

# e-Connected Family Caregiver: Bringing Caregiving into the 21st Century



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Funded by UnitedHealthcare



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## Introduction

This report describes the results of a study conducted to examine family caregivers' receptivity to technology. In particular, the study assessed how helpful 12 technologies would be in supporting caregivers or helping them provide care. These 12 technologies can be viewed as characteristic of the types of technologies that might be attractive to technology-using family caregivers. The study also delved into barriers to the use of technology, factors influencing use of technology, and trusted sources of information about technology.

## Methodology

This report is based on a quantitative online survey of 1,000 technology-using family caregivers. Respondents were general population members of an online panel who were screened to ensure they:

- Were age 18 or older
- Provided at least five hours per week of unpaid care to an adult relative or friend who needs help because of a physical or mental illness, disability, or frailty
- Had already used some sort of technology to help them with caregiving, such as searching for caregiving information or support on the Internet, participating in an online forum or blog, using an electronic calendar or organizer, or using some other device or system<sup>1</sup>

When reading the report, it is important to keep in mind that the data reflect the subset of caregivers with these characteristics, and not caregivers in general. Throughout the report, they are referred to as “technology-using caregivers” or simply “caregivers.”

The questionnaire was designed by Mathew Greenwald & Associates in collaboration with the National Alliance for Caregiving. The full questionnaire is presented in Appendix A to this report. The core section of the questionnaire describes and asks about 12 technological systems or devices that could be used to help caregivers. The devices described exist already or are similar to existing devices. At a minimum, the technology needed to create all of the devices or systems is widely available.

Respondents were asked how likely they would be to use them and how helpful they would be. In addition, they were asked whether potential barriers would prevent them from trying out the technologies. For the questions on helpfulness and barriers, each respondent was presented with only six technologies, including two that support the caregiver and four that facilitate caregiving, to keep the questionnaire at a reasonable length.

The online questionnaire was fielded from November 9 to 22, 2010 using Research Now's online panel. Most respondents completed the questionnaire in 24 minutes or less, with a median duration of 17 minutes.

All figures have been rounded. In addition, “don't know” responses are not always presented in charts and tables. For these reasons, some charts and tables will not add to 100%. The results of questions which allowed respondents to provide multiple responses may also add to greater than 100%.

All differences between subgroups that are presented in this report are statistically significant at the 95% confidence level.

<sup>1</sup> According to the national Caregiving in the U.S. 2009 study data, seven in ten caregivers (71%) already use the Internet or other technology for information or support.



## Key Findings

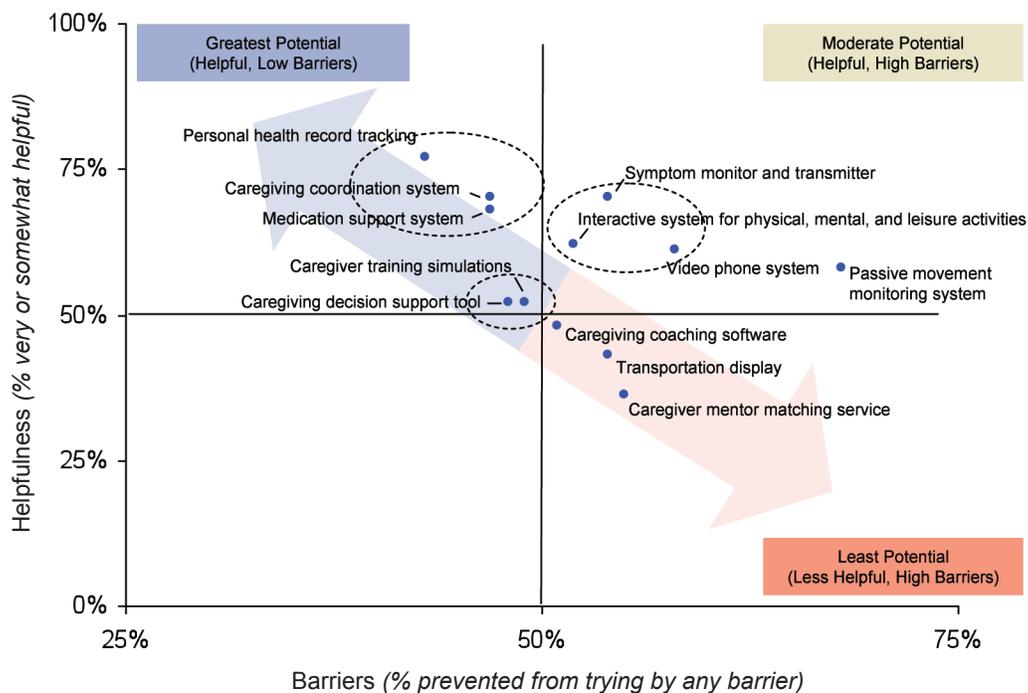
### Benefits to Using Technology

The 1,000 technology-using family caregivers surveyed in this study understand that they can benefit in various ways from using additional technologies to support their caregiving. The top expected benefits are saving time (77% believe they would benefit *somewhat* or *a great deal*), making caregiving easier logistically (76%), making the care recipient feel safer (75%), increasing feelings of being effective (74%), and reducing stress (74%).

### Receptivity to Twelve Technologies

The technologies with the greatest potential can best be seen by plotting a graph of the percentage of caregivers who think a technology is helpful by the percentage who report that one or more barriers would prevent them from trying it.

#### Helpfulness vs. Barriers for Each Technology



Caregivers are most receptive to technologies that help them deliver, monitor, track, or coordinate their loved one’s medical care. Of the 12 technologies evaluated in the survey, the three that appear to have greatest potential for acceptance and usage by caregivers fall into that category. Each of these three technologies is rated as helpful by high percentages of caregivers, and for each, relatively small proportions of caregivers report any barriers to trying them.

	% Very or Somewhat Helpful	% With Any Barrier to Trying It
<u>Personal health record tracking</u> A website or computer software to keep track of care recipient’s personal health records, including patient history, symptoms, medications, tests, etc.	77%	43%
<u>Caregiving coordination system</u> A shared electronic log for care recipient’s doctor appointments and other caregiving needs. Caregivers can use the system to request a volunteer on certain days and times, and family members and friends can use it to sign up to help.	70%	47%
<u>Medication support system</u> A device that reminds the care recipient and dispenses pills on schedule. Electronic buttons can be pressed for directions on how to take each pill (e.g., on a full stomach, avoid certain types of foods) and possible side effects to watch out for. It also alerts the caregiver by phone or e-mail if a dosage is not removed from the device within a certain time period.	70%	47%

Caregivers were asked whether each of seven possible barriers would prevent them from trying the technologies.

- The belief that the technology will be expensive
- The belief that the technology does not solve or address a pressing caregiving issue
- The belief that the care recipient would resist accepting the technology
- The belief that the technology would diminish the care recipient’s sense of independence or pride
- The belief that the technology would lessen the care recipient’s privacy
- The belief that the technology would take too much time or effort to learn or use
- The belief that the technology would decrease the care recipient’s level of social interaction

For the top-rated technologies above, the most commonly reported obstacle is the belief that the technology would be expensive.

Three other technologies appear to have moderate potential. Each is also rated as helpful by a strong majority of caregivers, but larger proportions of caregivers report the presence of barriers that prevent them from trying the technologies. One of these three technologies—a symptom monitor and transmitter—falls into the popular medical care realm, while one relates to keeping the care recipient active and the other pertains to communicating with and observing the care recipient.

	% Very or Somewhat Helpful	% With Any Barrier to Trying It
<u>A symptom monitor and transmitter</u> A device that electronically sends information such as blood sugar or blood pressure readings to a doctor or care manager to help manage care recipient's health care. It also creates symptom-tracking graphics of the care recipient's health.	70%	54%
<u>Interactive system for physical, mental and leisure activities</u> A TV-based device, like a Wii Fit, that would allow the caregiver to create a schedule of gentle physical activities and mental games for the care recipient. It includes personalized activities with family photos, illustrated audio books and other audio-visual and interactive leisure activities for him/her.	62%	52%
<u>A video phone system</u> A phone with video capability or an Internet-connected computer with webcam that allows caregivers to check in and see the care recipient when they can't physically be together (during work, vacations, errands, long-distance caregiving).	61%	58%

The most prevalent obstacle to trying these devices is the perception that they would be expensive. Further, potential resistance by the care recipient emerges as an issue for the interactive activity system and the video phone system, more than it does for the other technologies evaluated.

Two technologies of a very different nature—those geared toward supporting the caregiver—may also have modest potential. Caregiver training simulations are considered helpful by 52% of caregivers, and fewer than half (49%) report any obstacle to trying them. Caregivers have a similar reaction to a caregiving decision-support tool (52% helpful, 48% prevented by one or more obstacles).

Four remaining technologies described in the survey have less potential. Specifically, the passive movement monitoring system is seen as helpful, but a number of perceptions become barriers to trying it. Barriers include the belief that it would be expensive, that the care recipient would resist using it, that it would diminish the recipient's sense of independence or pride, and that it would lessen his/her privacy. Caregiving coaching software, a transportation display, and a caregiving mentor matching service are rated as helpful by fewer than half of caregivers.

## Who Is Most Receptive to Caregiving Technology

Caregivers under the age of 50 are more likely than older caregivers to expect eight of the ten potential benefits of caregiving technology asked about (e.g., saving time, facilitating caregiving, making the recipient feel safer, etc.). Further, for nearly all of the technologies evaluated, they are more apt to report they would be likely to try the technology if it were available for a nominal cost. For five of the 12 technologies, they are also less likely to report the presence of any barrier to trying them.

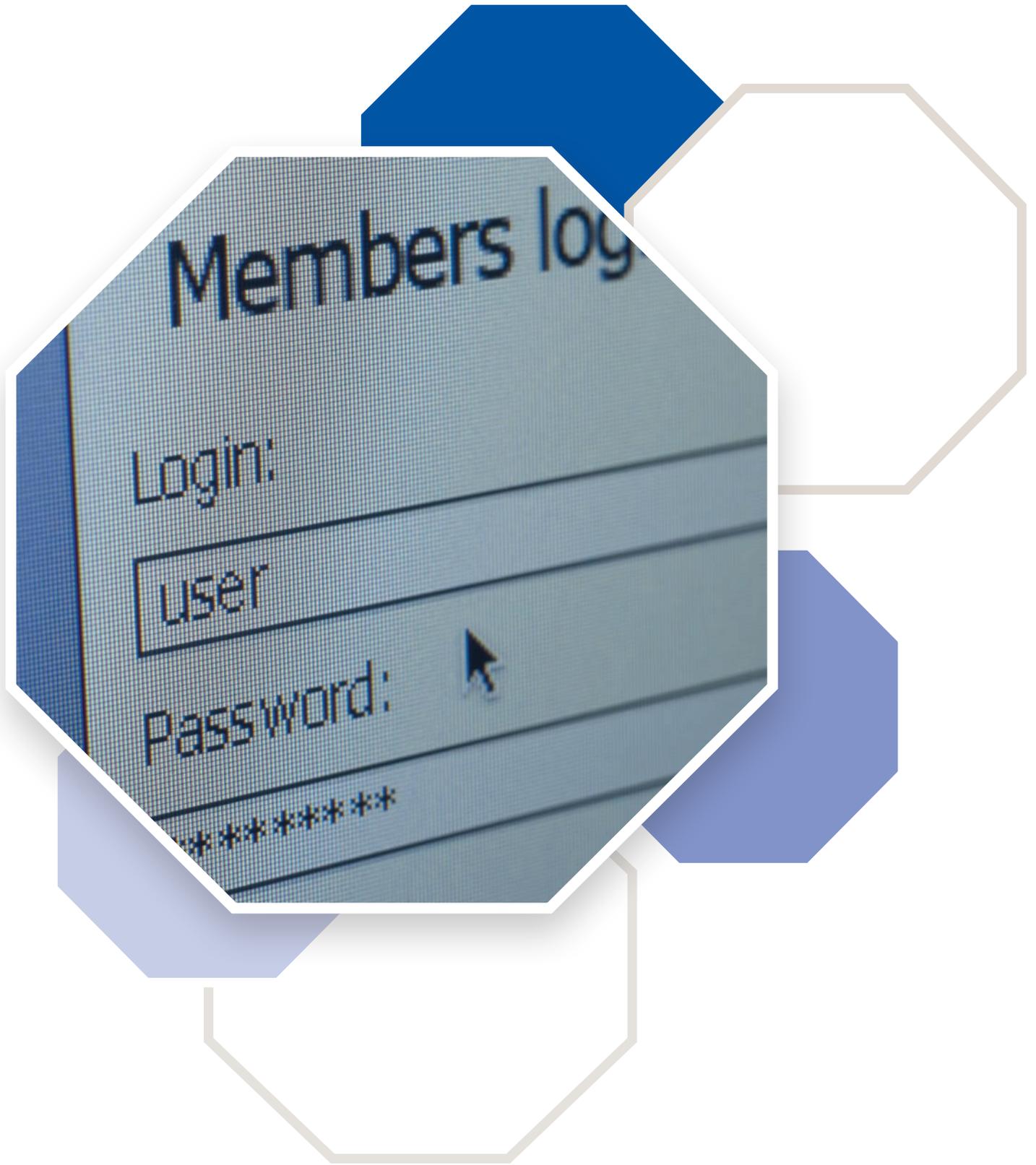
Early adopters of technology are generally more likely than late adopters to expect that using caregiving technology would result in benefits for their care recipient—feeling safer, more independent, and more connected to others, as well as benefits for themselves—saving time, easier caregiving, and reduced physical demands on their bodies.

Further, larger proportions of early adopters report they would be likely to try each of the technologies presented to them, if they were available for a nominal cost. This is in spite of the finding that both early and late adopters seem equally likely to think most of the technologies would be helpful. The only technologies that early adopters are more likely to rate as helpful are the interactive activity system, the video phone system, the caregiving decision support tool, and the caregiving coaching software.

Racial and ethnic minority caregivers ages 50 and older are more likely than non-minority caregivers of the same age to rate nearly all of the technologies as helpful. Among younger caregivers, no differences by race were apparent.

Caregivers with a medium to high burden of care are more likely than those with a lower burden of care to rate the following technologies as *somewhat* or *very* helpful:

- Interactive system for physical, mental, leisure activities
- Passive movement monitoring system
- Caregiver training simulations
- Caregiving coaching software
- Caregiver mentor matching service

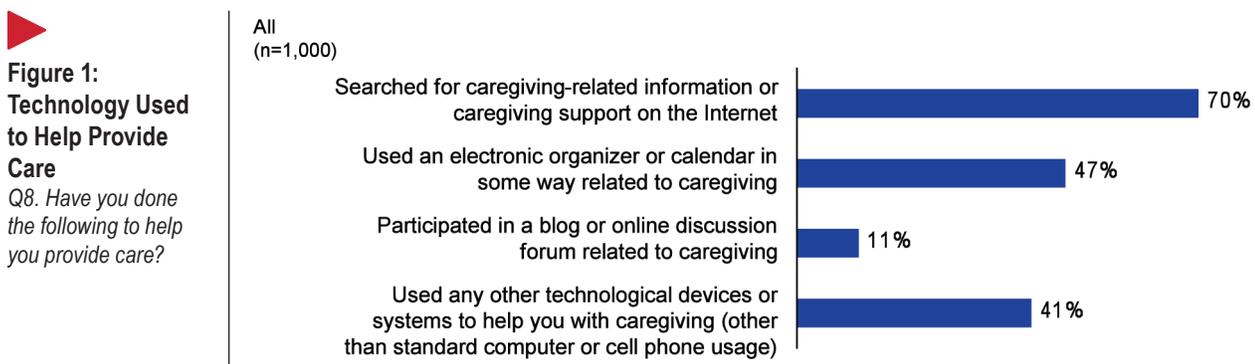


## Detailed Findings

### A. Family Caregiver's Predisposition to Technology

#### Use of Technology to Help with Caregiving

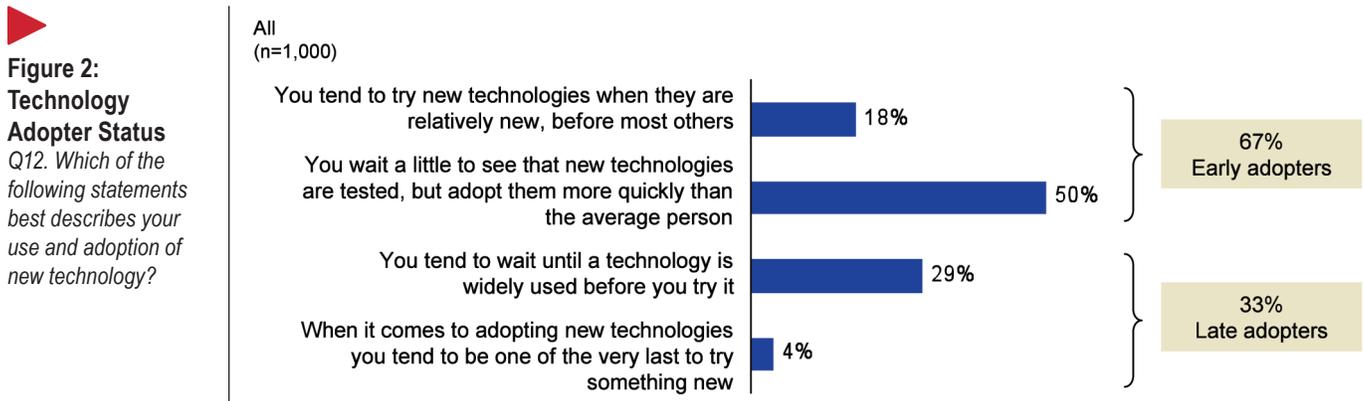
All of the family caregivers in this survey are technology users, in that they already have used the Internet or some other technology to help them provide care. A majority, seven in ten, report they have searched the Internet for information related to caregiving (70%). Nearly half have used an electronic organizer or calendar to help them with caregiving (47%), and 11% has participated in a caregiving-related blog or online discussion. Four in ten have used some other technological device or system—other than a standard computer or cell phone—to help them with their caregiving (41%).



In this report, respondents are referred to as “technology-using caregivers” or simply as “caregivers.”

## Technology Adopter Status

Two-thirds of technology-using caregivers believe they adopt new technologies more quickly than others, with 18% saying they try them when they are relatively new and 50% saying they wait a little to see that the new technologies are tested. Three in ten claim they wait until a technology is widely used before they try it (29%), while 4% tends to be among the very last to try something new.



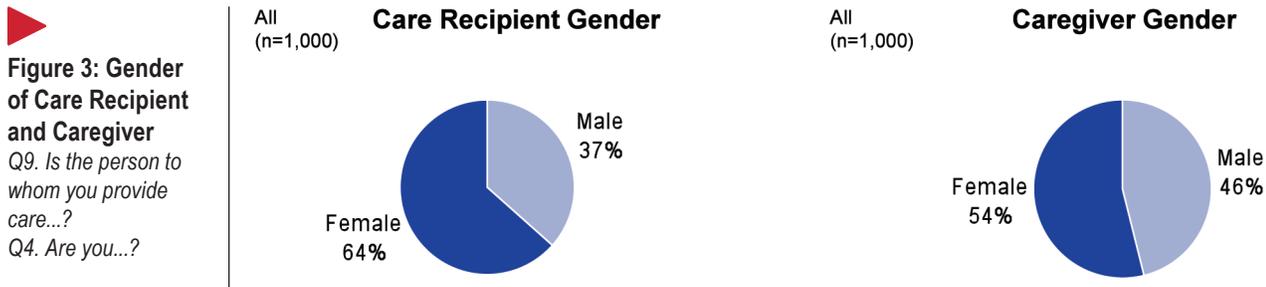
Early adopters are demographically different from late adopters, and their caregiving situations are different as well.

- Early adopters tend to be younger than late adopters. In fact, three-quarters of caregivers who are under the age of 50 report adopting technologies when they are relatively new or at least more quickly than the average person (78%). By comparison, only half of older caregivers say the same (55%). Early adopters also tend to have care recipients who are younger.
- A larger proportion of early adopters are employed full time (51% vs. 39% of late adopters).
- Early adopters are more likely to help their care recipients with dressing, feeding, and getting in and out of beds and chairs.
- Early adopters are less likely to say their care recipients live alone (27% vs. 37%). Those whose care recipients live in a nursing home are excluded from this comparison.

## B. Basics of the Care Recipient's Situation

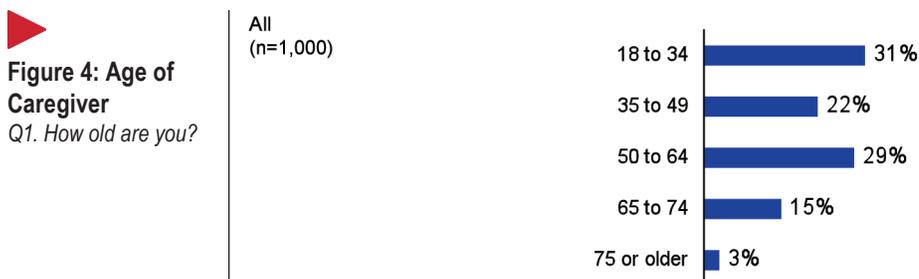
### Gender of Care Recipient and Caregiver

Technology-using caregivers are almost equally divided between women (54%) and men (46%). Their care recipients are predominantly women (64%).



### Age of Caregiver and Care Recipient

Half of technology-using caregivers who responded to this survey are under the age of 50 (53%), three in ten are 50 to 64 (29%), and 18% are 65 or older.



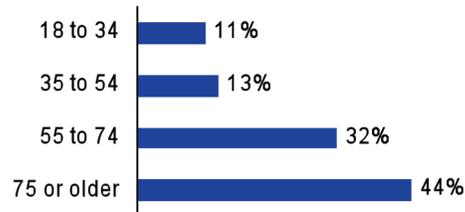
A large majority of the technology-using caregivers report their recipient is age 55 or older, with 32% ages 55 to 74 and 44% age 75 or older.



**Figure 5: Age of Care Recipient**

Q6. How old is the person for whom you provide care?

All (n=1,000)



**Care Recipient’s Relationship**

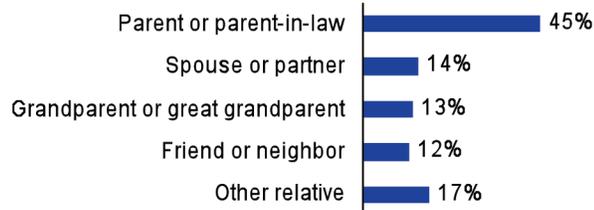
A plurality of technology-using caregivers is providing care to a parent or parent-in-law (45%), with most of the remainder serving as caregivers to some other relative. One in eight provides care to a non-relative, such as a friend or neighbor (12%).



**Figure 6: Care Recipient’s Relationship to Caregiver**

Q10. Is the person to whom you provide care your...?

All (n=1,000)



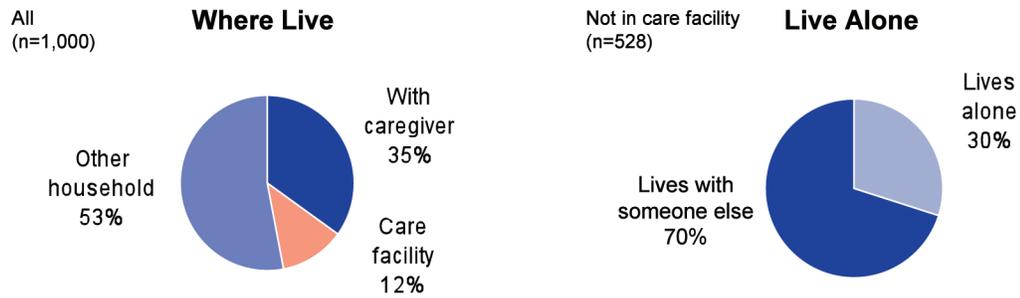
## Care Recipient's Living Situation

One-third of technology-using caregivers say their care recipient lives with them (35%). Half report their loved one lives in some other household (53%), and 12% report he or she lives in a care facility. Of those whose recipient is not in a care facility, 30% say their loved one lives alone.



### Figure 7: Living Situation

Q22. Do you and your [relation] currently live in the same household?  
 Q23. [IF NO] Is your [relation] currently staying in a nursing home, medical center, or some other care facility?  
 Q24. [IF NO] Does your [relation] live alone?

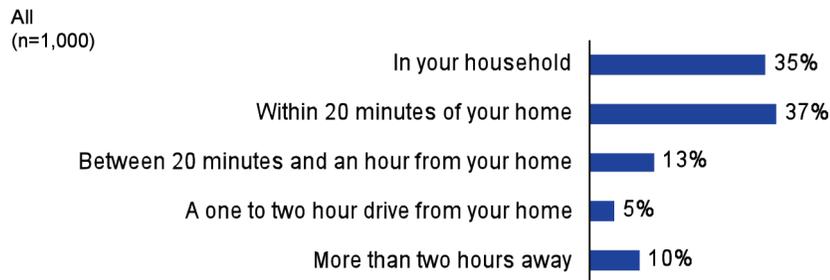


A large majority of respondents (86%) live within a one-hour drive of their care recipient, including 35% who are co-resident, 37% who are within 20 minutes, and 13% who are between 20 and 60 minutes away.



### Figure 8: Distance from Care Recipient

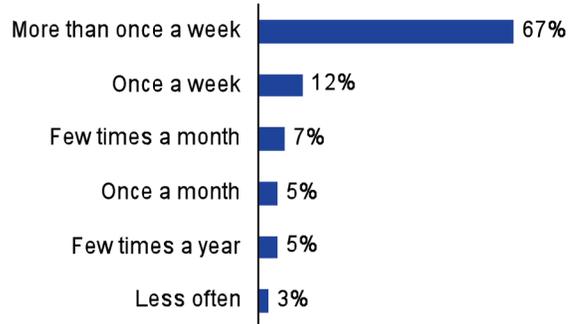
Q25. Does your [relation] live...?



Of those who do not live with their care recipient, two-thirds report visiting him or her more than once a week (67%).

**Figure 9:**  
**Frequency of Visits**  
Q26. On average, how often do you visit your [relation]?

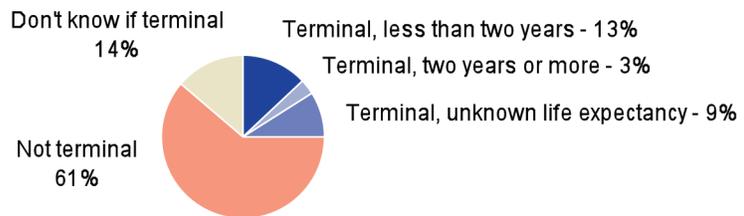
Caregivers who do not live with their care recipient (n=649)



One-quarter of respondents report that their loved one has an illness or condition considered to be terminal (25%), although only 13% say that he or she is expected to live less than two years. Throughout the rest of the report, the term “terminally ill” will be used to refer to those with less than two years to live.

**Figure 10:**  
**Terminal Condition**  
Q29. Do doctors consider the illness or condition of your [relation] to be terminal?  
Q30. [IF YES] According to doctors, about how long is your [relation] expected to live?

All (n=1,000)



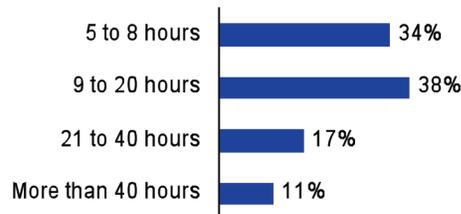
## C. Caregiving Activities and Burden of Care

### Hours of Care Provided

Roughly one-third of technology-using caregivers spend five to eight hours per week providing care (34%),<sup>2</sup> and another third provide nine to 20 hours of care per week, on average (38%). One in ten caregivers spends more than 40 hours per week in their role (11%).

**Figure 11: Hours of Care Provided**  
Q7. About how many hours do you spend in an average week providing care to him/her?

All  
(n=1,000)

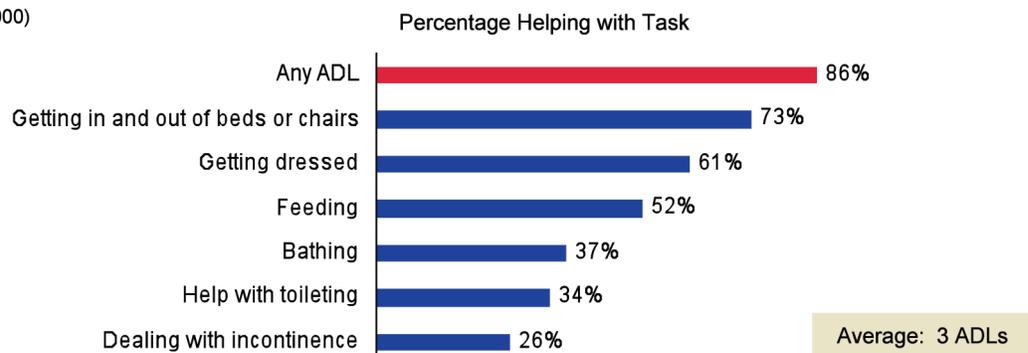


### Help with Activities of Daily Living and Instrumental Activities of Daily Living

A large majority of technology-using caregivers have helped their care recipient with at least one activity of daily living (ADL) in the past year (86%). On average, they provide assistance with three of the six listed activities. The ADLs with which caregivers most commonly assist are getting in and out of beds and chairs (73%) and getting dressed (61%), followed by feeding (52%). About one in three helps with bathing (37%) or toileting (34%), and 26% help deal with incontinence.

**Figure 12: Help with Activities of Daily Living (ADLs)**  
Q27. Which of the following kinds of help, if any, have you provided to your [relation] within the last 12 months?

All  
(n=1,000)



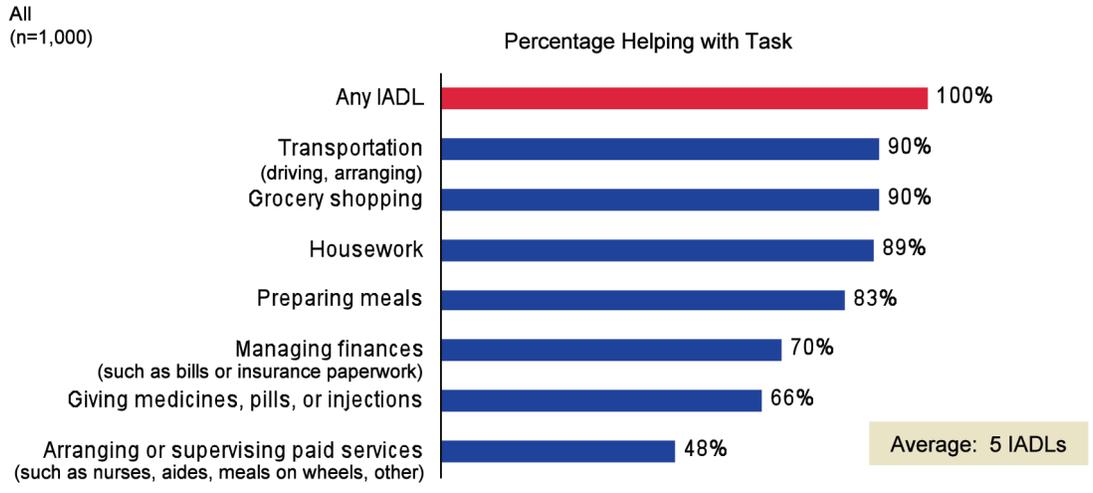
### Subgroup Differences

- Caregivers with a terminally ill care recipient help with four ADLs, on average, compared to three for other caregivers.

<sup>2</sup> Note that caregivers who provided fewer than five hours of care per week were excluded from the survey.

On average, caregivers responding to this survey help with five of the seven listed Instrumental Activities of Daily Living (IADLs). Most commonly, they help with transportation (90%), grocery shopping (90%), housework (89%), or meals (83%). About seven out of ten caregivers help manage finances (70%) or give medications (66%), while half help their care recipient by arranging or supervising paid services (48%).

**Figure 13: Help with Instrumental Activities of Daily Living (IADLs)**  
 Q28. Which of the following kinds of help, if any, have you provided to your [relation] within the last 12 months?



### Subgroup Differences

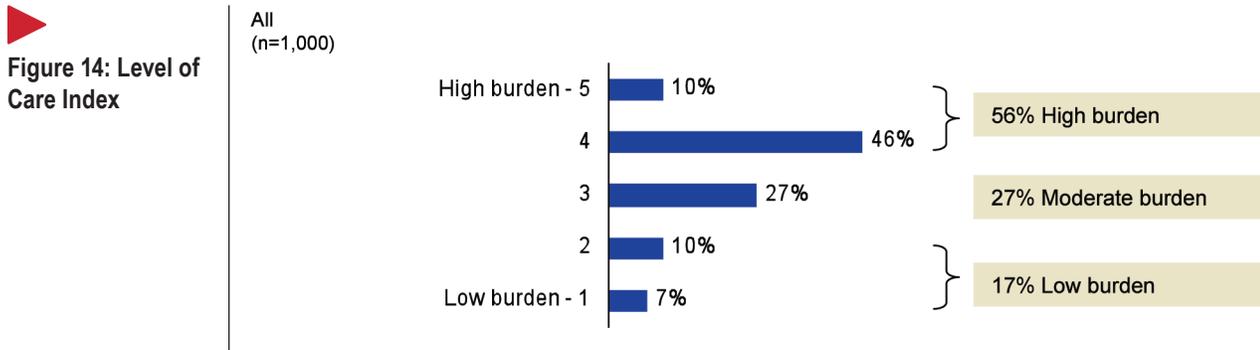
- Caregivers whose loved one is terminally ill are more likely than others to help with medications (83% vs. 63%) or to arrange outside services (60% vs. 46%).



## Burden of Care

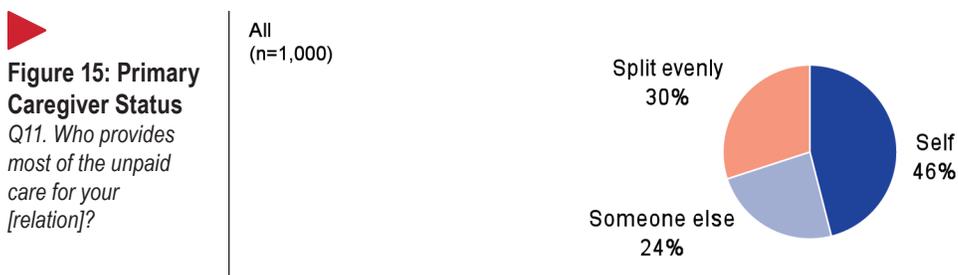
A Level of Care Index, first developed in the 1997 study *Family Caregiving in the U.S.*, is replicated in this study to convey in a simple measure the level of “burden” experienced by the caregiver. The index is based on the number of hours of care given, as well as the number of ADLs and IADLs performed. The details of the index’s construction are shown in Appendix B.

More than half of those who use technology to aid in their caregiving have a high level of burden (56%). One-quarter has a moderate burden (27%), and 17% has a low burden of care.



## Primary Caregiver Status

Nearly half of technology-using caregivers consider themselves to be the person who provides most of the unpaid care to their loved one (46%) and an additional 30% report they share caregiving responsibilities with someone else about equally. The remaining one-quarter of caregivers say someone else provides most of the care for their loved one (24%).



## Paid Help

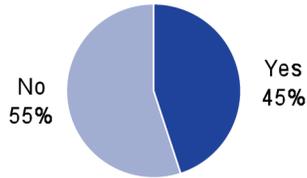
Just under half of respondents say their care recipient received paid help from aides, housekeepers, or others in the past 12 months (45%).



### Figure 16: Paid Help

Q21. During the last 12 months, did your [relation] receive paid help from any aides, housekeepers, or other people who were paid to help [him/her]?

All  
(n=1,000)



## D. Receptivity to 12 Caregiving Technologies

### Likelihood of Using Caregiving Technologies

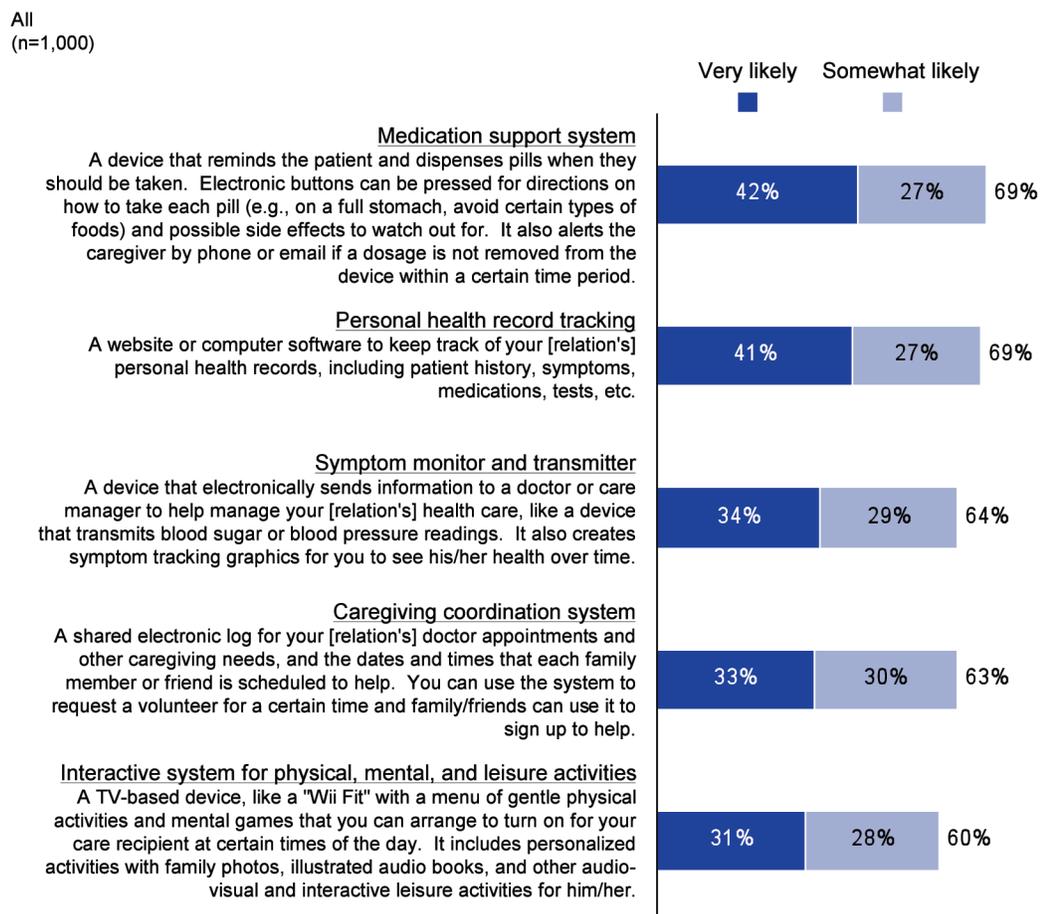
Technology-using caregivers are most receptive to technologies that help them deliver, monitor, track, or coordinate their loved one's medical care. In particular, seven in ten (69%) indicate they are *very* or *somewhat* likely to use a medication support system, with a pill dispenser and patient reminder as well as information about each medication and alerts to the caregiver if medications are not taken. An equal proportion (69%) report they are likely to use personal health record tracking. Note that the survey question about likelihood of use assumed the technology would be available for a nominal cost.

At least six out of ten respondents also report being likely to use:

- A monitor that measures symptoms and sends information electronically to doctors or care managers (64%)
- A caregiving coordination system, like a shared electronic log for keeping track of doctor appointments and allowing friends and relatives to sign up to help (63%)

Only one of the top five technologies is distinct from the medical-care nature of the others. It is an interactive TV-based system with a menu of physical, mental, and leisure activities for the care recipient; six in ten caregivers report they would be likely to use it (60%).

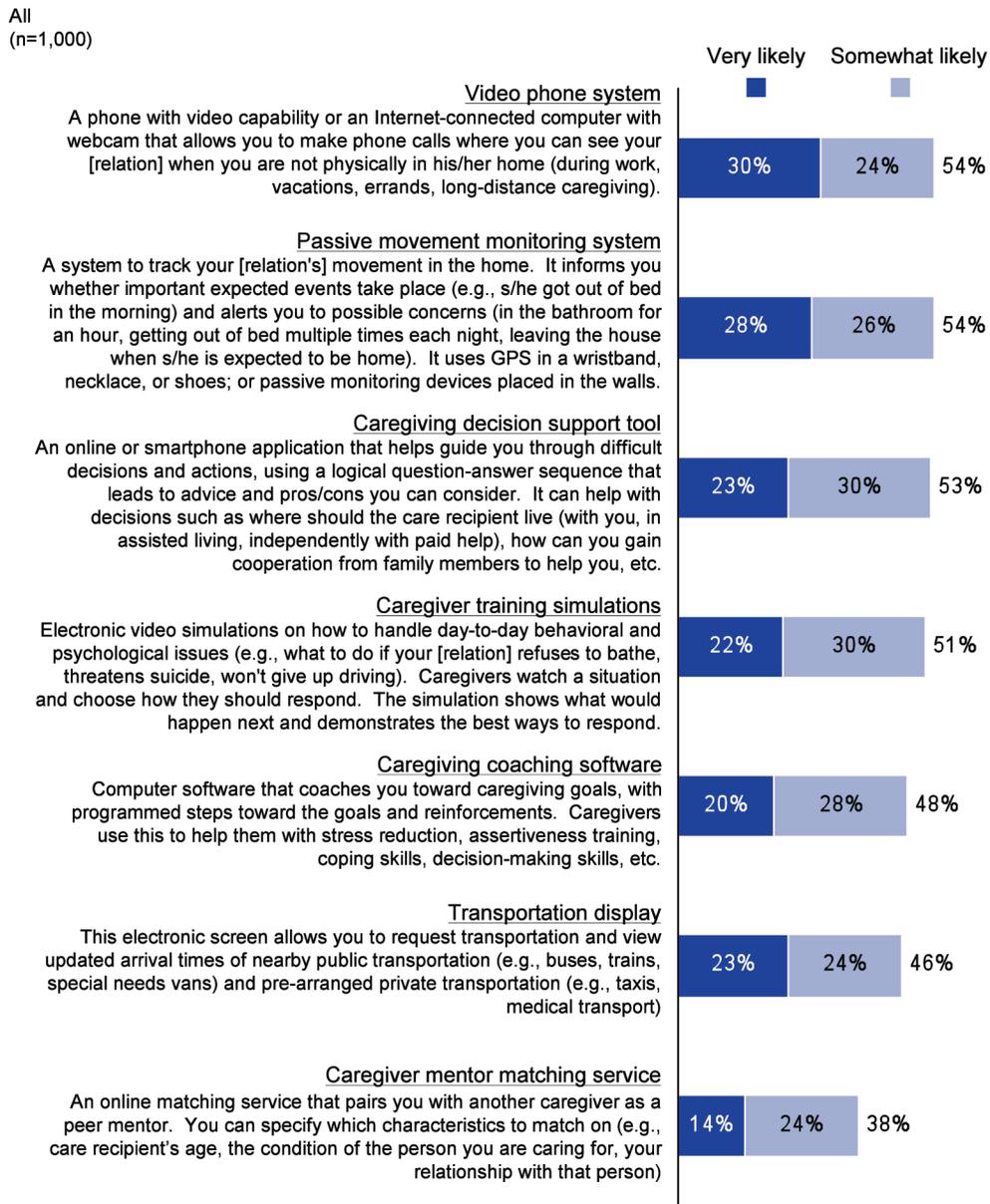
**Figure 17:**  
Likelihood of Using Caregiving Technologies  
Q13. Thinking about your current caregiving situation, how likely would you be to use this caregiving technology if it were available for a nominal cost?



Technologies rated as least likely to be used tend to focus on supporting the caregiver, through mentoring, coaching, training, or help with decision-making. Still, roughly half of caregivers report being likely to use each of these technologies if they were available for a nominal cost, except the caregiver mentor matching service, which only 38% say they would be likely to use.

**Figure 17:**  
Likelihood of Using Caregiving Technologies (continued)

Q13. Thinking about your current caregiving situation, how likely would you be to use this caregiving technology if it were available for a nominal cost?

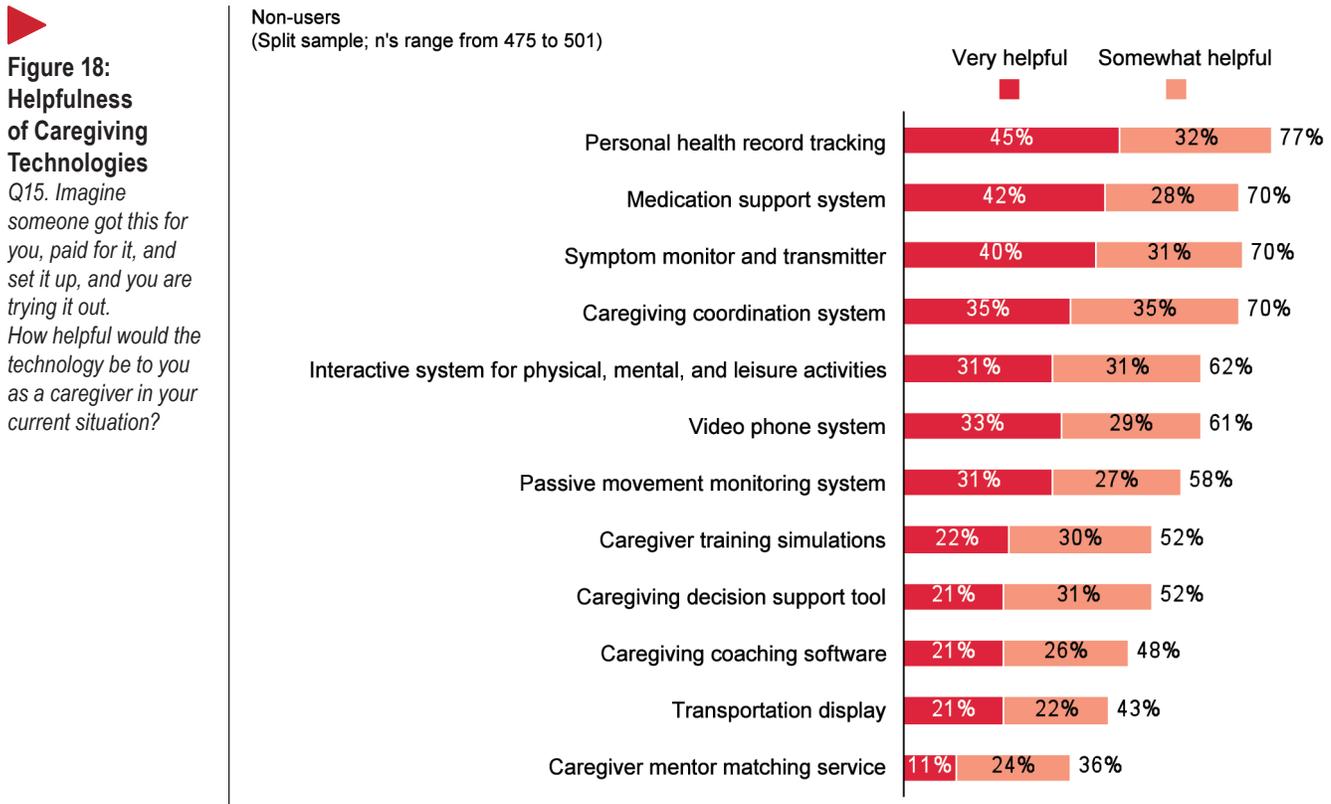


About half of caregivers also indicate they would be likely to use a video phone system (54%), a passive movement monitoring system (54%), or a system that facilitates use of public and private transportation (46%).

Small percentages of caregivers say they already use some of the technologies examined, most notably the interactive system for activities (6%), video phone system (5%), personal health record tracking (5%), symptom monitor and transmitter (3%), and medication support system (3%).

## Perceived Helpfulness of Caregiving Technologies

For each of the 12 technologies, caregivers were asked how helpful the technology would be if someone obtained it, paid for it, and set it up for them (those who reported they were already using a given technology were not asked this question). Caregivers' ratings of the helpfulness of each technology closely mirror their reported likelihood of using each.



For those technologies with a critical mass of caregivers already using them (minimum n=25), the vast majority of users rate them as helpful: a medication support system (93% *very/somewhat* helpful), personal health record tracking (92%), an interactive system for activities (91%), and a video phone system (91%). One exception is the symptom monitor and transmitter, which a smaller but still substantial majority considers to be helpful (76%).

### Subgroup Differences

- Caregivers with a medium to high burden of care are more likely than those with a lower burden of care to rate the following technologies as *somewhat* or *very* helpful.

	Low Burden	Medium to High Burden
	% somewhat/very helpful	
Interactive system for physical, mental, leisure activities	49%	64%
Passive movement monitoring system	43%	61%
Caregiver training simulations	39%	55%
Caregiving coaching software	29%	51%
Caregiver mentor matching service	26%	38%

- The differences above appear to be driven more by the portion of the burden of care index relating to the *number and type* of caregiving tasks provided rather than the *amount* of time spent caregiving. Indeed, caregivers who spend fewer than 20 hours per week providing care appear equally likely as those who spend more time in their caregiving role to rate these technologies as helpful.
- Racial and ethnic minority caregivers ages 50 and older are more likely than non-minority caregivers of the same age to rate nearly all of the technologies as helpful. Among the younger caregivers, no differences by race are apparent.

- As one might expect, caregivers who classify themselves as early adopters of technology are more apt to say they would be *somewhat* or *very* likely to try nearly all of the 12 technologies examined; the only exception is the passive movement monitoring system. However, early adopters are more likely than late adopters to perceive as helpful only four of the technologies:

	Late Adopter	Early Adopter
	% somewhat/very helpful	
Interactive system for physical, mental, leisure activities	52%	67%
Video phone system	55%	65%
Caregiving decision support tool	43%	56%
Caregiving coaching software	40%	52%

- Caregivers with a terminally ill care recipient are more apt than other caregivers to consider the symptom monitor and transmitter helpful (85% vs. 68%), as well as the caregiving coordination system (79% vs. 68%).
- As one might expect, caregivers whose recipient lives alone (but not in a care facility) are more likely than others to consider the passive movement monitoring system as helpful (67% vs. 53%).
- Long-distance caregivers—those who live an hour or more from their care recipient—are more likely to say they would use a caregiving coordination system (70% *very/somewhat* likely vs. 61% of those who live closer to their care recipient or together with him/her). Non-primary caregivers are also more apt than primary caregivers to report being likely to use this type of system (68% vs. 57%).



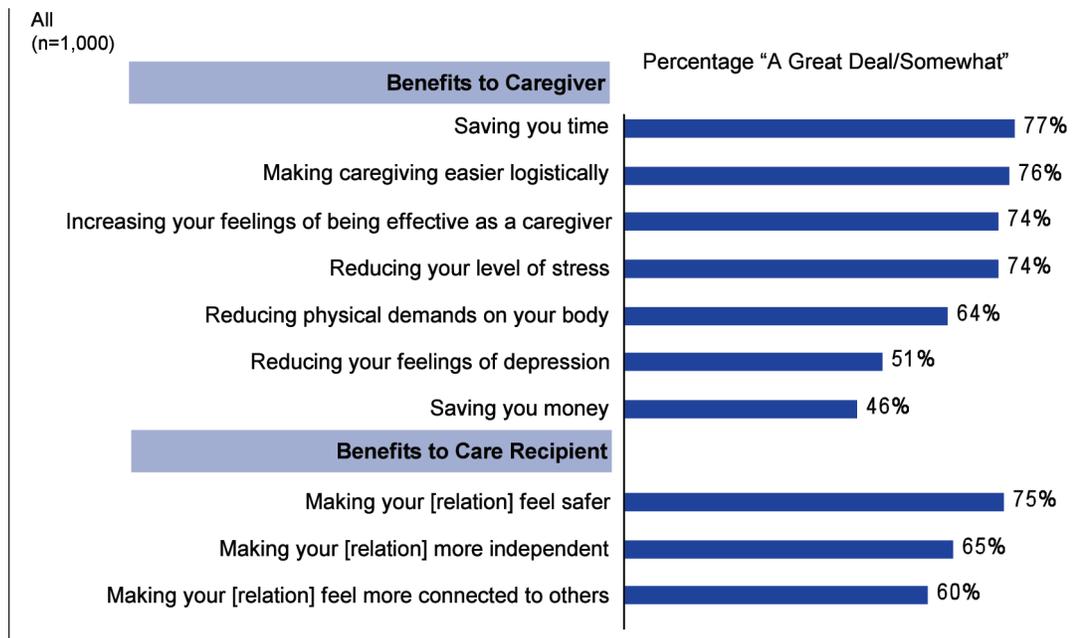
## E. Perceived Benefits of Usage

### Perceived Benefits of Using Caregiving Technologies

Large majorities of caregivers think that they would personally experience benefits from using caregiving technologies, with the top expected benefits being saving time (77% *somewhat* or a *great deal*), making caregiving easier logistically (76%), increasing feelings of being effective (74%), and reducing stress (74%). Smaller but still sizeable proportions believe technology would help reduce physical demands on their body (64%) or reduce their feelings of depression (51%). Almost half think it could save them money (46%).

Majorities of caregivers also think using caregiving technologies will result in direct benefits to their care recipient. Three-quarters report it could help their care recipient feel safer (75%), and at least six in ten feel it could help the recipient be more independent (65%) or feel more connected to others (60%).

**Figure 19:**  
**Perceived Benefits of Using Caregiving Technologies**  
 Q20. How much, if at all, would you expect using caregiving technologies to result in each of the following benefits?



## Subgroup Differences

- Caregivers who have a medium to high caregiving burden are more likely than those with a low burden of care to expect that using caregiving technologies will result in several benefits, including:

	Low Burden	Medium to High Burden
	% expecting benefit	
Making caregiving easier logistically	68%	77%
Increasing feelings of being effective as a caregiver	68%	76%
Reducing level of stress	67%	75%
Making care recipient feel more independent	54%	67%
Reducing physical demands on body	56%	65%

- Early adopters of technology are generally more likely than late adopters to expect that using caregiving technology will result in benefits for their care recipient—feeling safer, more independent, and more connected to others, as well as benefits for themselves—saving time, easier caregiving, and reduced physical demands on their body.
- Caregivers under the age of 50 are more likely to expect all of the potential benefits of caregiving technology asked about, except two—reducing demands on their body and reducing feelings of depression. Greater receptivity of younger caregivers is generally evident even when early adopter status is held constant.
- Larger proportions of racial and ethnic minority caregivers than white, non-minority caregivers report that technology would lead to all of the listed benefits, except for making caregiving easier logistically and making the care recipient feel safer.
- Long-distance caregivers, those who live one hour or more from their care recipient, are especially likely to think that technology could make them feel more effective as a caregiver (83% vs. 74% overall).

## F. Perceived Barriers to Usage

### Perceived Barriers to Using Technologies

For each of the technologies presented in the survey, caregivers were asked how they felt about each of seven beliefs (in the table below) that could potentially be barriers to using the technology. Then they were asked whether the belief would, in fact, prevent them from trying the technology.

Overall, the perception that a technology will be expensive is the most prevalent barrier, ranging from a low of 31% for the personal health record tracking and the caregiving coordination system to a high of 53% for the passive movement monitoring system (see Figures 21 through 30 for barriers to each specific technology). On average, across all 12 technologies, perceived expense is a barrier for 37% of caregivers. The next most common barriers to trying the 12 technologies, on average, are the belief that the technology does not address a pressing caregiving issue (22%) and the perception that the care recipient would resist accepting it (20%).

**Figure 20: Prevalence of Barriers to Trying Technologies, Average Across 12 Technologies**

Q16. Read each statement below...Is it true or false?

Q17. For each true statement, would that prevent you from trying out the technology?

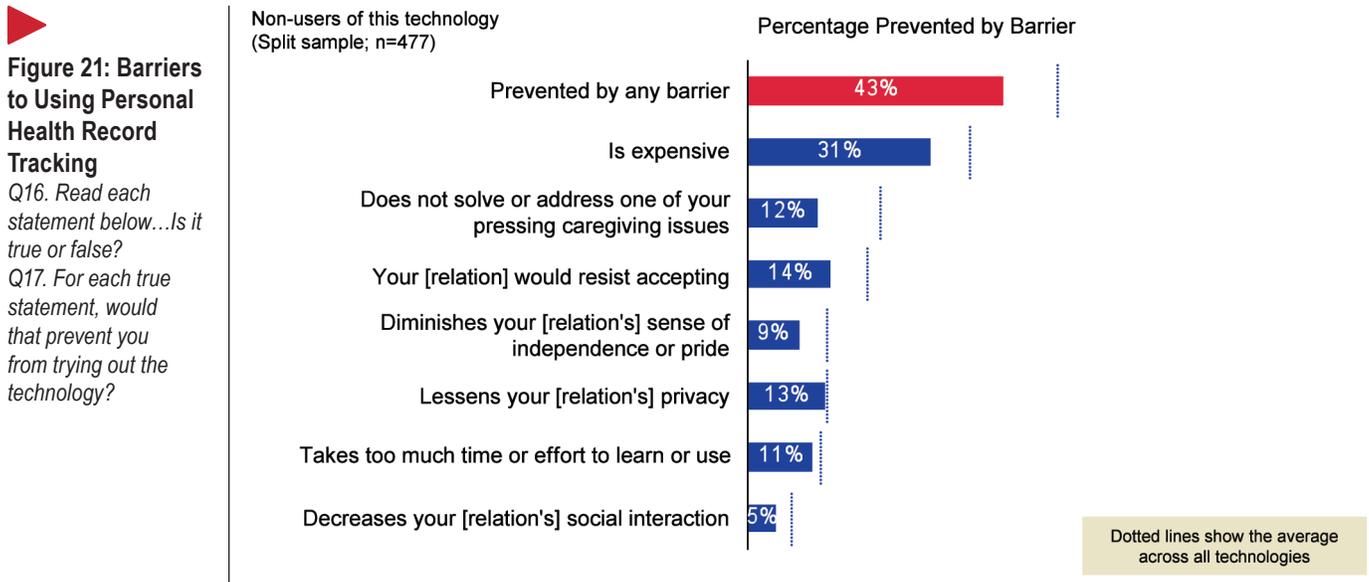
	% Saying Belief Would Prevent Them From Trying Out Technologies (Average)
†You believe that this technology will be expensive	37%
†You believe that this technology does not solve or address one of your pressing caregiving issues	22%
You believe that your [relation] would resist accepting this technology	20%
You believe that this technology would diminish your [relation's] sense of independence or pride	13%
You believe that this technology would lessen your [relation's] privacy	13%
†You believe that this technology would take too much time or effort to learn or use	12%
You believe that this technology would decrease your [relation's] level of social interaction	7%

Half of caregivers (52%)—on average across all technologies—indicate that one or more of the above barriers would prevent them from trying the technology.

† For the technologies oriented toward supporting the caregiver (mentor matching, caregiver training simulations, caregiving coaching software, and caregiving decision support tool), only three potential barriers applied.

## Perceived Barriers to Technologies Oriented Toward Facilitating Caregiving

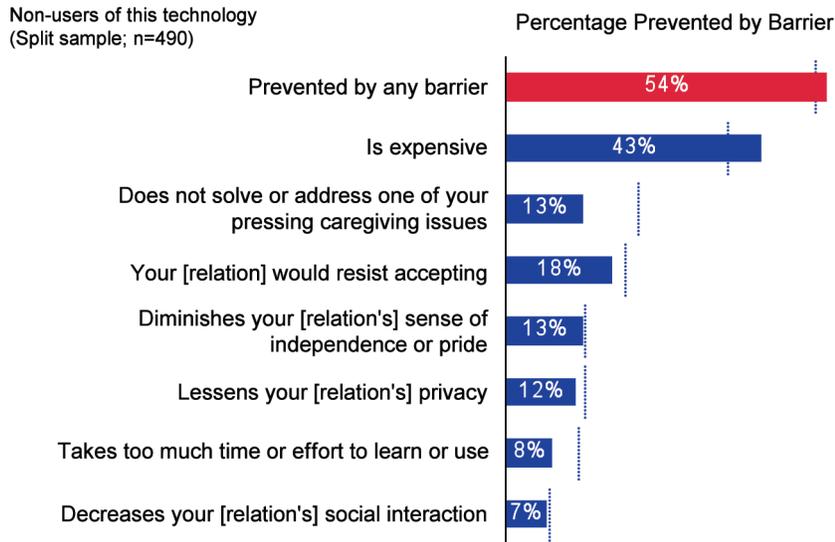
Four in ten caregivers (43%) indicate that one or more of the seven potential barriers would prevent them from using personal health record tracking—the lowest percentage of all the technologies examined in the survey. Still, three in ten believe the technology would be expensive, to the point that expense becomes an obstacle to trying a personal health record (31%). Other perceptions that would prevent caregivers from trying the technology include the beliefs that their loved one would resist it (14%), that it would lessen their care recipient's privacy (13%), that it does not address an important caregiving issue (12%), and that too much effort is required to learn to use it (11%).



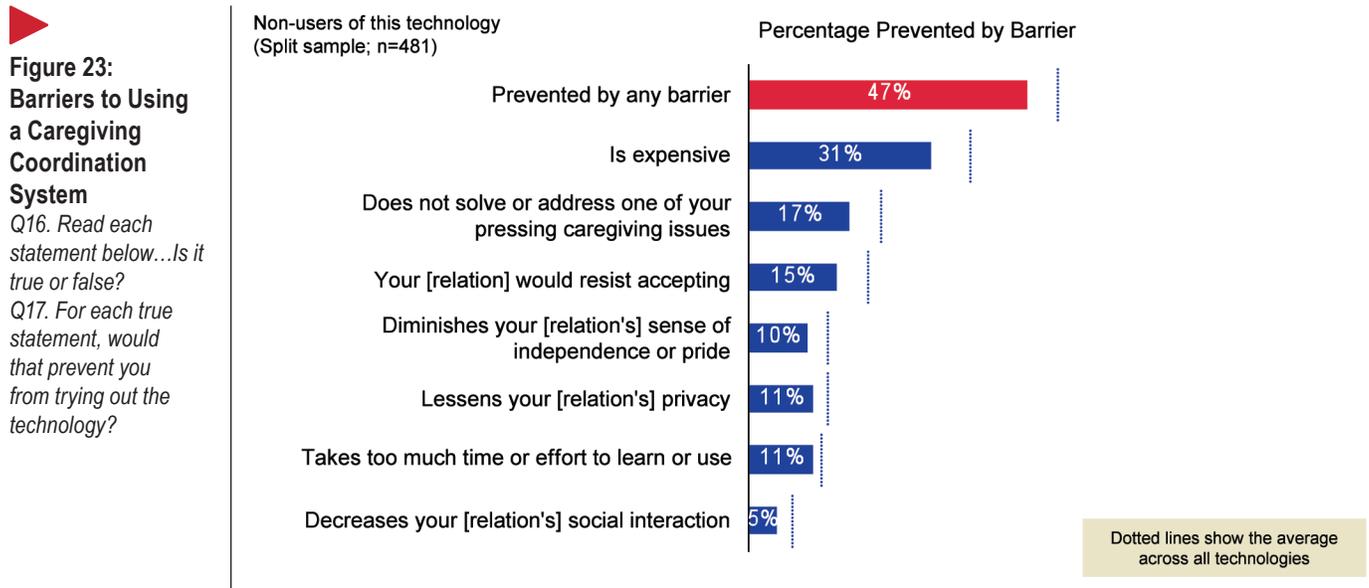
The expected cost of a symptom monitor and transmitter presents a barrier to using it for four in ten caregivers (43%), more than the average of 37% across the 12 technologies. However, this type of device does appear to be in line with caregivers' needs; only 13% report that they would not use such a device because it does not solve one of their pressing needs (compared to 22% on average across technologies). Overall, half of caregivers (54%) indicate that one or more of the potential barriers asked about would block them from trying a symptom monitor and transmitter.

**Figure 22: Barriers to Using a Symptom Monitor and Transmitter**

Q16. Read each statement below...Is it true or false?  
 Q17. For each true statement, would that prevent you from trying out the technology?

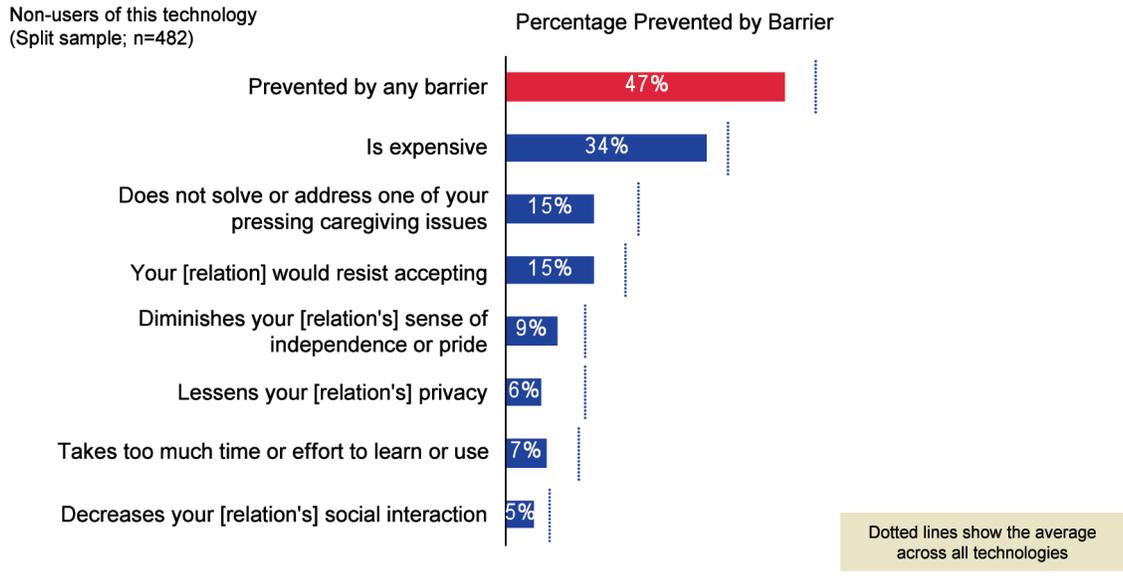


Although half of caregivers (47%) feel one or more of the potential barriers shown below would prevent them from trying a caregiving coordination system, reported obstacles are less common than they are on average across all the technologies evaluated. The top barrier is cost (31%), followed by the view that it does not address an important caregiving need (17%). Resistance from the care recipient (15%), the learning curve to use it (11%), and a perceived lessening of their loved one's privacy (11%) are each obstacles for at least one in ten caregivers.



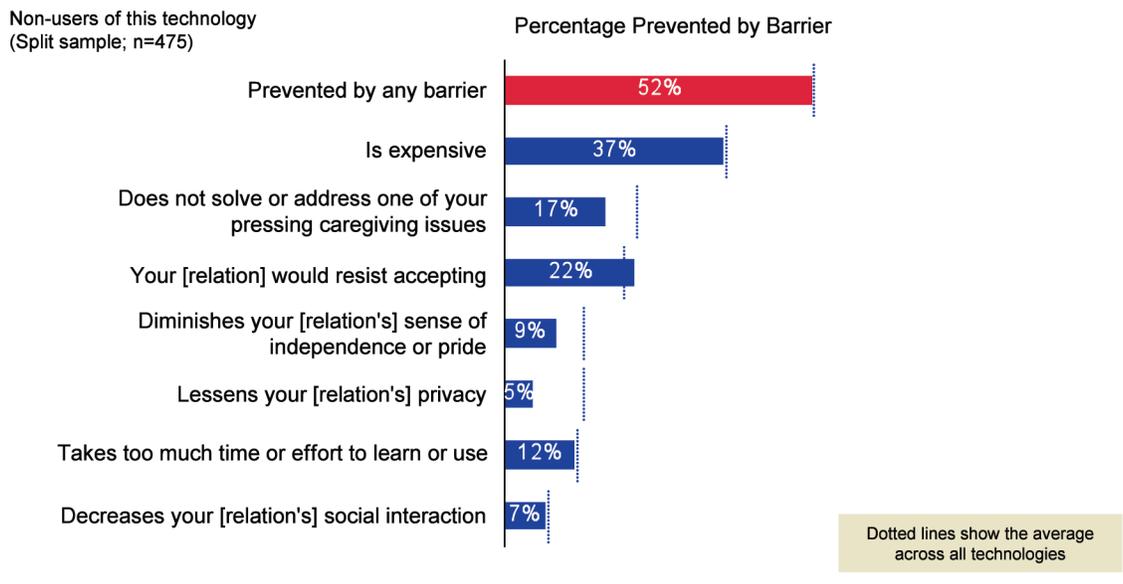
Just fewer than half of caregivers indicate that one or more barriers would prevent them from trying a medication support system (47%). The perception that it would be expensive would prevent 34% from trying it. Medication support is not a pressing enough concern for 15% to try this system, and 15% would not use it because they believe their care recipient would resist accepting it. Each barrier is less prevalent than the average across all of the technologies.

**Figure 24: Barriers to Using a Medication Support System**  
 Q16. Read each statement below...Is it true or false?  
 Q17. For each true statement, would that prevent you from trying out the technology?



Half of caregivers would not try a TV-based interactive system to engage their care recipient in activities for one or more of the reasons asked about (52%). As with all the technologies, expense is the most common obstacle to trying it (37%), but also, one in five caregivers believe their care recipient would resist this technology (22%). One in six caregivers (17%) would not try it because it does not solve a salient caregiving issue.

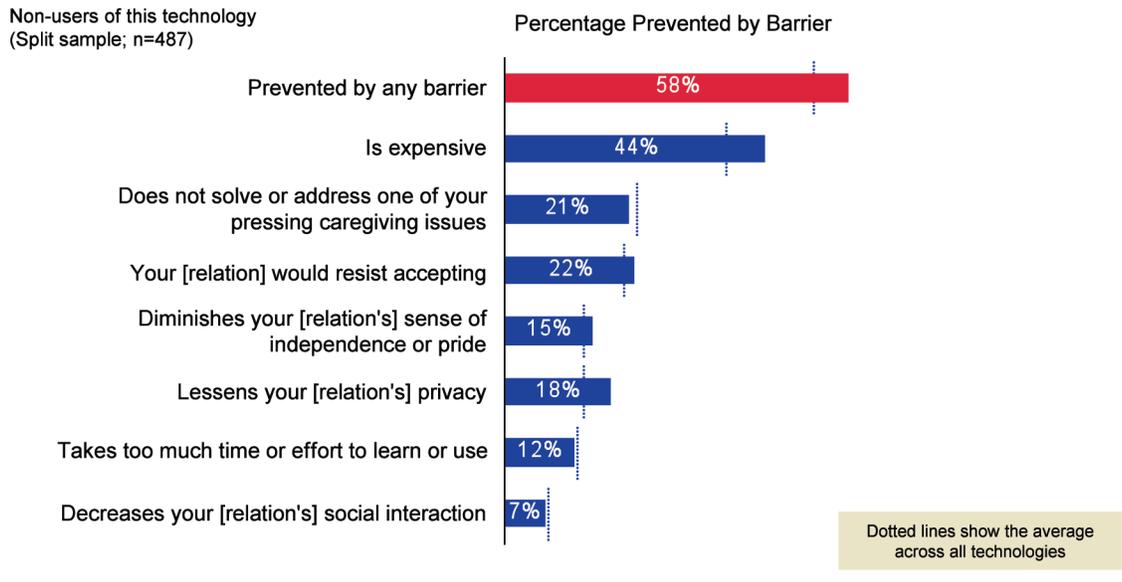
**Figure 25: Barriers to Using an Interactive System for Physical, Mental, and Leisure Activities**  
 Q16. Read each statement below...Is it true or false?  
 Q17. For each true statement, would that prevent you from trying out the technology?



Video phone systems are thought to be too expensive to try by 44% of technology-using caregivers. This common barrier contributes to the high overall proportion of caregivers who are unwilling to try this caregiving technology for one or more of the reasons examined (58%). Also barriers: the belief that their care recipient would resist accepting it (22%) and failure to address an important caregiving issue (21%). Concerns about infringing on their loved one’s privacy is notably higher than average across the 12 technologies (18% vs. 13%).

**Figure 26: Barriers to Using a Video Phone System**

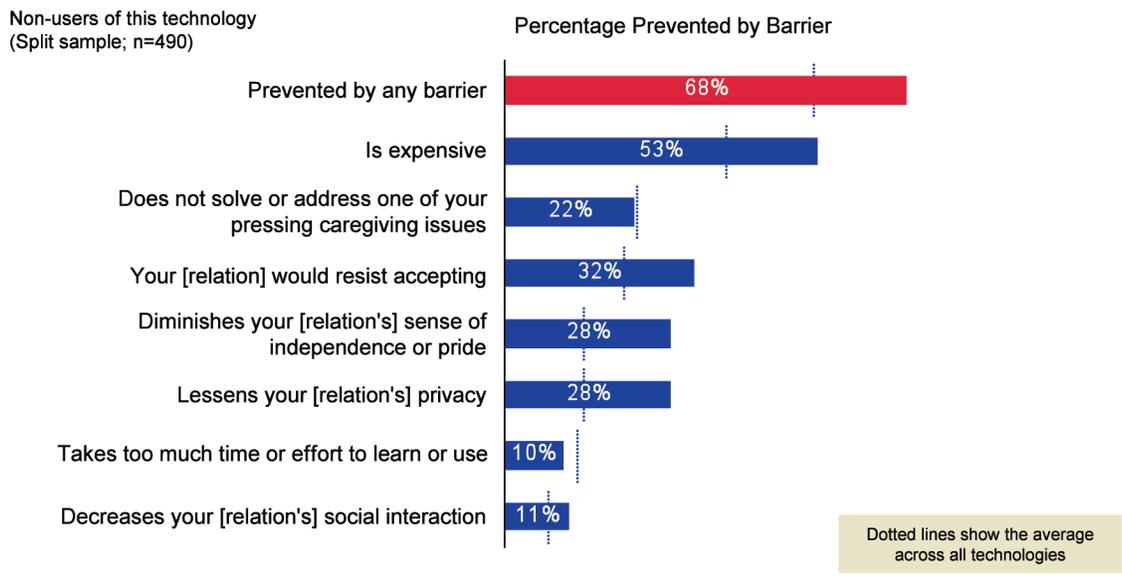
Q16. Read each statement below...Is it true or false?  
Q17. For each true statement, would that prevent you from trying out the technology?



Of all the technologies presented, the technology which the largest proportion of caregivers object to trying is the passive movement monitoring system (68%). Far larger than average proportions of caregivers indicate they would not try this type of monitoring because of perceived expense (53%), anticipated resistance by the care recipient (32%), a belief that that this type of system would diminish their loved one’s independence or pride (28%), and a belief that it would lessen his/her privacy (28%).

**Figure 27: Barriers to Using a Passive Movement Monitoring System**

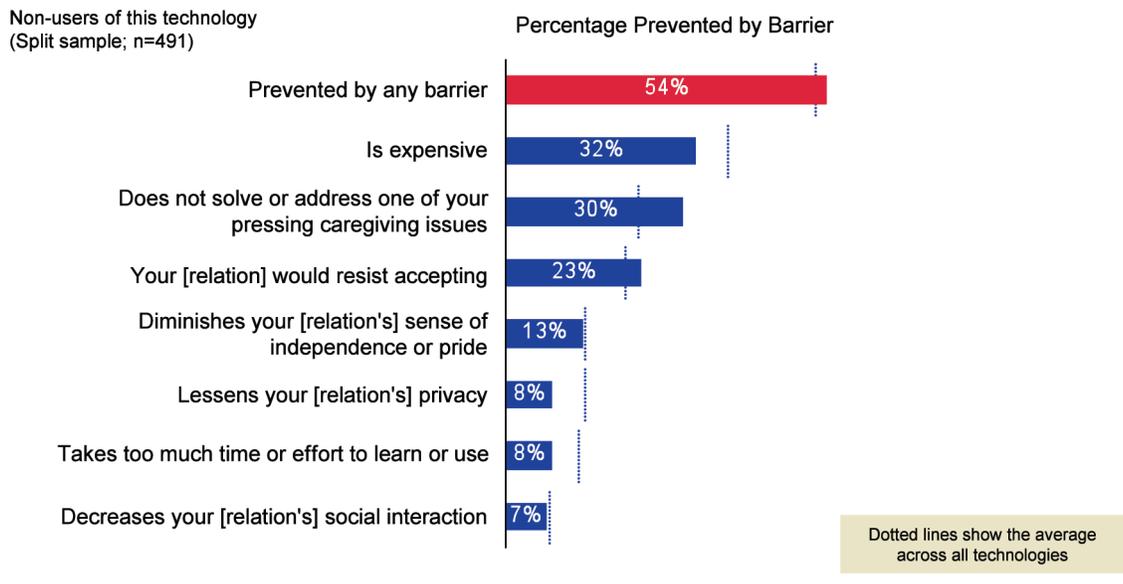
Q16. Read each statement below...Is it true or false?  
Q17. For each true statement, would that prevent you from trying out the technology?



Half of technology-using caregivers (54%) say one or more of the barriers below would prevent them from using a system that allows caregivers or care recipients to request transportation and view transportation arrival times. A barrier for three in ten is that it does not address one of their pressing caregiving issues (30%), considerably more than the 22% average across all the technologies examined.

**Figure 28:**  
**Barriers to Using a Transportation Display**

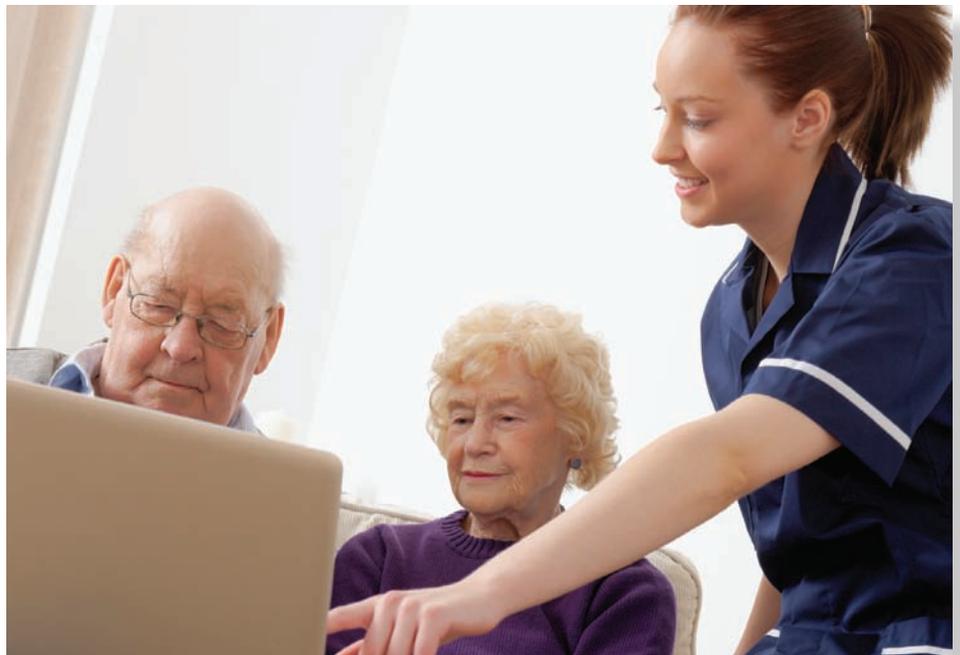
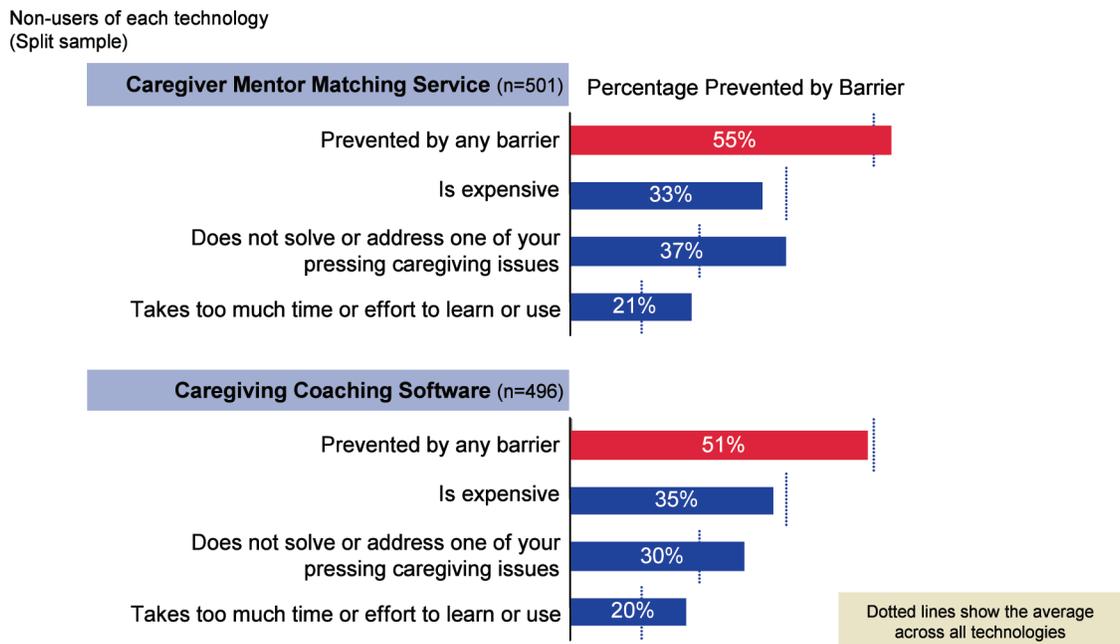
Q16. Read each statement below...Is it true or false?  
 Q17. For each true statement, would that prevent you from trying out the technology?



## Perceived Barriers to Technologies Oriented Toward Supporting the Caregiver

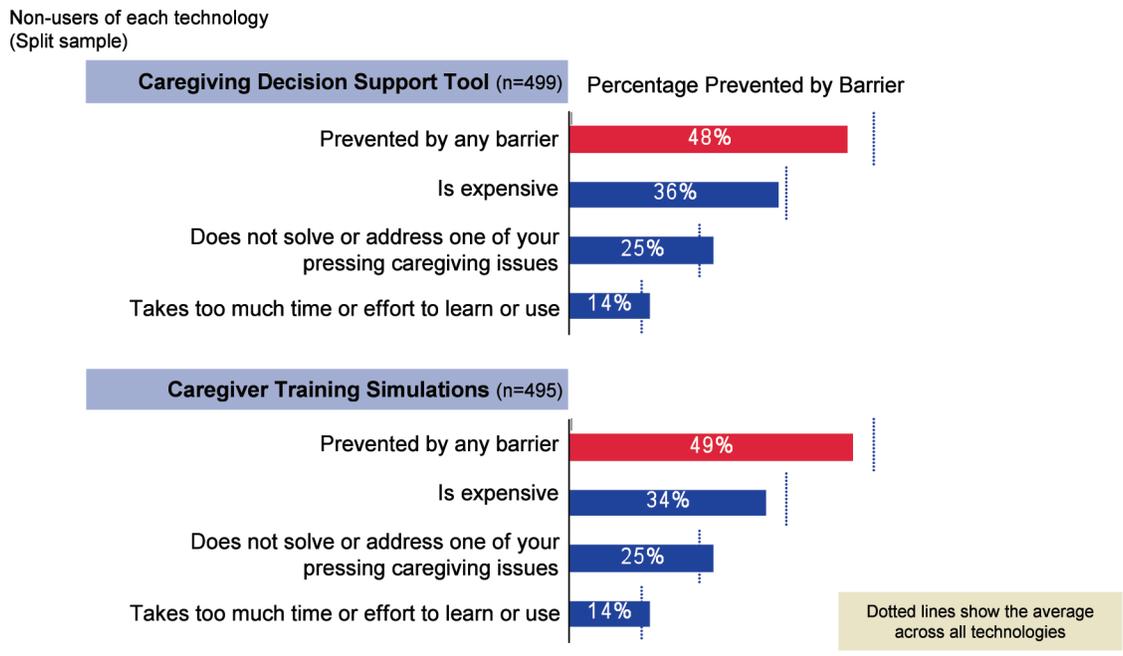
Caregiver ratings of potential barriers to trying a mentor matching service are similar to those for caregiver coaching software. About a third cites expense as a barrier to trial (33% and 35%, respectively). A roughly equal proportion would not try these services because they do not address a pressing caregiving need (37%, 30%), and one in five reports the time or effort they anticipate it would take to learn or use these technologies would prevent them from trying them (21%, 20%).

**Figure 29:**  
**Barriers to Using Mentor Matching or Coaching Technologies**  
 Q16. Read each statement below...Is it true or false?  
 Q17. For each true statement, would that prevent you from trying out the technology?



Expense is an obstacle to trying a caregiving support tool or caregiver training simulations for one-third of caregivers (36%, 34%). One in four caregivers would not try these technologies because they do not address one of their more salient caregiving issues (25% each), and 14% would be stopped from trying each because of the anticipated learning curve.

**Figure 30:**  
**Barriers to Using Decision Support Tool or Training Simulations**  
 Q16. Read each statement below...Is it true or false?  
 Q17. For each true statement, would that prevent you from trying out the technology?



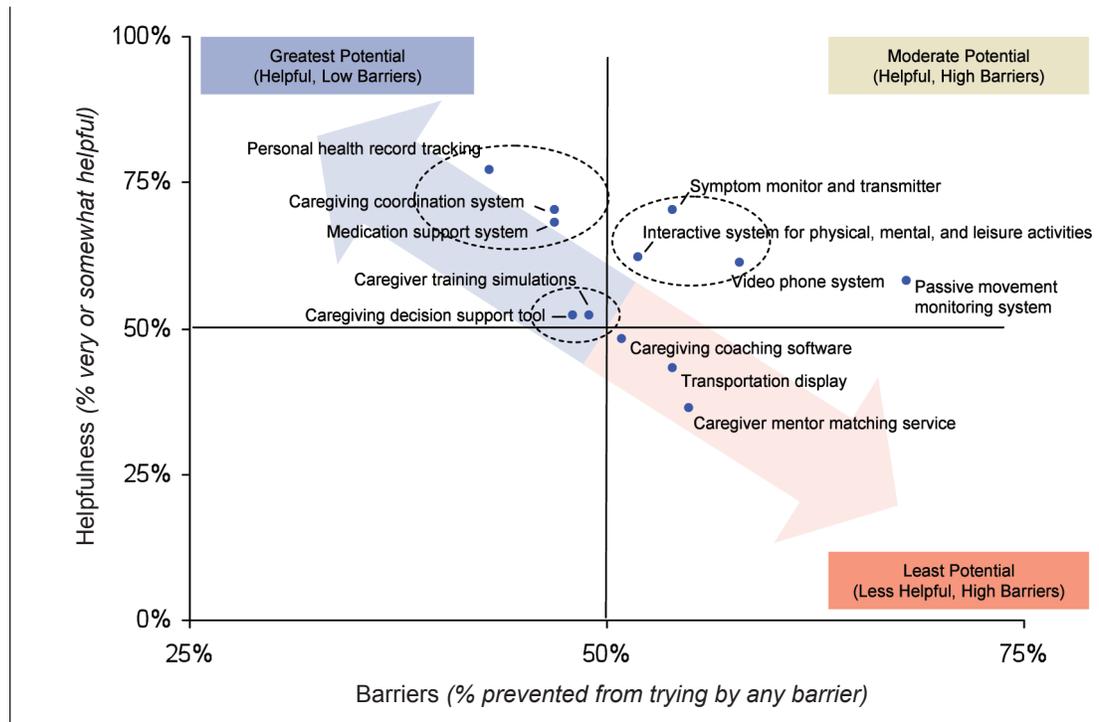
### Summary of Perceived Helpfulness vs. Barriers

By plotting the percentage of caregivers who think a technology is helpful by the percentage who report that one or more barriers would prevent them from trying it, one can visualize which technologies have the greatest potential. Three technologies—highlighted in the largest oval—fall into that category; they have the highest percentages of caregivers rating them as helpful and the smallest proportions reporting obstacles to trying them:

- Personal health record tracking (77% helpful, 43% would not try because of one or more barriers)
- Caregiving coordination system (70%, 47%)
- Medication support system (70%, 47%)

The potential usage of these technologies could be improved even further by making them available for a low price or even free, since perceived expense is the most common barrier to trying them.

**Figure 31:**  
Perceived  
Helpfulness vs.  
Barriers for Each  
Technology



Three other technologies (in the medium oval) are seen as helpful by most caregivers, but barriers to their usage are more prevalent:

- Symptom monitor and transmitter (70% helpful, 54% would not try because of one or more barriers)
- Interactive system for physical, mental, leisure activities (62%, 52%)
- Video phone system (61%, 58%)

The most prevalent obstacle to trying these devices is the perception that they would be expensive. Further, potential resistance by the care recipient also emerges as an issue for the interactive activity system and the video phone system, more commonly than on average across all of the technologies evaluated. Addressing those barriers could help make these technologies into acceptable options for caregivers who could benefit from them.

Two additional technologies of a very different nature—those geared toward supporting the caregiver—may also have modest potential (small oval). Fewer caregivers consider them helpful, yet barriers to their use are a little lower than for other technologies. Of note, fewer barriers are applicable since these technologies do not directly affect the care recipient.

- Caregiver training simulations (52% helpful, 49% would not try because of one or more barriers)
- Caregiving decision support tool (52%, 48%)

Four remaining technologies evaluated in the survey have less potential. Specifically, the passive movement monitoring system is seen as helpful, but notable barriers to trying it include the beliefs that it would be expensive, that the care recipient would resist it, that it would diminish the recipient's sense of independence or pride, and that it would lessen his/her privacy. Caregiving coaching software, a transportation display, and a caregiving mentor matching service are rated as helpful by fewer than half of caregivers.



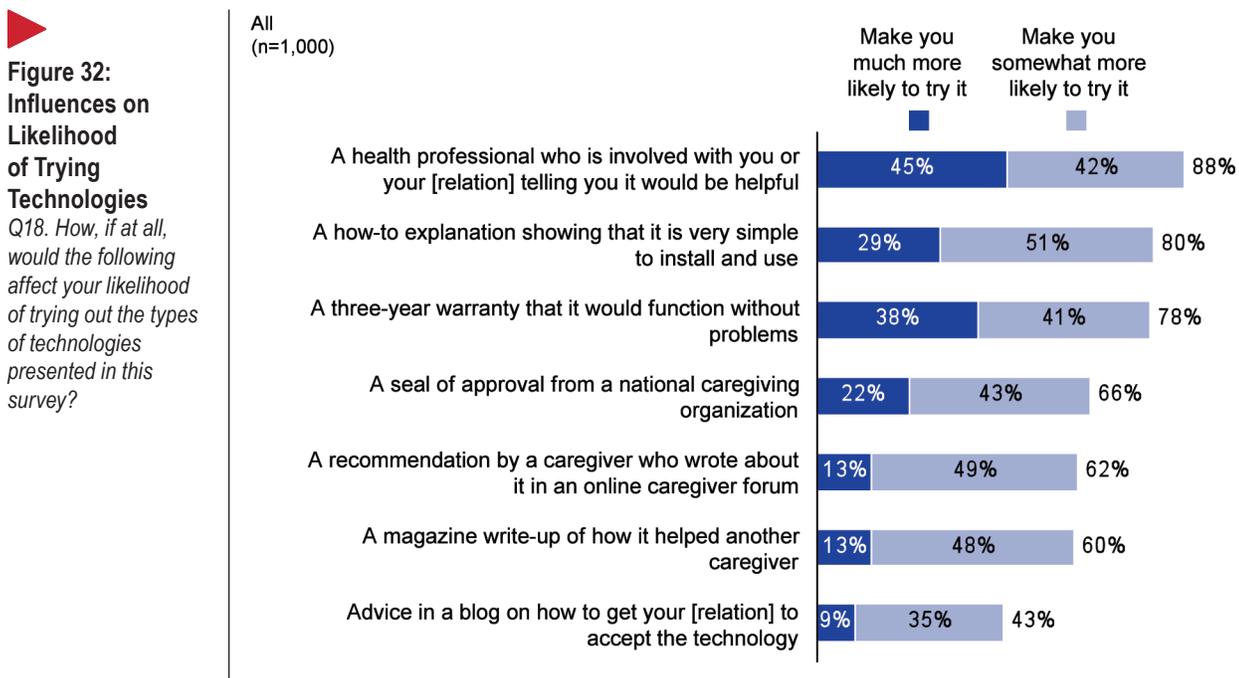
## G. Influencers and Information Sources

### Influencers

Three factors stand out as ways to encourage family caregivers to try out new technologies to help them with caregiving:

- A health professional explaining that it would be helpful
- A how-to explanation showing it is very simple to install and use
- A three-year warranty

More than three-quarters of caregivers say each of these would make them *somewhat* or *much* more likely to try out the types of technologies presented in the survey. Other influencers that reach at least six in ten caregivers include a seal of approval from a national caregiving organization (66% more likely), a recommendation from a caregiver in an online forum (62%), and a magazine write-up of how a technology helped another caregiver (60%).

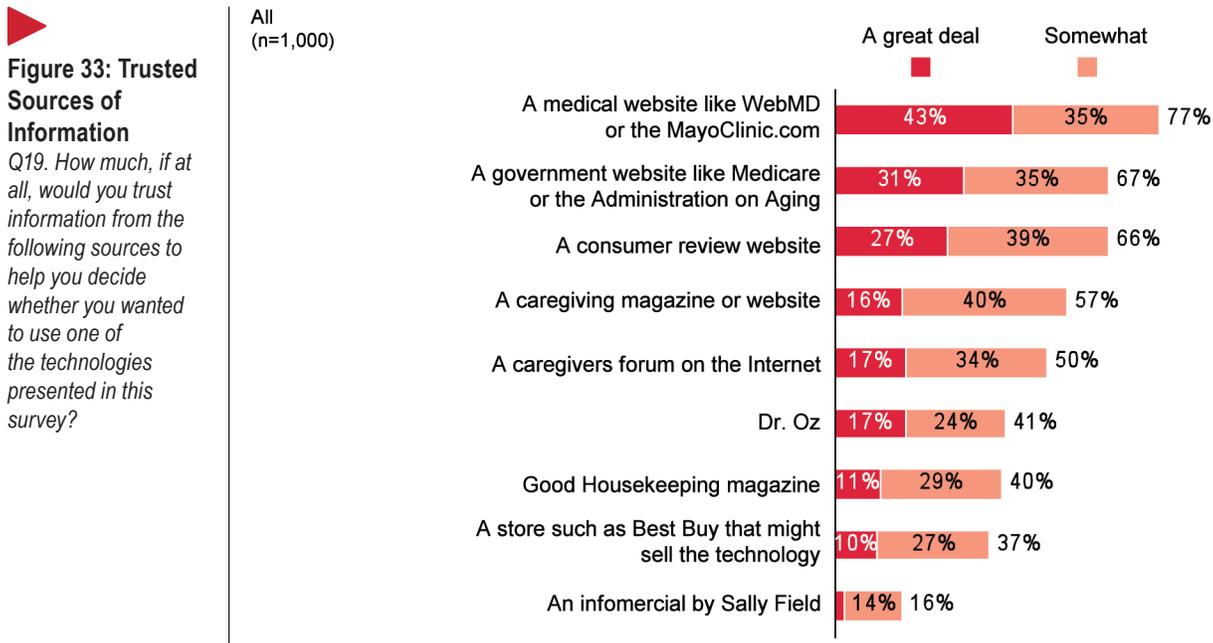


### Subgroup Differences

- Early adopters of technology and younger caregivers (under the age of 50), who have already reported greater likelihood of trying caregiving technologies, both appear to be receptive to advice from and stories about other caregivers. In particular, they are more apt to report they would be influenced by a caregiver's recommendation online, a magazine write-up of how the technology helped a caregiver, or advice in a blog about gaining acceptance from their loved one.

## Information Sources

A medical website, like WebMD or the MayoClinic.com, is the source caregivers are most likely to trust for information to help them decide whether they want to use a caregiving technology. Three-quarters (77%) say they would trust such a website *somewhat* or a *great deal*. Two-thirds would trust a government website like Medicare or the Administration on Aging (67%) or a consumer review website (66%). Caregiving sources are the ones caregivers are next most likely to trust, including a caregiving magazine or website (57%) and a caregiver forum on the Internet (50%).



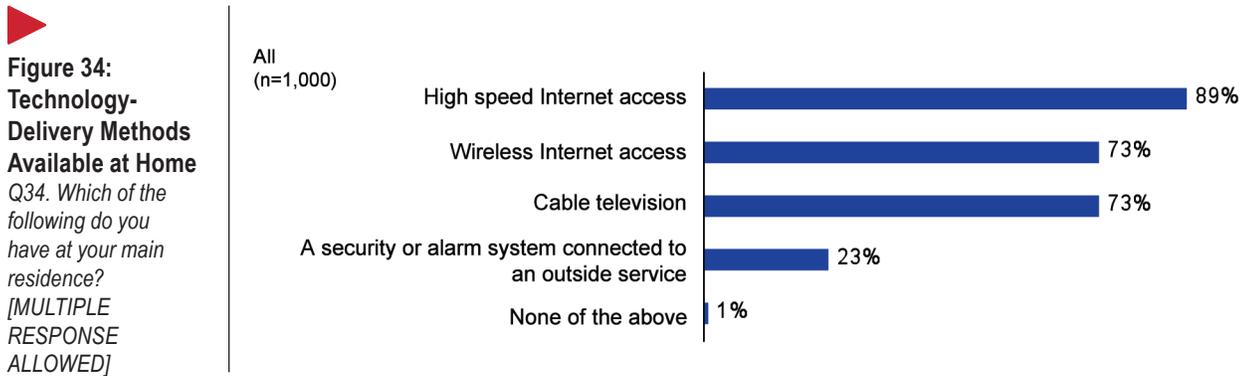
## Subgroup Differences

- Caregivers with a medium to high burden of care are more likely to trust a consumer review website (68% vs. 55%), a caregiving magazine (58% vs. 48%), a caregivers forum (52% vs. 41%), Good Housekeeping magazine (42% vs. 33%), or a Sally Field infomercial (17% vs. 10%).

## H. Delivery of Technology

### Access to Methods of Delivering Technology

Caregivers were asked whether they have Internet, cable, or an alarm system connected to an outside service—all potential means of delivering caregiving technology in the home. Nine in ten say they have high speed Internet access (89%), and seven in ten have wireless Internet or cable television (73% each). More than one in five (23%) have a security or alarm system that is connected to an outside service.



### Subgroup Differences

- Younger caregivers are also more apt to say they have wireless Internet access at home (79% of 18- to 49-year-olds vs. 66% of older caregivers).
- A larger proportion of caregivers with at least \$50,000 in household income than lower income caregivers have cable television (76% vs. 69%) or a security/alarm service (29% vs. 14%).

Fully three-quarters of technology-using caregivers have access to a mobile device with browsing capability (74%). Four in ten can access the web through a smartphone (41%), including 33% who claim to also have another mobile device with browsing capability (such as an iTouch, iPad, or laptop). An additional 33% has a mobile device with Internet browsing but do not have a smartphone. Mobile devices are increasingly used by providers of healthcare information.

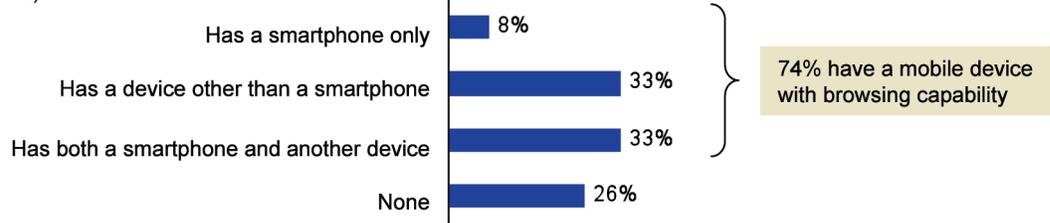


**Figure 35: Mobile Internet Access**

Q31. Do you use a smartphone of any kind? (e.g., iPhone, Blackberry, Palm Pre, Droid, etc.)

Q33. Do you use any other mobile wireless device [IF HAS SMARTPHONE: besides your smartphone] that has full Internet browsing (e.g., iTouch, iPad, laptop, etc.)?

All (n=1,000)

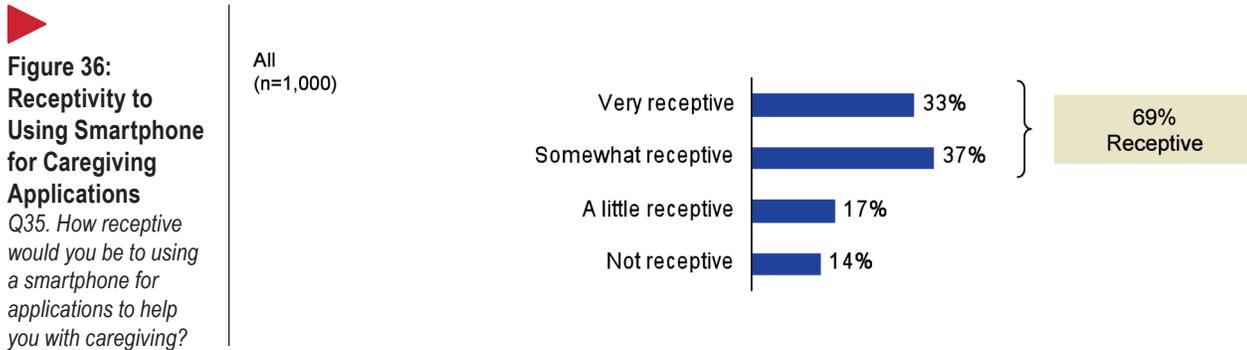


**Subgroup Differences**

- Younger caregivers are far more likely than those ages 50 or older to have a mobile device with Internet browsing (86% vs. 60%).
- Caregivers to recipients under the age of 75 are also more likely (78% vs. 67% of those with older recipients).
- Caregivers whose loved one has a terminal illness are less likely than other caregivers to have this mobile capability (66% vs. 75%).
- Higher income caregivers are more apt to have mobile access to the Internet (79% of those with \$50,000 or more in household income vs. 68% of lower income caregivers).

## Receptivity to Using Smartphone for Caregiving Applications

Seven in ten technology-using caregivers report they would be *somewhat* or *very* receptive to using a smartphone for applications to help them with caregiving (69%).



### Subgroup Differences

- Younger caregivers are twice as likely to report being *very* receptive (43% vs. 21% of caregivers age 50 or older) to using smartphone applications to help with caregiving.
- Those employed full time are more receptive than caregivers who are not employed to using a smartphone to help with caregiving (78% vs. 57% *very/somewhat* receptive), even when controlling for the caregiver's age.
- A larger proportion of medium to high burden caregivers report being *very* receptive (34%) relative to low burden caregivers (25%).

## I. Profile of Respondents

A slight majority of respondents are female (54%). Most (80%) are white, while nearly one in ten (9%) are African-American. Two-thirds (65%) are employed, with 47% working full time and 18% working part time. Four in ten have completed college (38%). Half have an annual household income of \$50,000 or more (48%).

	Panel Respondents (n=1,000)
<b>Caregiver Gender</b>	
Male	46%
Female	54
<b>Caregiver Age</b>	
18 to 49	53%
50 or older	47
<b>Race/Ethnicity of Caregiver</b>	
White	80%
African-American	9
Hispanic	7
Asian-American	2
Other	2
<b>Employment Status</b>	
Working full time	47%
Working part time	18
Not employed	35
<b>Education</b>	
Less than high school	1%
High school graduate/GED	20
Some college or technical school	40
College graduate	23
Graduate school	16
<b>Household Income</b>	
Less than \$15,000	2%
\$15,000 to \$29,999	11
\$30,000 to \$49,999	32
\$50,000 to \$74,999	26
\$75,000 to \$99,999	11
\$100,000 or more	11
Decline to answer	8

## Appendix A: Questionnaire

### INITIAL DEMOGRAPHICS AND CAREGIVING BACKGROUND

1. How old are you?
  - Younger than 18 [TERMINATE]..... 1
  - 18 to 34.....2
  - 35 to 49.....3
  - 50 to 64.....4
  - 65 to 74.....5
  - 75 or older .....6
  
2. What is the last grade of school you completed?
  - Less than high school ..... 1
  - High school grad/GED .....2
  - Some college .....3
  - Technical school .....4
  - College grad .....5
  - Graduate school/Grad work .....6
  
3. Are you... *(Check all that apply)*
  - White..... 1
  - African American .....2
  - Hispanic.....3
  - Asian.....4
  - Other.....5
  
4. Are you...
  - Male..... 1
  - Female.....2
  
5. In the last 12 months, have you provided unpaid care to a relative or friend 18 years or older to help them take care of themselves because of some physical or mental illness, disability, or frailty?

Unpaid care may include help with personal needs or household chores. It might be managing a person's finances, arranging for outside services, or visiting regularly to see how they are doing. This person need not live with you.

  - Yes, currently providing care ..... 1
  - Yes, provided care in last 12 months but not currently.....2
  - No [TERMINATE].....3
  - Don't know [TERMINATE].....4

**SHOW ON SEPARATE SCREEN**

*If you provide unpaid care to more than one person...*

Please think about the adult to whom you provide *the most* care.

**[IF q5=2]** *Since you are not currently providing care*

Please think about *the last few months* that you provided care as you respond to the questions.

Click Next to continue.

6. How old is the person for whom you provide care?
- |   |    |
|---|----|
| Less than 18 years of age <b>[TERMINATE AFTER Q8]</b> ..... | 1  |
| 18 to 24.....   | 2  |
| 25 to 34.....   | 3  |
| 35 to 44.....   | 4  |
| 45 to 54.....   | 5  |
| 55 to 64.....   | 6  |
| 65 to 74.....   | 7  |
| 75 to 84.....   | 8  |
| 85 or older .....   | 9  |
| Don't know <b>[TERMINATE]</b> .....                         | 10 |
- 
27. Which of the following kinds of help, if any, have you provided within the last 12 months to the person you are caring for? **[RANDOMIZE.]**
- |   | Yes | No |
|---|-----|----|
| a. Bathing                              | 1   | 2  |
| b. Getting dressed                      | 1   | 2  |
| c. Feeding                              | 1   | 2  |
| d. Getting in and out of beds or chairs | 1   | 2  |
| e. Help with toileting                  | 1   | 2  |
| f. Dealing with incontinence or diapers | 1   | 2  |
- 
28. Which of the following kinds of help, if any, have you provided within the last 12 months to the person you are caring for? **[RANDOMIZE.]**
- |   | Yes | No |
|---|-----|----|
| a. Giving medicines, pills or injections  | 1   | 2  |
| b. Managing finances (such as bills or insurance paperwork)   | 1   | 2  |
| c. Grocery shopping   | 1   | 2  |
| d. Housework (such as dishes, laundry, or straightening up)   | 1   | 2  |
| e. Preparing meals  | 1   | 2  |
| f. Transportation (driving, helping arrange for transportation, or accompanying on public transit)    | 1   | 2  |
| g. Arranging or supervising paid services (such as nurses, aides, Meals on Wheels, or other services) | 1   | 2  |

7. Thinking about all the kinds of help you provide for your [relation], how many hours do you spend in an average week providing care to him/her?

- 2 hours or less [TERMINATE AFTER Q8] ..... 1
- 3 to 4 hours [TERMINATE AFTER Q8]..... 7
- 5 to 8 hours..... 2
- 9 to 20 hours..... 3
- 21 to 40 hours..... 4
- 41 to 80 hours..... 5
- More than 80 hours ..... 6

8. Have you done the following to help you provide care? Have you...[RANDOMIZE A TO C]

	Yes	No
a. Searched for caregiving-related information or caregiving support on the Internet	1	2
b. Used an electronic organizer or calendar in some way related to caregiving	1	2
c. Participated in a blog or online discussion forum related to caregiving	1	2
d. Used any other technological devices or systems to help you with caregiving (other than standard computer or cell phone usage)? Examples include:	1	2
• Personal emergency response system for when a person falls and needs help		
• Symptom monitors that transmit data to doctors		
• Electronic safety sensors		
• Electronic personal health records		
• Video monitoring		
• Etc		

[IF “YES” TO ANY OF THE ABOVE, CONTINUE. IF NO, TERMINATE AFTER Q8.]

9. Is the person to whom you provide care...

- Male ..... 1
- Female..... 2

[USE RESPONSE TO GUIDE TOGGLES FOR HIM/HER OR HE/SHE WHERE SHOWN]

10. Is the person to whom you provide care your...  
**[PROGRAMMING INSERTS TO BE USED LATER ARE SHOWN TO THE RIGHT]**  
**PLEASE SHOW LIST IN ONE VERTICAL LIST OR DROP-DOWN**

- 1 Friend/neighbor
- 2 Grandparent or great grandparent
- 3 Father
- 4 Father-in-law
- 5 Brother
- 6 Brother-in-law
- 7 Son
- 8 Son-in-law
- 9 Husband
- 10 Partner or significant other
- 11 Uncle or great uncle
- 12 Other relative
- 13 Other non-relative
- 21 Friend/neighbor
- 22 Grandparent or great grandparent
- 23 Mother
- 24 Mother-in-law
- 25 Sister
- 26 Sister-in-law
- 27 Daughter
- 28 Daughter-in-law
- 29 Wife
- 30 Partner or significant other
- 31 Aunt, or great aunt
- 32 Other relative
- 33 Other non-relative

**For male recipients, show male relatives**  
**For female recipients, show female relatives**

11. Who provides most of the unpaid care for your [RELATION]?

You .....	1
Someone else .....	2
You and someone else about equally .....	3

**USAGE OF TECHNOLOGY**

12. Which of the following statements best describes your use and adoption of new technology?

You tend to try new technologies when they are relatively new, before most others ..... 1

You wait a little to see that new technologies are tested, but adopt them more quickly than the average person ..... 2

You tend to wait until a technology is widely used before you try it..... 3

When it comes to adopting new technologies you tend to be one of the very last to try something new ..... 4

-----  
 Next, we will ask your opinion of 12 different technologies available to help caregivers. Please consider each one separately, and indicate your reaction to each.  
 -----

13. Thinking about your current caregiving situation\*, how likely would you be to use this caregiving technology if it were available for a nominal cost?  
 (Please read entire descriptions)

**[ASTERISK ABOVE AND THIS NOTE, SHOW ONLY IF Q5=2]**

\* Every time the survey asks about your current situation, please think about the last few months you provided care

**[RANDOMIZE ORDER – BREAK INTO 3 TO 4 SCREENS. DO NOT SHOW GRAY SHADED TITLES OF THE TECHNOLOGY TYPES]**

	Not at all likely	A little likely	Somewhat likely	Very likely	Already use it
<b>CAREGIVER SUPPORT TECHNOLOGIES</b>					
a. <u>Caregiver mentor matching service</u> – An online matching service that pairs you with another caregiver as a peer mentor. You can specify which characteristics to match on (e.g., care recipient’s age, the condition of the person you are caring for, your relationship with that person)					
b. <u>Caregiving decision support tool</u> – An online or smartphone application that helps guide you through difficult decisions and actions, using a logical question-answer sequence that leads to advice and pros/cons you can consider. It can help with decisions such as where should the care recipient live (with you, in assisted living, independently with paid help), how can you gain cooperation from family members to help you, etc.	1	2	3	4	5

	Not at all likely	A little likely	Somewhat likely	Very likely	Already use it
c. <u>Caregiver training simulations</u> – Electronic video simulations on how to handle day-to-day behavioral and psychological issues (e.g., what to do if your <b>[RELATION]</b> refuses to bathe, threatens suicide, won't give up driving). Caregivers watch a situation and choose how they should respond. The simulation shows what would happen next and demonstrates the best ways to respond.	1	2	3	4	5
d. <u>Caregiving coaching software</u> – Computer software that coaches you toward caregiving goals, with programmed steps toward the goals and reinforcements. Caregivers use this to help them with stress reduction, assertiveness training, coping skills, decision-making skills, etc.	1	2	3	4	5
<b>TECHNOLOGIES FACILITATING CAREGIVING</b>					
e. <u>A video phone system</u> – A phone with video capability or an Internet-connected computer with webcam that allows you to make phone calls where you can see your <b>[RELATION]</b> when you are not physically in {his/her} home (during work, vacations, errands, long-distance caregiving).	1	2	3	4	5
f. <u>Caregiving coordination system</u> – A shared electronic log for your <b>[RELATION]</b> 's doctor appointments and other caregiving needs, and the dates and times that each family member or friend is scheduled to help. You can use the system to request a volunteer for a certain time and family/friends can use it to sign up to help.	1	2	3	4	5
g. <u>A passive movement monitoring system</u> – A system to track your <b>[RELATION]</b> 's movement in the home. It informs you whether important expected events take place (e.g., {he/she} got out of bed in the morning) and alerts you to possible concerns (in the bathroom for an hour, getting out of bed multiple times each night, leaving the house when {he/she} is expected to be home). It uses GPS in a wristband, necklace, or shoes; or passive monitoring devices placed in the walls.	1	2	3	4	5
h. <u>A symptom monitor and transmitter</u> – A device that electronically sends information to a doctor or care manager to help manage your <b>[RELATION]</b> 's health care, like a device that transmits blood sugar or blood pressure readings. It also creates symptom tracking graphics for you to see {his/her} health over time.	1	2	3	4	5

	Not at all likely	A little likely	Somewhat likely	Very likely	Already use it
i. <u>Medication support system</u> – A device that reminds the patient and dispenses pills when they should be taken. Electronic buttons can be pressed for directions on how to take each pill (e.g., on a full stomach, avoid certain types of foods) and possible side effects to watch out for. It also alerts the caregiver by phone or email if a dosage is not removed from the device within a certain time period.	1	2	3	4	5
j. <u>Interactive system for physical, mental, and leisure activities</u> – A TV-based device, like a "Wii Fit" with a menu of gentle physical activities and mental games that you can arrange to turn on for your care recipient at certain times of the day. It includes personalized activities with family photos, illustrated audio books, and other audio-visual and interactive leisure activities for {him/her}.	1	2	3	4	5
k. <u>Transportation display</u> – This electronic screen allows you to request transportation and view updated arrival times of nearby public transportation (e.g., buses, trains, special needs vans) and pre-arranged private transportation (e.g., taxis, medical transport)	1	2	3	4	5
l. <u>Personal health record tracking</u> – A website or computer software to keep track of your [RELATION]'s personal health records, including patient history, symptoms, medications, tests, etc.	1	2	3	4	5

**HELPFULNESS, LIKELIHOOD OF USAGE, PROS AND CONS**

14. [LIST ALL TECHNOLOGIES USED - IF PRIORQ=5] How helpful has this technology been to you as a caregiver?

	Not at all helpful	A little helpful	Somewhat helpful	Very helpful
a. List each technology the respondent said they used	1	2	3	4
b. Etc.	1	2	3	4

-----  
**SYSTEMATICALLY SELECT 6 TECHNOLOGIES (2 CG SUPPORT AND 4 FACILITATING TECHNOLOGIES).**

**TWO CAREGIVING SUPPORT TECHNOLOGIES**  
 AB, AC, AD, BC, BD, CD

**FOUR FACILITATING TECHNOLOGIES**  
 EFGH, EFGI, EFGJ, EFGK, EFGI, EFHI, EFHJ, EFHK, EFHL, EFIJ, EFIK, EFIL, EFJK, EFJL, EFKL, EGHI, EGHI, EGHK, EGHL, EGIJ, EGIK, EGIL, EGJK, EGJL, EGKL, EHIJ, EHIK, EHIL, EHJK, EHJL, EHKL, EIJK, EIJL, EIKL, EJKL, FGHI, FGHI, FGHK, FGHL, FGIJ, FGIK, FGIL, FGJK, FGJL, FGKL, FHIJ, FHIK, FHIL, FHJK, FHJL, FHKL, FIJK, FIJL, FIKL, FJKL, GHIJ, GHIK, GHIL, GHJK, GHJL, GHKL, GIJK, GIJL, GIKL, GJKL, HIJK, HIJL, HIKL, HJKL, IJKL

ASK Q15 AND Q16/17 ON SEPARATE SCREENS. REPEAT FOR EACH OF THE SIX TECHNOLOGIES, EXCEPT THOSE THAT THE RESPONDENT INDICATED THEY USED.

Now, you will be asked a few detailed questions about up to six of the technologies.

a. Technology description 1 XXXXXXXXXXX XXXXX XXXXXXXX XXXXXXXXXXXXXX XXXXXXXXX

15. **[NON-USERS]** Imagine someone got this for you, paid for it, and set it up, and you are trying it out. How helpful would the technology be to you as a caregiver in your current situation?

Not at all helpful	A little helpful	Somewhat helpful	Very helpful
1	2	3	4

a. Technology description 1 XXXXXXXXXXX XXXXX XXXXXXXX XXXXXXXXXXXXXX XXXXXXXXX

**[ASK ONLY NON-USERS, ALL OF THEM] [ASK A-G FOR FACILITATING TECHNOLOGIES, BUT ONLY E-G FOR CAREGIVING SUPPORT TECHNOLOGIES]**

Still thinking about the caregiving technology described in the box above...

16. (a) Read each statement below...Is it true or false? **[RANDOMIZE]**

17. (b) For each true statement...Would that prevent you from trying out the technology?

		<sup>(Q16)</sup> (a)		<sup>(Q17)</sup> (b)	
		Is this statement true or false in your current caregiving situation?		Would that prevent you from trying out this caregiving technology?	
		True	False	Yes, It WOULD prevent you from trying it	No, It WOULD NOT prevent you from trying it
a.	You believe that your <b>[RELATION]</b> would resist accepting this technology	1	2	1	2
b.	You believe that this technology would diminish your <b>[RELATION]</b> 's sense of independence or pride	1	2	1	2
c.	You believe that this technology would lessen your <b>[RELATION]</b> 's privacy	1	2	1	2
d.	You believe that this technology would decrease your <b>[RELATION]</b> 's level of social interaction	1	2	1	2

		(Q16) (a)		(Q17) (b)	
		Is this statement true or false in your current caregiving situation?		Would that prevent you from trying out this caregiving technology?	
		True	False	Yes, It WOULD prevent you from trying it	No, It WOULD NOT prevent you from trying it
e.	You believe that this technology would take too much time or effort to learn or use	1	2	1	2
f.	You believe that this technology does not solve or address one of your pressing caregiving issues	1	2	1	2
g.	You believe that this technology will be expensive	1	2	1	2

18. How, if at all, would the following affect your likelihood of trying out the types of technologies presented in this survey? **[RANDOMIZE]**

		Make <u>little to no</u> difference	Make you <u>somewhat more</u> likely to try it	Make you <u>much more</u> likely to try it
a.	A recommendation by a caregiver who wrote about it in an online caregiver forum	1	2	3
b.	A health professional who is involved with you or your <b>[RELATION]</b> telling you it would be helpful	1	2	3
c.	A how-to explanation showing that it is very simple to install and use	1	2	3
d.	Advice in a blog on how to get your <b>[RELATION]</b> to accept the technology	1	2	3
e.	A magazine write-up of how it helped another caregiver	1	2	3
f.	A three-year warranty that it would function without problems	1	2	3
g.	A seal of approval from a national caregiving organization	1	2	3

19. How much, if at all, would you trust information from the following sources to help you decide whether you wanted to use one of the technologies presented in this survey? **[RANDOMIZE]**

	Not at all	A little	Somewhat	A great deal	Not familiar with the information source
a. A caregivers forum on the Internet	1	2	3	4	5
b. A consumer review website	1	2	3	4	5
c. A caregiving magazine or website	1	2	3	4	5
d. Good Housekeeping magazine	1	2	3	4	5
e. Dr. Oz	1	2	3	4	5
f. An infomercial by Sally Fields	1	2	3	4	5
g. A medical website like WebMD or the MayoClinic.com	1	2	3	4	5
h. A store such as Best Buy that might sell the technology	1	2	3	4	5
i. A government website like Medicare or the Administration on Aging	1	2	3	4	5

20. How much, if at all, would you expect using caregiving technologies to result in each of the following benefits? **[RANDOMIZE]**

	Not at all	A little	Somewhat	A great deal	Don't know
a. Saving you money	1	2	3	4	5
b. Saving you time	1	2	3	4	5
c. Reducing your feelings of depression	1	2	3	4	5
d. Increasing your feelings of being effective as a caregiver	1	2	3	4	5
e. Reducing your level of stress	1	2	3	4	5
f. Reducing physical demands on your body	1	2	3	4	5
g. Making caregiving easier logistically	1	2	3	4	5
h. Make your <b>[RELATION]</b> feel safer	1	2	3	4	5
i. Make your <b>[RELATION]</b> feel more connected to others	1	2	3	4	5
j. Make your <b>[RELATION]</b> more independent	1	2	3	4	5

**ADDITIONAL CAREGIVING BACKGROUND**

21. The next several questions gather a little more background about your caregiving situation.

During the last 12 months, did your [RELATION] receive paid help from any aides, housekeepers, or other people who were paid to help {him/her}?

- Yes..... 1
- No ..... 2

22. Do you and your [RELATION] currently live in the same household?

- Yes..... 1
- No ..... 2

23. [IF PREVIOUS Q=NO] Is your [RELATION] currently staying in a nursing home, medical center, or some other care facility?

- Yes..... 1
- No ..... 2

24. [IF PREVIOUS Q=NO] Does your [RELATION] live alone?

- Yes..... 1
- No ..... 2

25. [IF NOT IN HOUSEHOLD] Does your [RELATION] live... [READ LIST]

- Within twenty minutes of your home ..... 1
- Between twenty minutes and an hour from your home..... 2
- A one- to two-hour drive from your home, or ..... 3
- More than two hours away? ..... 4

26. [IF NOT IN HOUSEHOLD] On average, how often do you visit your [RELATION]?

- More than once a week..... 1
- Once a week ..... 2
- Few times a month ..... 3
- Once a month ..... 4
- Few times a year ..... 5
- Less often ..... 6

27. Moved to before Q7

28. Moved to before Q7

29. Do doctors consider the illness or condition of your [RELATION] to be terminal?
- Yes..... 1  
 No ..... 2  
 Don't know ..... 3
30. [IF YES] We are sorry to hear that. According to doctors, about how long is your [RELATION] expected to live?
- Less than one year ..... 1  
 One year to less than two years ..... 2  
 Two years or more ..... 3  
 Don't know ..... 4

**TECHNOLOGY BACKGROUND AND REMAINING DEMOGRAPHICS**

Finally, a few questions for classification purposes.

31. Do you use a smartphone of any kind?  
 (e.g., iPhone, Blackberry, Palm Pre, Droid, etc.)
- Yes..... 1  
 No [SKIP TO Q33]..... 2
32. [IF YES] Which of the following features, if any, does your smartphone have?  
 (Check all that apply)
- Full Internet browsing ..... 1  
 Email access..... 2  
 Ability to download software applications ..... 3  
 None of the above ..... 4
33. Do you use any other mobile wireless device [IF PRIORQ=1: , besides your smartphone,] that has full Internet browsing (e.g., iTouch, iPad, laptop, etc.)?
- Yes..... 1  
 No ..... 2
34. Which of the following do you have at your main residence? (Check all that apply)
- High speed Internet access ..... 1  
 Cable television ..... 2  
 Wireless Internet access ..... 3  
 A security or alarm system connected to an outside service..... 4  
 None of the above ..... 5

35. [ALL] How receptive would you be to using a smartphone for applications to help you with caregiving?
- Very receptive ..... 4
  - Somewhat receptive ..... 3
  - A little receptive ..... 2
  - Not receptive ..... 1
36. Are you currently employed?
- Yes, full time ..... 1
  - Yes, part time..... 2
  - No, not employed ..... 3
37. What was your total household income from all sources, before taxes, in the last 12 months? *(Please estimate)*
- Less than \$15,000 ..... 1
  - \$15,000 to \$29,999..... 2
  - \$30,000 to \$49,999..... 3
  - \$50,000 to \$74,999..... 4
  - \$75,000 to \$99,999..... 5
  - \$100,000 or more ..... 6
  - Decline to answer ..... 7
38. Finally, please briefly describe one way that technology could be used to help you with caregiving *(other than the technologies described earlier)*.  
**[DO NOT FORCE A RESPONSE]**
- \_\_\_\_\_
- \_\_\_\_\_
39. If you experienced any issues or problems when completing it, please briefly describe them. Otherwise, click “next” to submit your completed survey.  
**[DO NOT FORCE A RESPONSE]**
- \_\_\_\_\_

Thank you so much for your time! We hope our learning about the experiences of caregivers like you will ultimately help other caregivers.

## Appendix B: Level of Burden

The calculation of the level of burden index begins by assigning points for the number of hours of care, as follows:

Hours of Care	
0 to 8 hours	1 point
9 to 20 hours	2 points
21 to 40 hours	3 points
41 or more hours	4 points

In addition, points are assigned for the number of ADLs and IADLs performed, as follows:

Types of Care Provided	
0 ADLs, 1 IADL	1 point
0 ADLs, 2+ IADLS	2 points
1 ADL, any number of IADLs	3 points
2+ ADLs, any number of IADLs	4 points

Then, the total number of points is consolidated into five levels of care. In this report, analysis often further collapses the five levels into three categories of burden, with “high burden” equating to Levels 4 to 5, “medium burden” corresponding to Level 3, and “low burden” equating to Levels 1 and 2.

Consolidating Points into Five Levels of Care and Three Burden Categories		
2 to 3 points	Level 1	Low burden
4 points	Level 2	
5 points	Level 3	Medium burden
6 to 7 points	Level 4	High burden
8 points	Level 5	

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