improved his reading skills.”
  - “[ConnectHome] has changed our lives with the internet services. They are learning more, and they are more interested in learning as well. We have had a very excellent experience.”
- Despite the positive experiences with ConnectHome services, some respondents remarked that slow connection speeds limited the type of online activities they could do; for example—
  - “There are times when my ConnectHome internet service moves so slowly that it can't be used on my computer. Certain web pages never seem to open, so I end up using my cell phone instead.”
  - “At times, the internet we receive through the ConnectHome program works very well. Other times, it doesn't seem to work at all because it goes so slowly.”
  - “It is appreciated, but it is really slow.”
  - “The internet service provided by ConnectHome is really slow. It can be difficult to find a connection. I would like for someone to come, take a closer look at it and make sure that it is working properly.”
  - “It is alright. It helps a lot, but it is really slow.”

## Survey Methodology

**Target population.** The target population for the ConnectHome Internet Use Survey included households with children under age 19 with high-speed internet access in their homes through the U.S. Department of Housing and Urban Development’s ConnectHome program as of September 2016.<sup>27</sup>

**Survey frame.** The sample frame included one record per household that received internet services through the ConnectHome initiative in each of the 7 communities and that had children under age 19 living in the household. The public housing authorities (PHAs) in participating communities provided the names, addresses, and phone numbers of ConnectHome households for the survey frame.<sup>28</sup>

The frame contained 2,738 household records from across 7 ConnectHome communities (table 1). The survey frame included all households on the list; no sampling was conducted.

**Table 1. Survey Sample Size, by ConnectHome Community**

ConnectHome Community	Number of ConnectHome Households in Sample Frame
Cleveland, Ohio	169
Kansas City, Missouri	502
Little Rock, Arkansas	63
Los Angeles, California	278
Memphis, Tennessee	263
Rockford, Illinois	797
Tampa, Florida	666
<b>Cumulative total</b>	<b>2,738</b>

**Eligible sample members.** The survey included two screener questions to ensure all respondents (or anyone in their household) were eligible to participate in the survey. The screener questions confirmed that respondents—

1. Could connect to the internet in their home.
2. Have children under age 19 living in the household.

Eligible respondents may have had internet access before participating in ConnectHome through their smartphone data plans, connections that they purchased privately, or both. These respondents were eligible to participate in the survey. If the person whose name was listed as the sample member was not available, interviewers asked to speak with someone else in the household age 18 or over. Thus, anyone in the household age 18 or older could respond to the survey.

<sup>27</sup> The survey was administered by SSI, a major survey research provider, using computer-assisted telephone interviewing software.

<sup>28</sup> The PHAs were unable to provide telephone numbers for 249 households on the survey frame. These households received the same advance notification letter but did not receive calls from the call center. They could participate in the survey, however, by dialing the survey call center number included in the letter. The PHAs were also unable to provide addresses for 25 households on the survey frame. These households did not receive advance notification letters but did receive calls from the call center.

**Survey respondents.** Of the 2,738 households in the ConnectHome sample frame, 433 completed the survey.<sup>29</sup> Table 2 shows the number of completed surveys overall and by community.

**Table 2. ConnectHome Internet Subscriber Survey Respondents, by Community**

ConnectHome Community	Number of ConnectHome Households in Sample Frame	Number of Completed Surveys
Cleveland, Ohio	169	47
Kansas City, Missouri	502	74
Little Rock, Arkansas	63	12
Los Angeles, California	278	109
Memphis, Tennessee	263	47
Rockford, Illinois	797	96
Tampa, Florida	666	48
<b>Total</b>	<b>2,738</b>	<b>433</b>

**Response rates.** Table 3 summarizes the data collection results and presents the response and cooperation rates. Overall, 243 households were found to be ineligible;<sup>30</sup> 838 were eligible but either unavailable or refused to participate; and, for 1,224 households, eligibility could not be determined because they could not be located. The overall response rate was 18.2 percent. The cooperation rate was 34.1 percent.

**Table 3. Summary of Data Collection Results and Response Rates**

Final Status	Number
a. Completed interviews (eligible respondents)	433
b. Eligible nonrespondents	838
c. Ineligible nonrespondents	243
d. Eligibility not determined	1,224
e. Total number of ConnectHome households	2,738
Response Rates	Percent
Response rate: $[a / (a + b + (0.911*d))] * 100$	18.2
Cooperation rate: $(a / (a + b)) * 100$	34.1

The response rate measures the percentage of eligible sample members who completed an interview. Eligible sample members include those who were contacted and refused to participate or were not available and those who could not be contacted. Noncontact includes those for whom telephone numbers were non-working, those who never answered, or wrong numbers. Ineligible sample members were those who indicated in screener questions administered before the survey that they either could not connect to the internet in their home or did not have any children younger than age 19 living in the home.

<sup>29</sup> Note that 26 of the 433 ConnectHome households completed most of the survey (at least through the section on internet use related to children’s education). These additional 26 surveys were added to the original 407 to reach the total number of 433 completed surveys.

<sup>30</sup> The 243 households were determined to be ineligible during the screener due to not having home internet access, not having children at home, or both.

The response rate is calculated as the count of sample members who completed an interview divided by the count of eligible sample members. The response rate is based on the American Association of Public Opinion Research standard response rate calculation #4, which estimates that some proportion of cases of unknown eligibility are actually eligible (*e*). In this case, we assume the proportion of eligible cases is 91 percent based on the 9-percent ineligibility rate found among sample cases. Therefore, the response rate was calculated using the following formula.<sup>31</sup>

$$\text{Response Rate} = \frac{\text{Completed interviews}}{\text{Complete interviews} + \text{Eligible nonrespondents} + (e)\text{Eligibility not determined}}^{32}$$

The cooperation rate measures the percentage of contacted sample members (including those who refused) who completed an interview. This rate was calculated as follows.

$$\text{Cooperation Rate} = \frac{\text{Completed interviews}}{\text{Completed interviews} + \text{Eligible nonrespondents}}$$

See Appendix A for a nonresponse bias analysis.

## Appendix A. Nonresponse Bias Analysis

A nonresponse bias analysis compared the characteristics of households that responded to the survey with those that did not to assess whether households that responded are representative of the overall population in the sample frame. To conduct the comparison, the U.S. Department of Housing and Urban Development (HUD) provided descriptive information on the characteristics of 1,513 households from the sample frame, and the survey team identified those that responded to the survey and those that did not.<sup>33, 34</sup>

The results show that the characteristics of households that responded to the survey were generally similar to the characteristics of those that did not, but small differences emerged for some groups (see table A1). For example, respondent heads of the household were slightly more likely to be female, over age 35, and White than nonrespondent heads of the household (93 versus 89 percent, 48 versus 43 percent, and 15 versus 12 percent, respectively). Although Hispanic residents represent a relatively small proportion of the overall population, the head of household was more likely to be Hispanic among respondents than among nonrespondents (7 versus 4 percent). Finally, the median income for respondent households was slightly higher than for nonrespondent households (\$8,000 versus \$6,000). Despite these small differences, we consider the characteristics of respondent and nonrespondent households to be sufficiently similar to conclude that respondents are generally representative of the target population in the sample frame.

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<sup>31</sup> The response rate equals the number of completed interviews divided by the number of completed interviews plus eligible nonrespondents plus 0.911 times the number of those whose eligibility was not determined.

<sup>32</sup> In the equation, *e* equals the estimated proportion of cases of unknown eligibility that are eligible.

<sup>33</sup> Due to data limitations, HUD was able to match only 1,513 of the total 2,738 households in the original sample frame.

<sup>34</sup> Nonrespondents include a small portion of records (15 percent) whose response status could not be determined due to a change in address or other information since the original sample frame was developed.

**Table A1. Characteristics of ConnectHome Households for Survey Respondents and Nonrespondents**

Characteristics	Total		Respondents		Nonrespondents <sup>a</sup>	
	Number	Percent	Number	Percent	Number	Percent
<b>Total households</b>	1,513	100.0	201	100.0	1,312	100.0
<b>Age of head</b>						
18–35	854	56.4	104	51.7	750	57.2
36–55	559	37.0	89	44.3	470	35.8
56+	100	6.6	8	4.0	92	7.0
<b>Gender of head</b>						
Female	1,356	89.6	187	93.0	1,169	89.1
Male	157	10.4	14	7.0	143	10.9
<b>Race of head</b>						
White only	188	12.4	30	14.9	158	12.0
Black only	1,266	83.7	165	82.1	11,01	83.9
Other (more than 1 race, Pacific Islander, Asian, or American Indian)	59	3.9	6	3.0	53	4.0
<b>Ethnicity of head</b>						
Hispanic	69	4.6	14	6.97	55	4.2
Non-Hispanic	1,444	95.4	187	93.0	1,257	95.8
<b>Household annual income</b>						
Average	8,742	—	9,972	—	8,553	—
Median	6,660	—	8,216	—	6,448	—
0	204	13.5	22	11.0	182	13.9
>0-5,000	472	31.2	55	27.4	417	31.8
5,001-10,000	332	21.9	53	26.4	279	21.3
10,001–20,000	335	22.1	42	20.9	293	22.3
20,001-30,000	122	8.1	20	10.0	102	7.8
30,001–40,000	29	1.9	3	1.5	26	2.0
> 40,000	19	1.3	6	3.0	13	1.0
<b>Household adjusted annual income</b>						
Average	7,690	—	8,794	—	7,521	—
Median	5,220	—	6,514	—	5,040	—
0	338	22.3	41	20.4	297	22.6
> 0–5,000	405	26.8	48	23.9	357	27.2
5,001–10,000	323	21.4	47	23.4	276	21.0
10,001–20,000	309	20.4	39	19.4	270	20.6
20,001–30,000	97	6.4	17	8.5	80	6.1
30,001–40,000	24	1.6	4	2.0	20	1.5
> 40,000	17	1.1	5	2.5	12	0.9
<b>Annual welfare income for head from GA, imputed welfare, and TANF</b>						
Average	3,511	—	3,497	—	3,512	—
Median	2,328	—	2,568	—	2,328	—
0	581	38.4	87	43.3	494	37.7
> 0–5,000	459	30.3	54	26.9	405	30.9
5,001–10,000	362	23.9	46	22.9	316	24.1
10,001–20,000	109	7.2	13	6.5	96	7.3
20,001–30,000	2	0.1	1	0.5	1	0.1
30,001–40,000	0	0.0	0	0.0	0	0.0
> 40,000	0	0.0	0	0.0	0	0.0

GA = General Assistance. TANF = Temporary Assistance for Needy Families.

<sup>a</sup> Nonrespondents include a small portion of records (15 percent) whose response status could not be determined due to a change in address or other information since the original sample frame was developed.

Source: HUD administrative data on public housing households matched with ConnectHome sample frame data by response status