Rural Veteran Access to Healthcare Services: Investigating the Role of Information and Communication Technologies in Overcoming Spatial Barriers

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Abstract

This multimethod pilot study examined patient and practitioner perspectives on the influence of spatial barriers to healthcare access and the role of health information technology in overcoming these barriers. The study included a survey administered to patients attending a Department of Veterans Affairs (VA) health visit, and a focus group with VA care providers. Descriptive results and focus group findings are presented. Spatial distance is a significant factor for many rural veterans when seeking healthcare. For this sample of rural veterans, a range of telephone, computer, and Internet technologies may become more important for accessing care as Internet access becomes more ubiquitous and as younger veterans begin using the VA health system. The focus group highlighted the negative impact of distance, economic considerations, geographic barriers, and specific medical conditions on access to care. Lack of adequate technology infrastructure was seen as an obstacle to utilization. This study discusses the need to consider distance, travel modes, age, and information technology infrastructure and adoption when designing health information technology to care for rural patients.

Keywords: rural, veterans, technology, healthcare, transportation, access

Introduction and Background

Spatial cognition theory, including individual perceptions relative to space and time, is a topic of ongoing interest to researchers engaged in the assessment of behaviors occurring across geographical areas.[1–4] Perceptions about space, place, and distance influence decision making about migration, vacationing, and daily travel, such as healthcare visits.[5, 6] For veterans living in rural areas, travel to obtain medical care from Department of Veterans Affairs, Veterans Health Administration (VHA) facilities can be distant, time consuming, and challenging. Increased distance to healthcare treatment locations has been shown to influence care-seeking behavior,[7] having a negative impact on outpatient visits by elderly veterans,[8] outpatient and inpatient care

for veterans with spinal cord injuries and disorders, outpatient care following myocardial infarction, aftercare following inpatient substance abuse treatment and continuity of care for veterans with serious mental illness.[9-13] An important issue that health information technology designers and managers face is how to design information-technology-enabled healthcare systems for a wide range of individuals with varying degrees of care-seeking behaviors and sociogeographic challenges.

Many providers as well as patients are open to using information technology as a means of enhancing healthcare delivery.[14-22] However, not all communication methods are viewed equally. For example, in a survey of cancer patients, traditional technology such as the telephone was preferred by 70 percent of respondents for reporting symptoms to the physician, whereas only 28 percent reported interest in using Internet technology to report symptoms.[23] On the other hand, in a large survey of electronic health record (EHR) users, a majority of respondents indicated that the Internet was the preferred mode of communication for prescription refills and answers to general medical questions, whereas telephone contact was never the preferred method of communication for any health-related interaction.[24] A survey of patients from a large primary-care practice network in Texas showed general support for using e-mail to perform health-related activities including refilling prescriptions (90 percent), acquiring nonurgent consultations (87 percent), obtaining routine laboratory test results (84 percent), and making or canceling appointments (78 percent).[25] Likewise, research on electronic personal health records (PHRs) has demonstrated a range of delivery models and consumer interest in using electronic means to manage and receive health services.[26] An important goal of this study is to explore veterans' and Veterans Affairs (VA) practitioners' perceptions about the utility of information technology in overcoming spatial barriers to receiving healthcare.

Study Objectives

This pilot study obtained data regarding travel distance and its impact on veterans' access to medical care. Veterans' use and perceptions of information technology were evaluated to better understand the potential and limitations of these technologies. Findings from this pilot study will be used to design a more comprehensive study on the topic. More specifically, the objectives of this study were as follows:

1. To understand the travel patterns that rural veterans engage in when seeking healthcare from both VA and non-VA providers
2. To understand veterans' perceptions of travel requirements as related to healthcare access
3. To understand veterans' perceptions of obtaining health services through information technology mediums (i.e., Internet, telephone)
4. To understand veterans' willingness to adopt new information technologies to help overcome spatial barriers to healthcare access
5. To obtain perspectives from VA personnel on the influence of information technology on healthcare access and the potential for mitigation of barriers through the use of new technologies

Methods

The study was a two-phased approach that incorporated a survey administered to patients and a focus group discussion with VA care providers. The survey was administered to 72 patients visiting the White River Junction VA Medical Center (VAMC) in Vermont during two days in April 2008. A total of 69 surveys were fully completed and returned. The survey instrument can

be found in Appendix A. To strengthen the reliability and validity of the instrument, questions were modeled after those from other validated and widely used survey instruments such as the Technology Acceptance Model, the National Household Travel Survey (NHTS), and the U.S. Census.[27-29]

Survey results were entered into a database for statistical analysis. Respondent characteristics and survey responses were described using means and standard deviations for continuous variables and percentages for categorical variables. Comparisons among respondent age groups were conducted using chi-square tests.

The second phase of the study was a focus group held with a group of 10 White River Junction VAMC healthcare administrators and physicians in July 2008. The purpose of the focus group was to gain insight into transportation and technology issues from a provider perspective. Nurses, physicians, researchers, information technology staff, and individuals with administrative responsibilities were invited to participate. Open-ended semistructured questions were asked to encourage in-depth responses from participants. Questions for practitioners generally paralleled the patient survey, with questions about travel impediments and the role of technology. A list of questions that guided the focus group can be found in Appendix B. Written notes were taken during the focus group discussion by four researchers to capture the themes and ideas discussed by participants. Notes were combined and compiled into a unified qualitative data set. Unidentified discussion responses, analyzed in accordance with study objectives, are discussed below.

Results

Survey

Respondent demographics. The mean age of survey respondents was 63.5 years (range, 41 to 88 years). The majority were male (94.4 percent) and identified their race as white (95.8 percent). Seventy-six percent of respondents indicated that they had a chronic illness, and 62.3 percent reported that they had a disability (see Table 1).

Travel distance and mode. The survey results indicated that the average distance traveled one way to reach the VAMC is 54 miles (range, 3 to 200 miles). Fifty-four percent of veterans replied that they had one car, and 5.6 percent had none. For 11.1 percent of respondents, driving a car was not possible due to lack of a valid driver's license. Seventy-six percent of veterans reported driving their own car to healthcare appointments, 12.5 percent rely on friends or family to take them, and 11.1 percent use the Disabled American Veterans (DAV) van service.

Travel decisions and medical appointments. At least one in four respondents reported that travel considerations impacted their decision to go to medical appointments. On a scale between 1 (low impact) and 7 (high impact), these respondents selected answers greater than 4 (5 to 7). The impacts of travel considerations on patients' decisions to access various VA and non-VA healthcare services appear in Table 2. For medical appointments that were deemed routine, for a chronic condition, or for a prescription refill, the percentage of participants who reported that their decision to attend a VA facility was impacted was higher than the percentage who reported an impact on their decision to attend a non-VA facility (see Table 2).

Computer and Internet use. Computer and Internet usage among respondents is comparable to that found in past surveys conducted in the United States. The most recent U.S. Census reports indicate that in 2003, 58.8 percent of U.S. households owned one or more computers, and in 2007, 67.1 percent had Internet access at home.[30, 31] Another study showed that 70 percent of all U.S. adults have Internet access.[32] The findings from this study indicate that 68.1 percent of respondents own a computer and 63.4 percent have an Internet connection. Veterans reporting an

Internet connection live an average of 60 miles (median, 50 miles) from a VAMC and have an average age of 61.5 years (median, 60 years), while those reporting no Internet connection live an average of 42.8 miles (median, 37 miles) from a VAMC and have an average age of 67 years (median, 66 years). Telephone ownership was reported to be 93.1 percent (n = 72). Most veterans (90.9 percent) had not used the VA-sponsored electronic personal health record (PHR) service called MyHealth*e*Vet. Of these, 61.6 percent were not aware of the service. Some participants indicated using other types of online services when preparing to travel to a health appointment. For example, 22.5 percent used the Internet to check on road and weather conditions before traveling, 7.0 percent used the Internet to get directions, and 1.4 percent arranged for a transit service online.

Likelihood of and interest in adopting technology for health services. Results indicated veterans' likelihood of and interest in adopting and using the telephone and Internet to access information about health issues, make appointments, and access other medical services. More than half (56.5 percent) of respondents (n = 69) reported some level of likelihood of consulting with a doctor over the phone, compared to 13.2 percent (n = 68) who reported some level of likelihood of using the Internet to consult with a doctor. Findings indicated that 41.9 percent of respondents had interest in using the Internet to review personal medical information such as x-ray reports, lab results, and office notes, and 39.3 percent (n = 61) had interest in using an Internet system to search for healthcare information; 35.0 percent (n = 60) had interest in communicating with their doctors and nurses via the Internet about their healthcare; 40.1 percent (n = 60) had interest in using the Internet for making healthcare appointments; and 46.7 percent (n = 60) had interest in using an online system for refilling prescriptions. On a scale between 1 (not interested) and 7 (very interested), these respondents selected a score greater than 4 (5 to 7).

Age was significantly associated with level of interest in using Internet technology to manage healthcare (i.e., make appointments, find health information, consult with a doctor), χ^2 (2, N = 69) = 7.29, $p < .05$, with younger veterans (age 41–55 years) being more likely than older veterans to report interest. The younger group also reported higher likelihood to use computer and Internet technology to access health information (71.4 percent) and to consult with a doctor (57.1 percent).

Focus Group

A focus group was held on July 8, 2008, to seek practitioner perspectives on the influence of information technology on distance barriers and access to health services, and the potential for new technologies to reduce barriers to health services.

Participants agreed that travel to the VAMC is difficult for many patients and has been exacerbated by recent gas price fluctuations and the recent economic downturn. In general, participants confirmed survey findings that many veterans must travel a significant distance to the nearest VAMC. Participants discussed how these transportation challenges affect patients with a wide variety of health conditions, including chronic, disability, and acute emergency situations. While most veterans drive themselves or are driven by a family member, participants noted that many carpool or use the DAV van service. Participants discussed several geographic challenges that result in pockets of individuals in remote areas of Vermont and in New Hampshire who experience particular difficulty accessing medical care. Participants gave examples including severe weather conditions and the lack of adequate rural road infrastructure in the region. Participants noted that many veterans who live farther than 30 miles away often visit their local non-VA emergency department for acute issues. This complicates healthcare coordination with the VA. Basically, "the further they are," one participant noted, "the more

likely for dual care [using both VA and non-VA services], making taking care of patients in White River Junction more difficult." Keeping track of patients' most recent health records, for example, becomes more challenging. Participants also discussed patient travel challenges for specialty care provision. Referrals are often made to other hospitals in the region that provide specialty services, often farther away than the VAMC, such as in Boston, but, as a participant noted, "people don't want to drive all the way out there." Another participant observed that transportation barriers can also impact informal healthcare, or help from family members and friends who provide care, care reminders, or general status checks. Participants noted that travel distances can impede the ability of veterans to visit with these important caregivers.

Several additional challenges associated with patients' access to healthcare were discussed. Several participants commented on specific, severe medical conditions that make transportation to medical centers more complicated. For example, patients with mental health conditions often have trouble traveling to distant clinics because they forget about appointments or cannot drive safely. These individuals often require a family member or friend to drive them to an appointment. In this regard, participants discussed how mental impairments and disabilities are becoming more common with the aging of rural residents, and thus mental health conditions pose an escalating challenge. One participant commented that "there are a lot of vets who come up here to retire, [in] pristine Vermont, and they get medical conditions a few years down the road and they can't make it to medical help. Pretty much all roads are north/south. East/west requires a zigzag, so 15 minutes can become two hours."

To help mitigate travel challenges, participants noted that the White River Junction VAMC obtained a "mobile coach" to provide home-based primary care (HBPC) services within a 30-mile radius of the hospital. While participants noted the value of program in reducing access challenges, they also noted that some of the same transportation issues that exist for patients also exist for the provider (e.g., weather, lack of infrastructure, long travel times, costs). The HBPC program also began offering telephone-based healthcare services to help alleviate these transportation challenges.

Participants discussed several technologies for overcoming distance barriers. One program developed by the VA to help with access issues is the Community Care Home Telehealth (CCHT) program. The CCHT program requires that the patient have a landline telephone, which is used for monitoring a range of physiologic indicators including blood glucose and blood pressure. Participants noted that a valuable aspect of the CCHT program is that quantitative data is recorded, which allows little room for patients to relate inaccurate information. However, participants said that the program was relatively small due to staffing issues. According to the group, the veterans that participate appreciate the technology: they "love the telehealth program, and can do it as long as they are mentally and physically able."

Participants discussed the significant Internet connectivity challenges in rural Vermont and New Hampshire. Many areas do not have high-speed Internet access, and dial-up Internet is often too slow. This was also reported in anecdotal comments by several survey participants. One focus group participant stated that the VA offers MyHealth*e*Vet through the VA Web site, "but Internet connection in Vermont is too spotty for it to be of good use." However, participants described much success with telephone-based services such as telephone triage. One participant explained, "It [telephone triage] is clinically staffed, people phone in through a toll-free number, they can ask questions on their condition, their prescriptions, etc. It works phenomenally." Another stated, "The triage can even provide emotional support if needed."

A few participants discussed the essential role of the Internet and computers for communicating with patients with certain disabling conditions. One participant provided the

example of patients with amyotrophic lateral sclerosis (ALS). She explained, "They can only communicate by computer, and we have assisted devices to help with that, even if their only communication is their eyes. E-mail is the only way we can communicate with them." For those veterans who have a hearing impairment and live alone, travel to an appointment would be required just to communicate. Participants noted how the Internet could be of great benefit to these individuals.

Participants presented a range of additional limitations to communicating with patients via the Internet. In many cases, a spouse or caretaker is required for communication. Verbal consent from the patient must be provided, and e-mail does not allow for that. One participant related several instances when patients sent e-mails with a large amount of highly confidential health information. Such e-mails create privacy risks to the patient due to the lack of security of e-mail communication. Another participant discussed how telephone and e-mail communication can be challenging when assessing mental health symptoms. It may be important for the physician to observe nonverbal cues, and these technologies (without more advanced video conferencing) do not provide for that capability. Concerns that Internet technology could negatively impact patient-provider interactions by reducing in-person contacts were voiced. One participant explained, "It allows people to say, 'Well, I'm not going to come in,' and it can be distancing."

Participants discussed how the VA must organize for the next generation of younger veterans who are and have been involved in Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF). One participant explained that many of these younger veterans work for employers who provide private insurance, which may explain why so few of them currently use the VA medical system. Another foresaw the need for more advanced Internet communications with these younger veterans. He projected, "They [young veterans] will go with text messaging from the VA." Another wondered if wider Internet access would create a shift toward more use of the Internet for healthcare purposes and less in-person use of healthcare facilities. One participant stated that many veterans bring their laptops to their visits and want Wi-Fi (wireless Internet) access. While the White River Junction VAMC is not currently able to provide such access, it does provide 8 to 10 personal computer stations for veterans to use.

Discussion

Implications of Findings

Taken together, the survey and focus group findings indicate a potential need to consider distance, travel modes, health conditions, age, and information technology infrastructure and adoption when designing health information systems to support the care of rural veterans. Several potential implications for health information technology design and health information management (HIM) professionals are presented below.

Travel distance and mode. Veterans who responded to the survey travel significant distances to receive care. Many (23.6 percent) rely on friends, family members, or the DAV van service for their transportation, highlighting the need to better understand the role of various transportation modes and associated costs for healthcare travel. This understanding could provide valuable insight when deciding whether to use information technology to replace and/or complement face-to-face healthcare visits for rural patients. Future studies may investigate costs, impacts, and circumstances that influence subsidized travel, such as DAV or other medical taxi services that have arisen out of the need to reduce expensive medical transports.[33, 34] This may help to determine the appropriate application of various travel services, technology services, or a combination of both.

Travel decisions and medical appointments. Findings (Table 2) indicate that patients' decisions to attend VA facility appointments may be impacted more than decisions to attend non-VA facility appointments. This may be explained by longer travel times to VA medical centers as opposed to local healthcare facilities. Further investigation of various travel options and technology-mediated solutions would be valuable to aid large healthcare institutions, such as the VA, in designing viable healthcare alternatives for rural patients looking to reduce travel time.

Computer and Internet use. In general, computer and Internet use among participants was similar to past survey findings. Computer ownership was higher (68 percent vs. 58 percent), which may be explained by the U.S. Census survey data's being several years old and not accounting for growth in ownership. Internet access was lower than in major past surveys (64 percent vs. 67 to 70 percent), which may be explained by both the age and the rural demographics of the survey sample, two factors that have been associated with lower rates of Internet access and use. Low computer and Internet usage would clearly limit many veterans from using online services such as MyHealth*e*Vet (http://www.myhealth.va.gov/). MyHealth*e*Vet provides veterans with electronic health services such as the storage and tracking of personal health information, prescription refills, and health research on a wide range of health conditions and treatments. Just 9 percent of respondents had used MyHealth*e*Vet. Future studies should further investigate the use of these online services as a replacement for and/or complement to face-to-face visits.

Integrating online services and localized programs for a wide range of health challenges and disabilities. Focus group findings indicate that transportation modes and distances alone may not account for patient barriers to accessing health services. A wide range of mental and physical challenges and disabilities are important to consider as well, as not all individuals have the capacity to use the transportation system as it currently exists (e.g., those having mental disabilities, visual impairments, or spinal cord injuries). Survey findings indicate veterans' likelihood of and interest in adopting and using the telephone, and to a lesser extent the Internet, to access a range of medical services. Thus, it may be useful to design online services for a wide range of individuals with both sociogeographic and disability barriers to receiving health services. For example, specialized telehealth programs designed for various health and disability conditions (e.g., ALS, hearing impairments) may be more accessible and usable if integrated with online and telephone-supported systems that are designed for the general population. To take an example from this study, using the nationally based MyHealth*e*Vet in combination with the localized CCHT program (e.g., recording and storing CCHT data in MyHealth*e*Vet) could provide value-added benefits to those who experience distance and health barriers to receiving care. Future studies should provide further investigation of these issues.

Integrating online services and local health programs to address age and distance barriers to receiving care. Findings from the survey and the focus group highlight a significant challenge for U.S. healthcare: providing health services to aging rural Americans. In this study, the age of the respondents may help explain the level of likelihood of and interest in using information technology to access healthcare information and services. As found in the survey, many elderly individuals had never heard of MyHealth*e*Vet and thus had not experienced its potential benefits (or challenges). At the same time, a wide range of local programs, such as the VA's HBPC program, have been designed to bring primary care closer to the rural patient and make it more accessible for those who experience travel and distance barriers. While these local programs may continue for many important purposes, it may be valuable to better understand how these localized services could be combined with the national Internet-based MyHealth*e*Vet system (or other technological systems) to further overcome spatial barriers.

Integrating telephone-based health services with computer- and Internet-based electronic health record systems and services. The survey and focus group findings suggest that many individuals prefer telephone services over Internet-enabled services (56.5 percent vs. 13.2 percent). This may be explained due to age-related issues, as stated above, or because the telephone provides more appropriate services for some health issues (e.g., telephone triage, communication with individuals with certain disabilities). Leveraging the benefits of telephone-based healthcare with the benefits of electronic services (e.g., telephone triage operators accessing patients' electronic health record or personal health record) may provide not only a short-term solution until high-speed Internet access becomes more widespread but also long-term solutions for certain individuals (e.g., those who cannot travel or are less likely to travel for healthcare services) or for those in need of specialty services (e.g., physician consultation).

Integration of online health and transportation services. Health access issues span both transportation and health infrastructures. While few respondents in this study used Internet-enabled health services, slightly more used transportation-related Web sites for planning health-related trips. One consideration for information system designers and managers would be to integrate online transportation services, such as public transit planning (i.e., buses, trains), travel route mapping, traffic congestion information, and related information in a more easily accessible fashion for those patients who are planning required health visits. Easily accessible information about healthcare-specific transportation services could also prove beneficial.

Generalizability of Findings

There were a reported 23.4 million military veterans in the United States in 2008, with 8,493,700 veterans receiving VA benefits and/or services in FY08. Of these, 5,143,461 (61 percent) unique veterans used VA healthcare in FY08.[35] The total amount of federal government spending for medical programs for veterans exceeded $33.7 billion in 2007.[36] Veterans make up an important proportion of the US population, and in some rural states like Vermont a full 10 percent of the population are veterans. Thus, these findings may be of importance to HIM professionals who interact either with the VA system or with veterans seeking care outside of the VA system. The VA system provides an illustrative example to other health organizations due not only to its size but also to its long history of implementing information technology solutions for healthcare (e.g., VistA, its electronic medical record system across 1,400 points of care, and MyHealth*e*Vet, its personal health record system).

Finally, healthcare trends indicate that the U.S. government is seeking ways to increase healthcare access for a widely dispersed population yet reduce costs. Individual healthcare institutions are being challenged in this regard. Given this trend, HIM professionals across many different types and sizes of healthcare institutions may need to understand the geospatial and technology-related issues discussed herein to respond to these challenges in the near future. Thus, these findings may be applicable to HIM professionals working for healthcare institutions of any size that wish to increase patient access to their health services, especially those with a sizable percentage of their patients that reside in rural areas.

Limitations and Next Steps

This study was designed as a pilot study to explore the role of transportation and information technology in healthcare access for rural veterans. The survey sample size was small and may not be representative of the general population of veterans or healthcare seekers in rural areas. It is also important to note that survey respondents were actual visitors of the VA. Veterans who were unable to travel to healthcare visits were not surveyed. These individuals would be valuable to survey in a future study. The survey sample was also older than the general population of

veterans and did not include OEF/OIF veterans. The next phase of this study will seek responses from a larger random sample of veterans to address these sample size and age considerations.

Conclusion

The survey and the focus group provide preliminary indications that spatial distance is an important consideration when seeking healthcare services. While the telephone is the current technology of choice for communicating with healthcare providers at a distance, a range of telephone, computer, and Internet technologies may become more important as Internet access increases and as younger veterans begin using the VA health system. Health information management professionals may consider ways to leverage and integrate existing local, specialized programs; telephone-based programs; and Internet-enabled programs to help overcome sociogeographic and disability-related barriers to accessing healthcare services. Managers can and should work closely with service providers to consider new and innovative ways, beyond telemedicine, to engage rural patients in such electronic options.

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Table 1

Respondent Demographics

Demographic	**Data**
Age	Mean, 63.5 years (range, 41–88 years)
Gender	94.4 percent male
Ethnicity	95.8 percent white/Caucasian
Chronic illness	76.8 percent
Disability	62.3 percent

Table 2

Percentage of Respondents Reporting That Travel Considerations Impact Decision to Access Medical Services

Medical Service	Impact on VA Services *n* (percent)	Impact on Non-VA Services *n* (percent)
Routine medical appointment	20/69 (29.0)	13/55 (23.6)
Medical appointment for chronic condition	19/66 (28.8)	12/50 (24.0)
Surgical appointment	13/64 (20.3)	12/48 (25.0)
Prescription refill	18/66 (27.3)	12/53 (22.6)

Note: Data indicate the fraction of respondents who rated impact as greater than 4 on a scale of 1 (low impact) to 7 (high impact).

Appendix A

Survey Instrument

Please answer the following questions.

General Questions

1. How many vehicles do you own?
    1. 0
    2. 1
    3. 2
    4. More than 2

2. Do you have a current valid driver's license?
    1. Yes
    2. No

3. Do you own a telephone?
    1. Yes
    2. No

4. Do you own a computer?
    1. Yes
    2. No

5. Do you have an Internet connection?
    1. Yes
    2. No

6. Do you have a chronic, or recurring, illness?
    1. Yes
    2. No

7. Do you have a disability?
    1. Yes
    2. No

8. What is your age? _____

9. What is your gender?
    1. Male
    2. Female

10. What is your ethnicity?
    1. African-American
    2. Asian or Pacific Islander
    3. Native American
    4. Hispanic/Latino

5. White
Other_____

Please answer the following questions related to your experiences and opinions traveling to the VA and using technology to access health services.

11. How many miles do you travel one way to arrive at the nearest VA hospital or clinic? _____

12. On a scale between 1 and 7 (with 1 being "very easy" and 7 being "very difficult"), how difficult is it for you to travel to the nearest VA hospital/clinic?

1 2 3 4 5 6 7
Very Easy Very Difficult

13. For the majority of your health care appointments, what mode of transportation do you use?

1. I drive my own car
2. I get a ride from a friend or family member in their car
3. I use a public transit service (e.g., bus, train)
4. I take a taxi
5. Other_____

14. When preparing to travel to your health appointment, do you ever use a computer and Internet to: (select all that apply)

1. Check on road and weather conditions.
2. Get directions.
3. Check on transit (bus and train) schedules and/or availability.
4. Arrange for dial-a-ride or other transit services.
5. Other_____

15. On a scale between 1 and 7 (with 1 being "low impact" and 7 being "high impact"), how much does the travel required impact your decision to go to:

	1 = Low Impact 7 = High Impact
A routine doctor's appointment at a VA hospital/clinic?	1 2 3 4 5 6 7
A routine doctor's appointment at a non-VA hospital/clinic?	1 2 3 4 5 6 7
A prescription refill appointment at a VA hospital/clinic?	1 2 3 4 5 6 7
A prescription refill appointment at a non-VA hospital/clinic?	1 2 3 4 5 6 7
A treatment for a chronic health problem at a VA hospital/clinic?	1 2 3 4 5 6 7
A treatment for a chronic health problem at a non-VA hospital/clinic?	1 2 3 4 5 6 7
A surgery at a VA hospital/clinic?	1 2 3 4 5 6 7
A surgery at a non-VA hospital/clinic?	1 2 3 4 5 6 7

16. How likely are you to use the telephone to find information about a health issue you are experiencing?

1 2 3 4 5 6 7
Not at all Very likely

17. How likely are you to use a telephone to consult with a doctor or other health care professional about a health issue you are experiencing?

1 2 3 4 5 6 7
Not at all Very likely

18. How likely are you to use a computer and Internet (including e-mail) to find information about a health issue you are experiencing?

1 2 3 4 5 6 7
Not at all Very likely

19. How likely are you to use a computer and Internet to consult with a doctor or other health care professional about a health issue you are experiencing?

1 2 3 4 5 6 7

Not at all Very likely

20. How interested are you to use a computer and Internet to help manage your health care (make appointments, find health information, consult with your doctor)?

1 2 3 4 5 6 7
Not at all Very Interested

21. To what extent are you interested in using an online (Internet) system for the purpose of:

	1 = not interested 7 = very interested
Looking at your personal health information such as lab test results, x-rays, diagnoses, history of prescriptions, vaccinations, etc.?	1 2 3 4 5 6 7
Searching and finding health care information, such as a disease or treatment options?	1 2 3 4 5 6 7
Communicating with your doctors and nurses about your health care?	1 2 3 4 5 6 7
Making health care appointments?	1 2 3 4 5 6 7
Refilling your prescriptions?	1 2 3 4 5 6 7
Other__(fill in) _____	1 2 3 4 5 6 7

22. Do you use the online electronic personal health record system called "My Health*e*Vet" that is provided by the Veterans Administration?

1. Yes
2. No

23. If you answered YES to question 22 above, for what purpose have you used "My Health*e*Vet"?

1. Enter/keep track of personal information (My Caregivers, etc.)
2. Enter/keep track of personal health care information (blood pressure, blood sugar, etc.)
3. Look up information about a medication
4. Request a prescription refill
5. Access prescription history from my VA medical record
6. Find a VA health care facility

7. Research a health condition
8. Find information about VA benefits
9. Other, please specify_____

24. If you do NOT use "My Health*e*Vet," why not? (Circle all that apply)

1. I am not aware of My Health*e*Vet.
2. I do not have access to a computer or Internet connection.
3. I prefer NOT to use computers and the Internet to manage my health care.
4. I am concerned about the privacy of my health information.
5. "My Health*e*Vet" is not useful to me.
6. Other _____

25. What is your opinion about Internet services such as My Health*e*Vet, which are used to help manage an individual's health care? Please explain.

_____

26. Please provide any other comments about your ability to access the health services you need either in terms of transportation or technology.

_____

Appendix B

Focus Group Questions

1. In what ways have you seen the travel requirements of veterans influence the extent to which they obtain healthcare services?
2. In what ways do these travel requirements impact the health of veterans/patients?
3. What programs exist to help mitigate the travel barriers experienced by veterans/patients?
4. Which of your healthcare services make active use of the telephone and/or Internet technologies?
5. How do these communication technologies affect care provision?
6. How have these technologies helped mitigate barriers experienced by veterans/patients to date? How could they?
7. How do these technologies affect the way in which you interact with patients and deliver health services?
8. Please provide any other comments about the ability of veterans to access the health services they need in terms of either transportation or technology.