Readiness of Seniors in Kaiser Permanente's Northern California Region to Use New Information Technologies for Health Care-Related Communications: The HUNT Study

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BACKGROUND

The Internet offers great potential as a resource for obtaining health information, a means of communicating with one's health care providers, and a tool for managing health. Because of the potential for improving health care related communications with their members and avoiding escalating costs of traditional mail, many health care organizations, including Kaiser Permanente, are making heavy investments in web-based applications. However, recent surveys have found that seniors are less likely than young and middle-aged adults to have access to a home computer and the Internet and less likely to use the Internet for obtaining information concerning their health.

A national survey conducted in 2004 found that, compared with 50-64 year olds, people 65 and over were significantly less likely to have ever used a computer, gone online, and have Internet access at home (Kaiser Family Foundation, 2005). The survey also found that many seniors who were not current Internet users were not interested in starting to use the Internet or email, lack of interest rising with age and decreased level of education. National surveys done by the Pew Internet and American Life Project in 2005 found that Latino seniors were less likely to be Internet users than White nonHispanic seniors (Fox, 2007), and that, among all Internet users, seniors who use the Internet were less likely than younger Internet users to connect using high speed DSL or broadband (Fox, 2005). A 2005 survey of the Kaiser Permanente Northern California (KPNC) membership similarly showed a substantial digital divide by age, with approximately 90% of members aged 25-64 having Internet access from home and/or another location but less than 50% of members aged 65-79 having Internet access (Gordon, 2007). Further, African-American and Latino seniors were significantly less likely than White non-Hispanic seniors to have Internet access. Even among college-educated members, adults aged 65-79 were significantly less likely than young and middle-aged adults to indicate interest in obtaining health information from Internet websites.

There are many factors contributing to the generational digital divide. One is familiarity. Most older adults, especially those over the age of 74, have had little, if any, experience using computers through school or work. Consequently, they are less likely to feel the need to own a computer. Those who do own a computer are less likely to know how to do more than wordprocessing. In addition, because many retirees have limited disposable income, those who have computers are less likely than working age adults to have a high speed, high RAM computer and less likely to have a high speed DSL or broadband connection to the Internet. Because they don't have access to a high performance computer and Internet at work, their Internet use tends to be limited to sending and receiving email and conducting product and basic information searches.

In addition to lack of computer access and experience, many older adults have physical challenges associated with normal aging. Loss of visual acuity, diminished memory and cognitive abilities, and loss of/painful fine motor coordination make it more difficult to use computer software and the Internet. These challenges can also make it more difficult to do Internet searches, remember

how to logon to multiple websites, and navigate complex websites, especially those using drop-down menus.

Older adults also tend to be more mistrustful of the Internet than younger adults. They are wary of surfing the net and opening unexpected emails which might lead to getting computer viruses. With frequent news announcements of "secure" websites where Social Security Numbers, credit card, and health information have been "stolen", seniors are also concerned about how secure their personal information really is. Finally, there are cultural factors influencing older adults' readiness to interact using the Internet. Especially regarding their health, older adults tend to be more comfortable talking directly with their health care providers and their providers' staff rather than communicating via email.

To investigate the extent to which seniors have Internet access and have embraced the Internet as a vehicle for health care communication, we surveyed a random sample of nonHispanic White, African-American, and Latino seniors who were members of the Kaiser Permanente Medical Care Program in Northern California. We expected that senior health plan members would trust the Kaiser Permanente website to be free of computer viruses and not sell their email addresses to other companies for advertising purposes. Additionally, because Internet service is readily available to purchase in most communities where our Northern California members reside, as well as free at many public locations, this member population provides an excellent laboratory for studying seniors' use of the Internet for healthcare-related functions under the best of circumstances. A specific aim of the survey was to identify disparities related to age, race/ethnicity, gender, and education regarding Internet access as well as preferences for using different types of Internet-based health communication. We wanted to determine if these disparities might result in reduced access to care for segments of the senior population if the trend toward shifting administrative information, forms, health information, and health care services onto websites continues. Our goal is to inform policy and planning regarding computer use and technology on the part of all organizations and agencies whose constituencies include seniors.

METHODS

In February 2008, we mailed a 3-page questionnaire to an age, gender, and race/ethnically stratified random sample of 11,404 nonHispanic White, nonHispanic African-American, and Latino members of the Kaiser Permanente Medical Care Program (KP) in Northern California. The sample was selected from current members who had provided information about their race/ethnicity on previous clinical and administrative questionnaires. Whites were sampled from four age groups (65-69 years, 70-74 years, 75-79 years, 80-85 years), while African-Americans and Latinos were sampled from only the first three age groups due to insufficient numbers in the oldest age group. Approximately four weeks after the first mailing, a second survey was mailed to nonrespondents. To improve survey response by non-computer users, we specified in the survey letter and questionnaire cover page that we were doing this survey to learn about how seniors prefer to communicate with Kaiser and get health information, and that it was *very important* that we hear from people who don't use computers and are not interested in using the Kaiser website. Additionally, we mentioned that respondents would be automatically entered into a drawing for one of several $25 gift certificates. In addition to the mailed questionnaire, the cover letter gave the member a unique logon and password ID and a URL to a secure website where the questionnaire could be completed online. This study was approved by Kaiser Permanente's Institutional Review Board.

The survey, titled HUNT (Healthcare Using New Technologies), contained questions about the following: Access to a home computer (and characteristics of the computer); access to the Internet (at home and/or another location and what type of connection); ability to send and receive email (at home and/or another location and whether it was a personal or shared email address); ability to fill out forms online; ability get to a URL printed on a letter or hand-out; ability to email their doctor through

the KP website; ability to use different digital technologies at home (DVD and CD players, CD-ROM programs, podcasts/audio downloads, and webcasts); use of the Internet and the Kaiser Permanente website (kp.org) specifically for a number of purposes during the previous 12 months; and preferred modalities for learning about health-related topics (DVD, CD, or web-based modalities). Additionally, we asked about the person's preferences for communicating with their doctor about non-urgent medical needs (phone message and call back, emailing through the KP website, or other), ordering prescription medication refills from a KP pharmacy (in person, by phone, or through the KP website); and receiving health newsletters (by regular mail or by email). The member was also given the opportunity to comment about use of the Internet and other new technologies for health care and health education. Finally, selected demographics (educational attainment, race/ethnicity, age group, and sex) were obtained to confirm or fill in for missing administrative data. To augment information about the survey sample, we linked information about the status of each member's registration to use the secure features of the Kaiser Permanente website.

After excluding 568 people due to bad addresses, non-current membership, or incapacitating illness, the overall response to the survey was 55%. The response rates by race/ethnicity were: nonHispanic Whites, 71.2% (2812/3951), African-Americans, 42.7% (1479/3463), and Latinos, 48.9% (1673/3421). Likelihood of response increased with age for all race/ethnic groups, with men aged 65-69 having the lowest response rates across all race/ethnic groups. Respondents were significantly more likely than nonrespondents to be registered to use kp.org secure features (overall 66.7% vs. 49.4%; Whites: 76.3% vs. 66.7%; African-Americans: 53.1% vs. 39.3%; and Latinos 59.4% vs. 45.5%). Analysis by level of education (available for all Whites in the original sample only) showed that response was significantly related to educational attainment, ranging from 59.9% of those who had not completed high school to 66.4% high school graduates, 72.4% some college, and 77.8% college graduates. Only 3.6% (n=217) of respondents completed the questionnaire online, approximately 6% ages 65-69, 4.2% ages 70-74, and 1.5% ages 75-85. Over 80% of online survey respondents were 65-74 years old and had attended at least some college.

As noted earlier, previous research has found that computer and Internet use is strongly associated with educational attainment. To make the HUNT survey results more generalizable to KP's Northern California Health Plan membership, we used estimates from the 2008 KPNC Member Health Survey to create a weighting factor to reflect the age x gender x educational attainment for the respondent's race/ethnic group. Statistical analyses were performed using SAS Proc Means and Proc Freq with weighted survey data. The analyses reported here focus on race/ethnic and gender differences regarding access to and propensity to use web-based and other digital modalities among 65-79 year olds, and age-related differences, by 5-year age cohorts, within race/ethnic groups.(non Hispanic Whites include 80-85 year olds.) Statistics are also presented from the 2008 KPNC Member Health Survey showing how seniors compare with younger and middle-aged adults regarding home computer and Internet access.

SUMMARY OF RESULTS

How Seniors Compare with Other Adult Age Groups Regarding Home Computer and Internet Access: Estimates from the 2008 KPNC Member Health Survey. *Figures 1-3* show comparisons of computer, Internet, and email access among adults aged 25-79 derived from the 2008 KPNC Member Health Survey. Across all three race/ethnic groups, compared to young (ages 25-44) and middle aged adults (ages 45-64), seniors -- especially those above age 74 -- are significantly less likely to have access to a home computer, the Internet and email. This age-cohort difference is more marked among African-Americans and Latinos compared to nonHispanic Whites.

Disparities in Educational Attainment Among Seniors Aged 65-79. *Tables 2A and 2B* provide background information about race-ethnic disparities in educational attainment, which has been found

in other studies to be a major factor in age, race, and gender-disparities in readiness to embrace new information technologies (IT).

- Table 2A shows that Latino seniors are significantly less likely than both White and African-American seniors to have education beyond the high school level.
- While Whites and African-Americans are fairly comparable with regard to the percentage of adults with post-high school education, the percentage of African-American seniors who graduated from college is significantly lower.
- Table 2B shows that educational attainment decreases with age within all three race/ethnic groups, with the largest age-related disparities in education evident for African-American and Latino seniors.
- Among White and Latino seniors, there is also a significant disparity in educational attainment by gender.

Seniors' Access to Home Computer, the Internet, and Email *(Tables 3A and 3B)*
- Table 3A shows that there are both race/ethnic and gender disparities in access to a home computer, the Internet and email, with substantially lower percentages of African-American and Latino seniors overall and by gender having access than White seniors. Within race-ethnic groups, women are significantly less likely to have Internet access than men, with the greatest difference found among Latinos.
- African-American and Latino seniors also are less likely to be registered to use kp.org secure website features, with more than half of Whites and less than one third of African-American and Latino seniors having registered.
- Among seniors with Internet access, the percentages registered to use kp.org secure features nearly doubles among African-Americans and Latinos and increases by about 50% for Whites, but the race-ethnic disparity in kp.org registration remains.
- Table 3B shows that home computer, Internet and email access decrease with age, with seniors 75 and over much less likely to have access than those aged 65-74.
- African-American and Latino seniors aged 75-79 are less likely to have access than Whites aged 80-85.
- The lower access among older seniors and especially among seniors of color results in lower percentages registered to use the kp.org secure features.
- A small percentage of older seniors were found to be registered to use kp.org even though they did not have Internet access, suggesting that the kp.org secure features were being used by adult children or guardians to help manage those seniors' health care.

Relationship of Educational Attainment with Internet Access *(Tables 4A and 4B)*
- Table 4A shows that across all three race-ethnic groups, educational attainment is strongly associated with Internet access. Among Whites, nearly 87% of college graduates have Internet access as compared to 47% of those with ≤ high school diplomas. The split between college graduates and those with ≤ high school diploma was even greater among African-Americans and Latinos.
- Within each level of education, Whites were more likely than African-Americans and Latinos to have Internet access.
- Table 4B shows that age interacts with educational attainment. For example, in all three race-ethnic groups, the percentages of seniors with a college degree who have Internet access decreases with age.
- As a result of this relationship with education and age, seniors with Internet access are significantly better educated as a group than those without Internet access. Among Whites, 81% of those with Internet access have attended at least some college and 43% are college graduates as compared with 48.7% and 16%, respectively, of those without Internet access. Among African-Americans, the comparison is similar, with 81.7% of those with Internet access having at least some college and 31.8% being college graduates as compared to 49.4% and 9.4%, respectively, of those without Internet access. For Latinos, who were less likely to have

Internet access than Whites and African-Americans, 67% of those with Internet access have at least some college and 29.2% are college graduates as compared with 25.7% and 5.9%, respectively, of those without Internet access.

Seniors' Current Ability to Use Different Digital Modalities *(Tables 5A and 5B):*
- Table 5A shows that across all three race-ethnic groups, approximately ¾ of seniors said that they can easily watch a DVD on a DVD player, while only approximately half that number thought they could watch a DVD on a computer or a video on a website.
- While approximately half of seniors said they could easily listen to a CD on a CD player, 12% of White and less than 10% of African-American and Latino seniors indicated that they could easily listen to a podcast or audio download.
- Women were significantly less likely than men and African-American and Latino seniors were less likely than White seniors to indicate that computer and web-based modalities are easy for them to use right now.
- Table 5B shows that ability to use these technologies decreases with age, especially those technologies that involve using a computer.

What Percentage of Seniors Feel Capable of Performing Internet-Related Tasks. *Tables 6A and 6B* show the percentages of seniors who thought that they could fairly easily perform specific tasks using the Internet. Seniors who never used the Internet were instructed they could skip this set of questions and were subsequently coded as finding these tasks difficult to do. Results are provided for all seniors and for those with Internet access.
- Approximately half of White seniors (70% of those with Internet access) thought they could fairly easily complete a short form online, though they were less confident that they could complete a long form or questionnaire online. The percentages of African-American and Latino seniors who thought that they could do these tasks fairly easily were substantially lower.
- While nearly half of White seniors thought they could fairly easily get to a URL printed on a letter or form, only about ¼ of African-American and Latino seniors thought that they could do this.
- African-American and Latino seniors were less likely than White seniors to think they could easily email their doctor through the kp.org website, but race-ethnic differences were much smaller among those with Internet access.
- Table 6B shows that perceived ability to perform these Internet-related tasks becomes more difficult with age, even among people with Internet access.

Seniors' Use of the Internet and KP Website during the Previous 12 Months. *Tables 7A and 7B* present statistics about seniors' reported use of the Internet in general and the KP website during the 12 months preceding the survey.
- Table 7A shows that African-American and Latino seniors were, for the most part, less likely than White seniors to search the Internet for information about services or products, get health information, fill out online forms, and pay for things online. The disparity is lessened when we restricted the analysis to people with Internet access.
- While more than 40% of White seniors and approximately 25% of African-American and Latino seniors aged 65-79 had reported searching for health information on the Internet, less than 20% of Whites, about 11% of African-Americans, and 5% of Latinos had used any of the health information sources on the KP website, including the health and drug encyclopedias and databases, web videos and podcasts, and health education programs.
- 15% of White and less than 10% of African-American and Latino seniors said that they had used the KP website's Health Encyclopedia, with similar percentages having used the kp.org Drug Encyclopedia and approximately 3% having used the Natural Medicines Database.
- Approximately 2% of seniors had used a KP online Health Education program, less than 2% had watched a health video on the KP website and even fewer had listened to a KP podcast/audio download.

- Across all three race-ethnic groups, women were less likely than men to have completed online forms or paid for anything on a website.
- Men were more likely than women to do searches for product or service information, but there was no gender disparity among White and African-American seniors with regard to doing searches for health information.
- Some of the comments written at the end of the survey suggested that seniors found the website cumbersome for getting health information compared to doing searches using Google or going to other sites like MayoClinic.com and WebMD (see Member Comments Section below)
- The secure messaging feature and ability to retrieve lab or test results had been used by approximately 1/3 of White seniors, but by only half as many African-American and Latino seniors.
- A similar race/ethnic disparity was found in use of the online prescription medication refill procedure, which had been used by approximately 20% of White seniors and less than 10% of African-American and Latino seniors.
- When estimates were restricted to seniors with Internet access, the percentages who had used these secure features rose by about 13% for White seniors and nearly doubled for African-American and Latino seniors, somewhat decreasing the race-ethnic and gender disparities found in the overall estimates.
- About 1/3 (30%) of White seniors and approximately 17% of African-American and Latino seniors had visited their doctor's MD Home Page. When analysis was restricted to seniors with Internet access, the percentages showed similar increases to those using the secure KP features. However, the race/ethnic disparity in accessing the MD Home Page did not decrease as much when controlling for Internet access as it had for the other secure features.
- Similar to the use of the Internet for obtaining health information, older seniors were much less likely than the 65-74 year old group to have used the KP secure website features and to have visited the MD Home Page.
- White seniors were significantly more likely than African-American and Latino seniors to have used the KP website secure features, especially within the 75-79 year old group.

Seniors' Interest in Using Various IT Modalities to Learn About Health-Related Topics *(Tables 8A and 8*B). Seniors were given a list of web-based and lower tech modalities for obtaining health information. In general, seniors preferred the "lower tech" options.
- Watching a DVD at home was the most consistently preferred method, with more than half of seniors aged 65-79 in all three race-ethnic groups indicating this modality. While there was some decrease in interest in this modality among those over the age of 74, the drop off was not as much as for other modalities.
- Obtaining information from a website was the second most preferred method, selected by slightly more than 1/3 of White seniors and about 1/5 of African-American and Latino seniors aged 65-79. However, approximately half of seniors with Internet access were interested in obtaining health information from websites.
- There was much less interest in watching a webcast, using an interactive web-based program, or listening to a podcast/audio download, with percentages of seniors expressing interest in these more RAM-intensive modalities approximately half as great as was expressed for solely obtaining information from a website.
- Approximately 40% of White, African-American, and Latino seniors expressed interest in obtaining Personal Health Coaching by phone, with no gender or race-ethnic differences. Similarly high percentages of seniors with Internet access were interested in Health Coaching by email. Personal health coaching appeared to be much preferred to participating in group health education programs over the phone.

Seniors' Readiness to Use the KP Website for Communicating with Primary Care Physician, Refilling KP Pharmacy Prescriptions, and Getting KP Newsletters *(Tables 9A and 9B).* One of the primary aims of this survey was to assess the readiness of seniors to switch from traditional ways of communicating with the health plan to web- and email-based communication. We found that preference was strongly associated with age, gender, and race/ethnicity.

- **Preference for communicating with the doctor**. For the full 65-79 year old group, approximately ¾ of African-Americans and Latinos, as compared to ½ of Whites, wanted to communicate with their doctors by phone rather than email, even if that meant leaving a message and getting a call back. Even among those with Internet access, this race/ethnic difference remained: 51% of African Americans and 43% of Latinos still were not interested in email communication vs. 35% of Whites. Across race/ethnic groups, there was an approximate 20 percentage point difference demonstrating a preference for phone communication only between those aged 65-69 and those aged 75-79, a difference that was not solely due to the issue of Internet access. Men appeared to be more willing to use email, although this appears to be partly a function of Internet access. Looking at responses from the opposite perspective, in the 65-74 year old age group, while about half of Whites were interested in email communication with their doctor, only about 30% of African-Americans and Latinos wanted to use email. The race/ethnic difference in phone vs. email preference increases even more in the 75-79 year old age group, especially between Whites and Latinos.

- **Preference for refilling prescriptions**. White seniors were nearly twice as likely as African-American and Latino seniors to be willing to use the secure website to order prescription refills (32% vs. 17% and 15%, respectively). This race/ethnic difference remained after restricting analysis to those with Internet access. While there was no significant race/ethnic difference in preference for phone refills, African-American and Latino seniors were more likely than Whites in their preference for going into the pharmacy for the refill rather than using the phone or website for re-ordering. Preference for web-based re-ordering was significantly lower among those aged ≥ 75 than the younger seniors.

- **Preference for receiving newsletters**. About 66% of Whites, 80% of African-Americans, and 89% of Latinos aged 65-79 preferred to receive health newsletters by regular mail rather than email. Of those with Internet access, approximately 50% of White, and 40% of African-American and Latino seniors either had no preference or expressed a preference for emailed newsletters. Again, age and gender also influenced preference. Acceptability of emailed newsletters decreased with age, and women were less likely than men to have a preference for emailed newsletters.

Member Comments about Using the Internet and Other New Technologies for Health Care and Health Education

At the end of the survey, 1300 respondents provided comments about use of the Internet and other new technologies for health care and health education. These comments were theme-coded and some representative comments for the different theme categories were selected for presentation.

Approximately 30% of the comments (n=394) were fairly positive about web-based communications and/or the KP website. 53 people commented on how they liked to email their doctor and use the online pharmacy refill system, and another 51 commented on how helpful the site content was. Another 270 seniors were not computer users themselves, but 145 said that they wanted to learn how to use a computer and access the Internet and 125 said that they have their spouse or another relative access the Internet for them.

Sample positive comments:

- It's very useful, like having access to medical libraries and knowledge in your home. (White Male age 66)
- When I want information, I am happy I can find it on the computer, rather than have to bother or pay for information from another person. And to choose the time I want to give to the effort. (White Female age 65)
- There is so much I need to learn about keeping healthy these days. I spend 3-4 hours a day on my computer and I love it. I couldn't enjoy life without it. (White Male age 85)
- Great idea. Saves time, paper, gas, and a record of the message can be kept and accessed indefinitely. (White Male age 66)
- A very important and easy to use tool for managing my health. (White Female age 69).
- For doctors and members, access to computer is one of best services ever offered. (White Male age 75).
- With a computer, the sky's the limit: paperless, accessible 24/7, and more information more quickly. (Black Female age 70)
- Kaiser is doing a good job with technology. In an era when it becomes more unrealistic to think you can talk to your doctor at any time, Internet and email are really necessary. (White Female age 68)
- I really enjoy the option to email my physician and receive their timely responses. It's so convenient for all concerned. The patient's anxiety diminishes and Kaiser's care improves. (White Female age 74)
- Emailing my doctor is a huge improvement over messaging by phone. (White Female age 73
- I am so grateful to be able to email my doctor and access lab results. Bring on the new technologies! (White Female age 78)
- I didn't know all these health services were available online. I will now use as appropriate. (White Female age 78)

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   The majority of the comments (n=753 or 57.9%), however, focused on problems with web-based communications. We grouped these into 6 major themes:

1) <u>No interest in using computers or new technologies</u> (too old to learn or just not interested)
Sample comments:

- Don't like them; don't want them. (White Female age 66)
- I don't like computers. I don't use or want a computer. I don't want to learn to use a computer. You get in trouble with computers. (Latina Female age 66)
- I don't care to use the internet for medical information. I'm an old guy set in my ways! (White Male age 75)
- I'm almost 77 years old and have no interest in learning the computer now. (Black Male age 76)
- I have a phone and a home address. For me, that's enough. (White Male age 77)
- I run screaming from all technology more complex than an old TV, a microwave and a toaster oven. (White Male age 74)
- If I have to get any more of my medical information via email, I'm going to quit Kaiser. (White Male age 80)

2) <u>Access issues</u>, including having no computer or no Internet connection or an old computer or slow Internet connection that does not work well with complex, graphic-intensive websites like kp.org.
Sample comments:

- I have dial-up. It takes too long to use the computer. The easy way is pick up the phone (White Female age 72).
- I have webTV so am limited as to what I can do online (White Female age 68). [Mentioned by several people as a barrier to accessing the KP website]
- At my age, I'm not going to invest in a computer and the money for a monthly service, let alone learn to use one (White Female age 67).
- Most seniors I know don't have the money for computer and internet access (White Female age 75) [mentioned by several people as a barrier to accessing web]

3) <u>Difficulty using computers and the Internet in general or the KP website in particular</u> due to natural aging processes making learning new things difficult or physical, medical, and disability factors that hampered use.

Sample comments:

- I'm aging and can only manage in the older ways. I find the new style very hard to deal with. I'm glad to have the chance to tell someone how difficult Kaiser has become for older people like me. (White Female age 82)
- There must be many elderly people (as I am) with no computer, yet too much information refers to computer only. (White Female age 85)
- I was born too early and will never be literate like my children and grandchildren. (White Female age 73)
- I don't know how to use these newer technologies. (White Female age 69)
- I feel like a dinosaur in a world of technology. I can't keep up with it and don't even want to try. (White Female age 73)
- Many of us older folks have no knowledge of computer or email or Internet, so need to keep using phone service. (Black Female age 68)
- Not competent enough to do more than send and receive email. (White Female age 85)
- Have trouble using computer. Internet is confusing. (White Male age 68)
- The technology is awesome, but too much to learn at my age. (White Female age 85)
- Computer is difficult for me to use, finding the right icon to click on to get what I want. (White Male age 83)
- At my age, my mind doesn't function well enough to try to learn computer. (Latino Male age 71)
- It is very hard for me to understand (computer) and remember how to use it. (White Female age 78)
- Too old now to use computer and cannot retain or retrieve information (from my brain) necessary to adequately use it to my advantage. (White Male age 74)
- I cannot access your web site with the current industry standards "jaws" software used by the blind community and it's extremely frustrating. (White Female age 71)
- Cannot sit long at the computer; have back and neck problems. (White Male age 65
- Computer is hard on my eyes after a short time (Latina Female age 67); Since I have glaucoma, I can only use the computer limited time each day. (Latino Male age 69)
- Don't want to use or learn computer at my age. I have RA, Osteoarthritis and my wrists have both been fused (White Female age 67); I have problems with my hands, wrists, elbows. (Black Female age 68)

4) <u>Privacy and trust concerns about use of the Internet</u>
Sample comments:

- Computer used for emails, games, letter writing only. Not comfortable using Internet. (Latina Female age 70)
- I never click a link from within an email, even from Kaiser. Many emails look like they're from a legitimate place, but aren't. (Latino Male age 66)
- A fraud alert last year has affected my willingness to use or give info via computer. (White Female age 77)
- Although the computer and web sites have safeguards, I prefer not to enter much confidential information. (Black Female age 71)

5) <u>Problems interacting with the KP website</u>, including finding it cumbersome or too complicated and difficult to use.
Sample comments:

- Site is not user-friendly. (Latino Male age 66)
- Might be easier for oldsters if access was easier and accommodated those with fading visual acuity. (White Female age 85)
- Kaiser web access is clumsy and time consuming. (White Female age 79)
- I use the Kaiser site but find it unwieldy somehow. I don't navigate it easily. (White Female age 68)
- Getting information at the Kaiser web site is cumbersome. I have neither the time nor the patience. (White Female age 77)
- Web site uses too many pictures and some pages take too long to load. Give me the option to skip images. (White Male age 73)
- I can log into Paypal 10 times in the time it takes me to log into Kaiser. (White Male age 68)
- I find the web site hard to use: I have to know my prescription numbers to refill them; I have to check messages from my doctor/pharmacy by logging into site thru several steps. Simplify. (White Male age 66)
- Your web site could be easier to use - not so many steps to reach destination. Compare Google or Amazon. (White Female age 80)

- Too hard to navigate the Kaiser web site. (Latina Female age 76)
- I have tried many times to use web site to email doc and pharmacy to no avail. Please simplify, such as: type in Kaiser #, click doctor name, send message. Security obstacles drive me away. (White Male age 74)
- Too many screens to go thru to order Rx's. Slow. Phone is faster. (White Female age 69)
- Using Kaiser web site requires too many steps and takes too long. (White Male age 84)
- Tried to use site, but could never get past ID's and passwords. (White Male age 70)
- When I have health questions, I use Google rather than Kaiser, simply because Google doesn't require a password, which is a deterrent. (White Male age 73)
- Always running into problems due to ID and password. Very discouraging. (White Male age 84) [Mentioned by several people]
- I have tried to establish an internet connection, but was unable to get approval for any of about a dozen passwords I chose. (White Male age 76)
- It's faster to use the phone and less complicated. The phone is user friendly. (White Female age 66)
- Your info pages are very minimal - I go to Mayo Clinic & Harvard sites. (White Female age 66)

6) <u>Preference for personal contact</u> rather than using email or web-based communication.
Sample comments:

- I have been a Kaiser member for many years and have a very, very good doctor. Please don't reassign me to a computer. (White Male age 82)
- I hope very seriously that the computer will not take the place of a doctor who can give you the personal touch. (Black Female age 74)
- I like the Internet, but nothing beats personal contact. (White Female age 79)
- I resent the massive forced use of the Internet for everything! I am very pro technology, but its use should be voluntary not mandatory. (White Male age 72)
- I understand it's important to understand the computer. But I still need the personal contact, because they can talk to me and explain my health issues to me - we can have a discussion. (Black Male age 66)
- It seems technology is replacing personal contact for health concerns, which at my age can be a disaster. (Black Female age 65)
- It's okay for a quick question, but I prefer the personal / human touch. (White Female age 73)
- Emails can be missed; I prefer a phone call to be sure I get the message. (White Male age 70)
- My concern is to protect the face-to-face access to my doctor. If technology optimizes my time with my doctor, then I'll consider using the computer for some things. (Latino Male age 76)
- At 82, I am satisfied using the phone or meeting in person with my doctor to get answers to problems. I also do read health articles in papers and the materials Kaiser sends me. (White Female age 81)
- The real world of health ed aimed at senior citizens is not equipped or ready for the latest technology... Maybe in 10 years when today's boomers turn 65... Today's seniors value in-person consults. (White Female age 69)
- I already feel my doctor is a computer and I am just a printout. (White Female age 69)
- Does this mean that Kaiser is going to buy more computers and hire less doctors -- no thanks! (Latino Male age 69)
- I don't want something as important as my health to depend on the computer for answers. I want to phone a person. (White Female age 73)
- Most people in my generation prefer to use the phone rather than computer for detailed explanations. (White Male age 84)
- Why does everyone assume that everyone has a computer? Many of our senior friends do not have computers. They choose not to have one. Prefer personal touch. (Latino Male age 79)

Some people also wrote in suggestions for how to make the KP website more user-friendly:

- I need lessons or techniques to access health information online and a guide sheet on how to email my doctor. (Black Female age 77)
- Keep it simple, make it clear, for as we age, we need easy directions (Latino Male age 68).
- Before you add a form to the site (i.e., lab results), run it by a group of people to make sure they understand it (White Male age 78).
- Make it easier to look at our lab results. Have them come up all on one page. The way it is now, we get 1 result at a time and by the 3rd one we get bumped out. (Latino Male age 65)

- Need more text space in email screen to write to doctor. (Black Female age 66)
- Remove "case sensitive" from ID and password. (White Male age 72)

CONCLUSIONS

Two surveys conducted in 2008 with adult members of the Kaiser Permanente Medical Care Program confirm that there is an age-related digital divide among the Kaiser Permanente Northern California membership. As the trend toward shifting information and programming away from phone and interpersonal communication toward Internet-based modalities (website and email) continues, this digital divide may lead to disparities in access to information, communications, and patient education.

The survey of adult members found large disparities in access to the Internet and email between seniors and younger and middle-aged adults, while the survey of White, African-American, and Latino seniors found disparities in access between younger seniors (ages 65-74) and those aged ≥75 years. Within these two senior age groups, large disparities in access were also found between women and men and between Latinos and African-Americans compared with nonHispanic Whites. Furthermore, even among seniors with Internet access, age, gender, and race/ethnic-related differences are apparent in computer skill level, preferences for using a computer, navigating the Internet, and accessing the Kaiser Permanente website. Other research suggests that some of these differences are related to educational attainment, financial situation, and the decrease in physical and mental capabilities that often occur with aging. It is unlikely that these differences can be modified by providing additional training. While a recent Pew survey found that the percentage of seniors aged 70-75 who went online nearly doubled between 2004 and 2006-08 (Jones & Fox, 2009), these older seniors were mostly using the Internet for email, not for doing searches, ordering, or making online financial transactions.

Comments made by seniors who are Internet users suggest that there are certain features of the Kaiser Permanente website that make it difficult for them to access and navigate the site. Barriers include the required logon and password, which is difficult for them to create and remember over time; complex and confusing steps and series of screens that must be navigated to reach the information they want; the complexity of trying to use the online health encyclopedia as compared to googling information on or within other websites; and the graphic-intensity of the web design which makes it difficult to use with old computers and slower Internet services. Other comments suggest that users thought they needed to use their logon and password to access non-secure features of the Kaiser Permanente website (health encyclopedias, MD Home Page, etc.). Some of these common website barriers for senior users have been described by Jakob Nielsen (Nielsen 2002) and Stephen Sherman (2007). In its 2005 report on e-health and the elderly, the Kaiser Family Foundation cautions: "While the Internet is a resource for some seniors, particularly those with higher income levels, strategies that rely on the Internet as the primary means of reaching older Americans would clearly miss many seniors. At the same time, a significant minority of seniors is already online, and as boomers and other adults age, the number is likely to increase dramatically. For those who are online, health is an important topic. It is critical that sites are made easily readable (large font, color contrasts) and simple to navigate."

Kaiser Permanente's shift toward moving more information, health education, and communication services to its website has alarmed some seniors who are concerned that they are going to miss out on important information because they can't or don't want to "go to kp.org for more information." They are also concerned that the personal care and attention and ability to talk with their doctors and support staff by phone may be disappearing as part of Kaiser Permanente's efforts to reduce staff and save money. On the other hand, some seniors think that the move toward web-based communications and services is very positive, making it more convenient for them to communicate with their doctor, get lab and test results, refill prescriptions, and get information 24/7. We also found some evidence to suggest that adult children or caregivers of older seniors are using

the secure features of the Kaiser Permanente website to help manage those seniors' care.

As of June 2008, KPNC had approximately 400,000 members aged ≥ 65 years, slightly less than half of whom (169,275) were ≥75 years. Seniors comprised only 12.5% of the entire membership and 16.4% of adult members aged ≥18, and those ≥75 years only 5% of the entire membership and 7% of adult members. However, compared to younger adult members, seniors, especially older seniors, tend to deal with more health and health-related quality of life problems, have and receive results for more screening and diagnostic tests, and use larger numbers of prescription and OTC medications about which they need information and advice.   Seniors are more likely than younger adults to have both the time and motivation to access information and other resources available at Kaiser Permanente and in the community to keep them healthy and informed about their health and health care. They are also extremely concerned about keeping up to date on important information that will enable them to keep receiving their health care benefits. As our survey results found, however, seniors are less likely to be able and less interested than younger adults in getting information and communicating over the Internet.

Thus, while the Internet and other IT technologies offer convenience and access to a greater amount of health-related information, resources, and services than people have had in the past, Kaiser Permanente and other health care organizations must make sure that similar resources are available in more low-tech modalities (print information, DVDs, phone, regular mail) for those who are unable or unwilling to access these resources from Internet websites. Health care organizations must also respect that seniors (but not only seniors) tend to place great value and trust in communicating about health-related matters person-to-person Therefore, emailing one's doctor, making appointments, ordering prescriptions refills, obtaining forms, and getting information and educational services online should be convenient options, but patients must not be made to feel that they are second-class citizens if they cannot or do not want to make the move to web-based care.

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