



Broadband: Helping South Carolinians Stay Healthy



October 2012

Broadband Internet service affects how we work, how we play, and how we live on a daily basis. From giving South Carolina students the ability to take classes from schools around the world, to giving families a way to stay in touch even when they are miles apart, broadband has an impact on nearly every aspect of our lives.

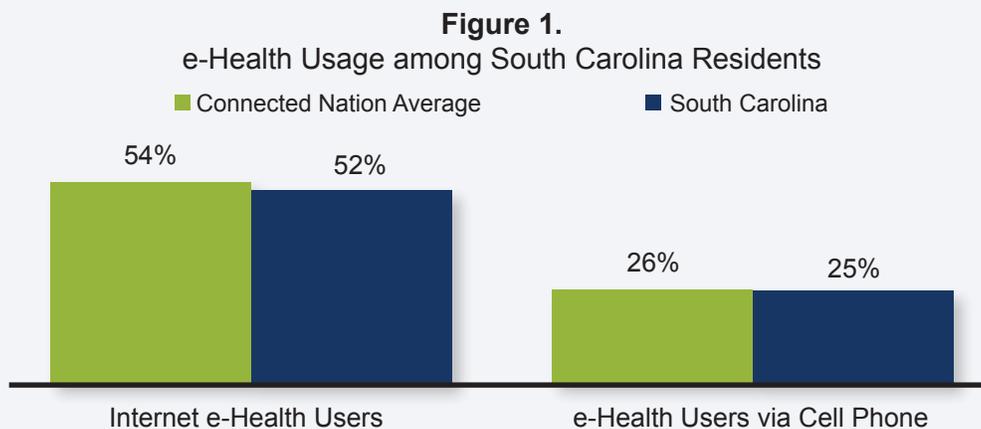
Broadband also helps South Carolina residents stay healthy and active. Online applications provide efficient, affordable, and high-quality healthcare services to South Carolina consumers statewide through a number of programs. The Medical University of South Carolina's telestroke program is a life-saving network that connects hospitals with immediate, around-the-clock experts who can provide remote consultations and brain imaging.¹ Utilizing a broadband connection, the South Carolina Department of Mental Health and the South Carolina Hospital Association's telepsychiatry program makes psychiatric consultations available in hospital emergency rooms at any hour. The popularity of these programs is growing, as the average number of behavioral health patients who received telepsychiatric consultants increased from 8.7 to 13.9 per day via this program between 2010 and 2011.²

Despite these innovative programs and opportunities, many South Carolina residents are not taking advantage of e-Health opportunities. Worse, many of those who are not connecting are among South Carolina's most vulnerable citizens, including low-income and minority residents, residents with disabilities, and the elderly. For these South Carolina residents, the benefits of e-Health applications like communicating with doctors or healthcare providers are unavailable either because they do not have the technology available to them (i.e., they do not have broadband access) or their healthcare providers do not participate in these programs.

In this report, Connect South Carolina examines the use of e-Health applications, such as searching for online medical information or interacting online with doctors or other medical professionals, using data from its 2011 Residential Technology Assessment. Plus, we examine technology usage among businesses in South Carolina's healthcare sector, based on the results of the 2011 Business Technology Assessment. The data illustrate that residents across a wide variety of demographic groups utilize e-Health, and businesses in the healthcare sector are helping South Carolina residents through their embrace of broadband-enabled technology.

e-Health Usage among South Carolina Residents

Across the state of South Carolina, more than one-half of Internet users (52%) go online for e-Health purposes (Figure 1).



This translates into approximately 1.4 million South Carolina residents age 18 or older who use the Internet to find medical information or communicate with doctors or other healthcare professionals. In addition, one-quarter of South Carolina adults who subscribe to a service that allows them to access the Internet on their cell phone access e-Health applications on their cell phones, which represents approximately 274,000 mobile e-Health users.

1 <http://www.muschealth.com/neurosciences/about/stroke/reach.htm>

2 <http://www.state.sc.us/dmh/telepsychiatry/index.htm>

e-Health usage in South Carolina is very similar to the other states surveyed by Connected Nation in 2011. Across the ten states surveyed by Connected Nation in 2011, 54% of Internet users access e-Health applications and 26% of residents who subscribe to a service that allows them to access the Internet on their cell phone do so.

However, further analysis of e-Health usage in South Carolina indicates that usage is not equally distributed across different social-economic groups, and significant variances are apparent when usage is compared by age, household income, race/ethnicity, and geographic location.

e-Health Usage by Age

e-Health is an important tool that can help South Carolinians live longer, healthier lives. These applications are particularly helpful and popular among South Carolina's older Internet users.

Only 43% of Internet users age 18-34 use e-Health applications, compared to nearly three out of five Internet users age 65 or older (Table 1). After age 35 there is a significant increase in the use of e-Health applications, while there is no significant difference between South Carolina Internet users age 35-64 and those age 65 and older.

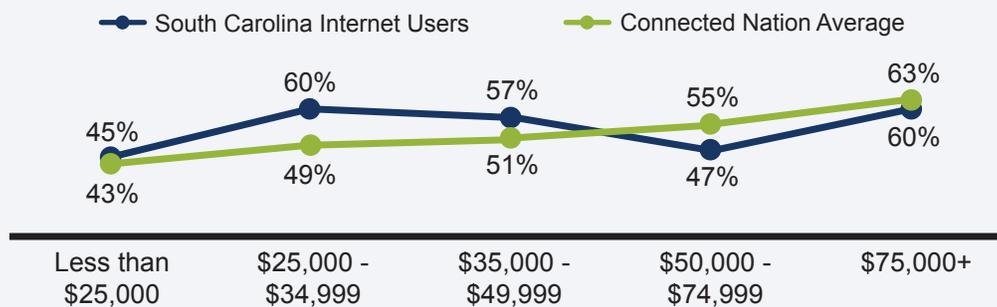
Table 1.
e-Health Usage by Age

Age	% of Internet Users who Access e-Health Applications
Age 18-34	43%
Age 35-64	57%
Age 65+	59%
State average	52%

e-Health Usage by Income

While e-Health applications can be cost-effective, the data shows its usage is not correlated with household incomes (Figure 2).

Figure 2.
e-Health Usage by Annual Household Income



Whereas South Carolina Internet users living in households with annual incomes below \$25,000 are the least likely to use e-Health applications, those earning between \$25,000 and \$34,999, and those earning \$75,000 or more per year, are the most likely to use e-Health applications.

Figure 2 also presents a comparison of e-Health usage among South Carolina Internet users and all Internet users surveyed by Connected Nation in 2011. Of note is the finding that South Carolina Internet users with annual household incomes below \$50,000 are more likely to utilize e-Health applications when compared to the Connected Nation average, while those earning \$50,000 or more are less likely to access e-Health applications than Internet users in other states.

e-Health Usage among African Americans

Home broadband adoption among African Americans in South Carolina is considerably lower than among Caucasian residents in the state. Yet this divide narrows when Internet users were asked about e-Health usage. Nearly one-half of African American Internet users in South Carolina (49%) report that they use e-Health applications, which is only slightly lower than the statewide average of 52% of Internet users (Table 2). This is significant, as African Americans have historically experienced “disproportionately higher rates of disease, fewer treatment options, and reduced access to care.”³ While this suggests that the gap among Internet users is reduced, it also means that approximately 571,000 African American adults do not utilize this valuable tool, either because they are not interested in these particular applications or because they do not use the Internet at all.

Table 2.
e-Health Usage among African Americans

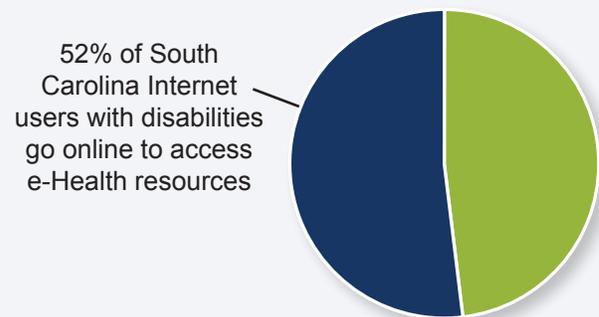
% of Internet Users who Access e-Health Applications	
Caucasian	54%
African American	49%
State average	52%

e-Health Usage among Adults with Disabilities

Making sure that all South Carolinians have access to timely and reliable health information is important, especially for adults with disabilities who may have more difficulty traveling to seek the specialized healthcare health care treatment they need. For many South Carolina adults with disabilities, this challenge is being overcome with the help of broadband and e-Health applications.

Statewide, more than one-half of Internet users with disabilities (52%, representing approximately 208,000 South Carolina adults) go online for e-Health purposes. This echoes the statewide average of 52% of Internet users who utilize e-Health applications. Although adults with disabilities are less likely to use the Internet, once they do get connected, they are accessing applications that have the potential to improve their quality of life.

Figure 3.
e-Health Usage among Internet Users with Disabilities

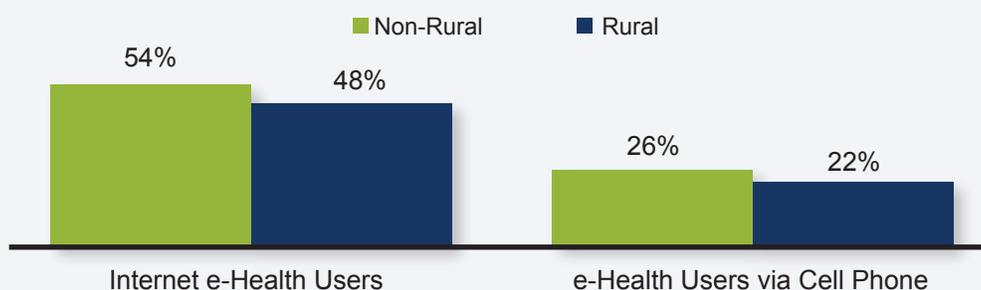


e-Health Usage among Adults in Rural South Carolina

With limited access to physicians, particularly those in specialized fields of study, rural areas can benefit substantially from the usage of e-Health applications. However, residents of these rural areas also face huge challenges, such as lower broadband availability and a lack of digital literacy skills.

Less than one-half of rural Internet users (48%) access e-Health applications, which is lower than South Carolina Internet users who live in non-rural (urban or suburban) portions of the state (Figure 4).

Figure 4.
e-Health Usage among Rural Internet Users



³ <http://www.healthreform.gov/reports/healthdisparities/>

This translates into 319,000 rural Internet users who do not go online for these applications. In addition, 22% of rural adults who go online via their cell phones do so to access e-Health applications, compared to 26% of those living in non-rural portions of the state.

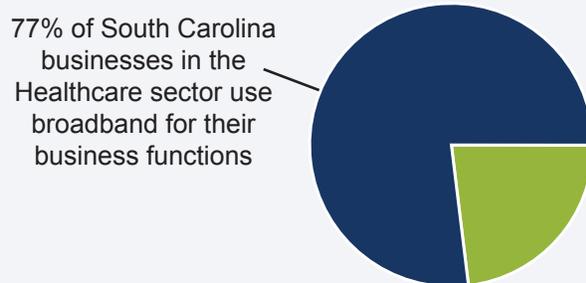
How Broadband Benefits South Carolina's Healthcare Sector

By enabling a new model of service delivery, e-Health also has the potential to greatly benefit South Carolina's Healthcare sector. Broadband empowers healthcare providers to more efficiently use their resources and provide services to more patients, while affording rural healthcare providers the ability to tap into the expertise of specialists in offices miles away.

Fast and reliable Internet service is a necessary element of e-Health. Connect South Carolina found that 77% of business establishments in South Carolina's Healthcare sector use broadband for their business processes (Figure 5).

More than one-half of South Carolina businesses in the Healthcare sector (55%) use broadband to communicate with their current clients and patients, while more than one-third of these business establishments (36%) provide customer support for their services using online applications.

Figure 5.
Broadband Use among South Carolina Businesses in the Healthcare Sector



Conclusion

Today, e-Health is a vital component in the delivery of efficient, economical, and reliable healthcare services to South Carolina residents. Across South Carolina, approximately 1.4 million adults currently take advantage of these opportunities made available to them by broadband. Plus, one in four South Carolina adults who go online via their cell phones do so, indicating that there is growing demand for e-Health apps that will not restrict their users' mobility.

Among South Carolina Internet users, socio-economic factors have an impact on e-Health usage. Internet users with lower annual household incomes, African Americans, and rural Internet users are less likely to access e-Health applications. This highlights the need not only to increase broadband availability, but also to improve broadband adoption and usage to take advantage of many of these applications.

The state is making progress, though, as shown by the fact that more than three out of four South Carolina businesses are already using broadband in their daily business activities. This suggests that there are opportunities for South Carolina residents to connect with their healthcare providers using the Internet, but those opportunities have to be made more widely available and they have to engage with Internet users to make them more universally adopted.



Methodology and Definitions

2011 South Carolina Residential Technology Assessment

Between June 28 and August 18, 2011, Connect South Carolina conducted random digit dial telephone surveys of adult heads of households across South Carolina. This sample included 999 adults age 18 or older who were contacted via landline and 201 adults who were contacted via cell phone. Once the respondent agreed to participate, these surveys took approximately eleven (11) minutes to complete and were designed to measure technology adoption (including speeds and prices) and usage.

Quotas were set by age, gender, and county of residence (urban, suburban, or rural), based on 2010 United States Census data. The data were weighted using a rim weighting process to account for any minor variances between the statewide population and the survey sample based on these factors. Based on the effective sample size for this statewide sample, the margin of error = $\pm 3.04\%$ at a 95% level of confidence. The survey results were subsequently reviewed by experts in the fields of survey design and statistics at Clemson University.

As with any survey, question wording and the practical challenges of data collection may introduce an element of error or bias that is not reflected in these margins of error. For this report, “rural” residents are defined as those living in counties that are not part of a Metropolitan Statistical Area (MSA). “Adults with disabilities” were defined as respondents who answered in the affirmative when asked “Do you have any long-term physical, mental, or emotional conditions that make it difficult to do any of the following tasks? (Walking or climbing stairs; concentrating, remembering, or making decisions; visiting a doctor’s office or shopping by yourself; dressing or bathing),” or answered “yes” when asked “Are you blind or have serious difficulty seeing, even when wearing glasses” and/or “Are you deaf or have serious difficulty hearing?” Surveys were conducted by Thoroughbred Research, with weighting and research design consultation provided by Lucidity Research LLC.

2011 South Carolina Business Technology Assessment

Between October 3 and October 24, 2011, Connect South Carolina conducted a telephone survey of 808 South Carolina business establishments. Data were collected by Thoroughbred Research Group, located in Louisville, KY. The purpose of this survey was to measure trends in technology adoption; measure barriers to technology adoption; determine how South Carolina businesses are using broadband as an engine of economic growth; and measure the average price and speed of broadband service among business establishments across the state. On average, these surveys took approximately nine (9) minutes to complete.

Sample quotas were established by company size (5 brackets) and industry sector (8 sectors). Within these 40 cells, a randomly-drawn sample of businesses listed with Dun & Bradstreet was contacted for the survey. Altogether, this sample included 180 businesses with 50+ employees, 211 businesses with 20-49 employees, 211 businesses with 5-19 employees, and 206 businesses with 1-4 employees. In cases where the respondent’s information regarding the number of employees at the establishment differed from the information provided by Dun & Bradstreet, the respondent’s answer was used in determining business size quotas. Connect South Carolina intentionally over-sampled large businesses to ensure a sample that was large enough to analyze and compare to smaller businesses.

In addition to the size and sector quotas, the data were subsequently weighted to ensure that the sample was representative of all employer business establishments statewide, with targets determined according to the 2009 United States Census Bureau’s County Business Pattern report, the most recent data that was available at the time the survey was conducted. Weighting of the survey data and research consultation were provided by Lucidity Research LLC, located in Westminster, MD.

This sample provides a margin of error of ± 4.93 at the 95% confidence level for the total sample of 808 businesses. This sample error accounts for sample weighting, using the effective sample size. As with any survey, question wording and the practical challenges of data collection may introduce an element of error or bias that is not reflected in this margin of error. These survey results were also reviewed by experts in the fields of survey design and statistics at Clemson University.

These surveys were conducted as part of the State Broadband Initiative (SBI) grant program, funded by the National Telecommunications and Information Administration (NTIA). The SBI grant program was created by the Broadband Data Improvement Act (BDIA), unanimously passed by Congress in 2008 and funded by the American Recovery and Reinvestment Act (ARRA) in 2009.

APPENDIX 1: Select Questions and Sample Sizes

2011 South Carolina Residential Technology Assessment

	<i>n</i> All Respondents	<i>n</i> Internet Users	<i>n</i> Internet Users (via cell phone)
Total	1,200	865	332

May I have your age, please?

Age 18-24	84	76
Age 25-34	145	127
Age 35-44	236	200
Age 45-54	254	197
Age 55-64	231	162
Age 65 or older	250	103

Disability Status

Disabled	293	134
Not disabled	907	731

Rural/Non-rural Residents

Rural	398	273	105
Non-Rural	802	592	227

Which of the following race (or races) do you consider yourself to be?

White (non-Hispanic)	806	628
African American(non-Hispanic)	280	174

Which of the following categories best describes the total annual household income earned by all wage earners in your household?

Less than \$25,000	281	128
\$25,000 to less than \$35,000	127	81
\$35,000 to less than \$50,000	131	106
\$50,000 to less than \$75,000	164	147
\$75,000 or more	262	249
No answer/refused	235	154

2011 South Carolina Business Technology Assessment

	<i>n</i> All Respondents	<i>n</i> Healthcare Sector
Total	808	97
Use the Internet	710	85