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Internet-Based Dementia Resources: Physician Attitudes and Practices

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Abstract

Despite the potential of the internet for informing clinical practice, little is known about physicians' use of and attitudes about internet use for dementia care. We surveyed 373 physicians to inform development of on-line dementia education resources. Two thirds reported using internet-based resources in their clinical practices at least three times per week; 61% participated in on-line continuing medical education. Three fourths agreed that internet-based resources are helpful in clinical care but most expressed mixed views about quality of available information. Respondents reported limited awareness and use of dementia-specific internet resources, but expressed an interest in such information regarding screening, treatment, community resources, and patient education. National Institute on Aging-funded Alzheimer's Disease Centers are in a unique position to disseminate on-line resources for physicians on dementia diagnosis, treatment, and care. Our study suggests that such a resource would be well received and utilized by physicians.

Keywords

Alzheimer's disease; Internet; Medical Education

INTRODUCTION

Alzheimer disease (AD) is a significant public health problem, affecting more than 5 million Americans (Hebert, Scherr, Bienias, Bennett & Evans, 2003). It is currently estimated that only half of the people who currently have the disease are diagnosed; the majority of

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diagnoses are made in the moderate stage of disease (Alzheimer Association, 2005). While primary care providers are generally knowledgeable about dementia diagnosis and available treatments, they often express limited confidence in their diagnostic skills and in management of behavioral problems and other complications of dementia (Boise, Camicioli, Morgan, Rose & Congleton, 1999; Cheok, Cohen, & Zuccherro, 1997; De Lepeleire, Wind, Iliffe, Moniz-Cook, Wilcock, Gonzalez, Derksen, Gianelli, & Vernooij-Dassen, 2008; Turner, Iliffe, Downs, Wilcock, Bryans, Levin, Keady, & O'Carroll, 2004). These studies and others suggest that clinicians would benefit from resources that would help them in diagnosing and managing dementia.

To the extent that internet-based approaches can overcome such barriers and increase access to information regarding quality care for persons with dementia, they may be a valuable resource for improving the quality of dementia care. One of the core goals of the Alzheimer Disease Centers (ADC) program funded by the National Institute on Aging (NIA) is to disseminate information about AD diagnosis and management to physicians and other health care providers. Examples of strategies to accomplish this goal include continuing medical education (CME) conferences, printed materials, and train-the-trainer programs (Vollmar, Rieger, Butzlaff & Ostermann, 2009; Connell, Kole, Benedict, Holmes, Gilman & Beane, 1994). More recently, there is growing reliance on internet-based education and patient materials (Sinusas, 2009; Wearne, 2008). Despite the potential of the internet for informing clinical practice, little is known about physicians' use of and attitudes about this resource with respect to AD and related dementia diagnoses, treatment, and care.

The purpose of this study was to examine three research questions: a) to what extent do physicians use the internet to obtain general and dementia-specific medical information and how do they rate its quality? b) does internet usage vary by medical specialty?, and c) what dementia-specific websites do physicians access and what dementia-related internet tools would they be interested in? The long-term objective of the study is to inform the development of and access to dementia-related educational materials that will meet the needs of practicing physicians, including an on-line resource to be used as part of the outreach efforts of the ADC program.

METHODS

Survey

A two-page anonymous survey was distributed by mail to 3,123 primary care (PCPs) and specialist physicians affiliated with the NIA-funded ADCs at the University of Michigan, Washington University in St. Louis, and the Oregon Health and Sciences University (Galvin, Meuser, Boise & Connell, 2009).. The sample consisted of physicians identified by state medical societies and licensing lists and those who had referred patients to their respective ADC. The survey was refined during several telephone conference calls among the three participating sites. Survey items included demographic information (age, race, gender, zip code) and questions about medical practice (specialty, percentage of patients over age 65, participation in on-line CME course). Eleven items assessed respondents' use of the internet for medical information using a 5-point Likert Scale (1=strongly disagree, 5=strongly agree). Respondents were then asked, "If an authoritative source of on-line information was available, what topics would you be interested in?" Twelve options were provided; respondents' rated each on a 3-point Likert Scale (0 = not at all, 1 = somewhat likely, 2 = very likely). Because the survey was anonymous and the study deemed low risk, this study was exempt by the Institutional Review Boards at the three participating sites.

Statistical Analyses

Analyses were performed using SPSS, v15.0 (Chicago, IL). Group means were compared using two-sided t-test and ANOVA with LSD post-hoc statistics for continuous variables and Chi-square for categorical variables.

RESULTS

Sample Characteristics

A total of 373 surveys were returned (approximately equal numbers across sites), for a 12% response rate. Respondents had a mean age of 51 ± 11 y (range 27–80y); 70% were male and 79% were Caucasian. Sixty-one percent of the respondents reported their medical specialty was primary care (Internal Medicine or one of its specialties, Family Medicine or General Practice). Eighteen respondents were surgical specialties; these individuals were grouped with the PCP because their training likely did not incorporate dementia information. Specialists (39%) with presumed expertise in dementia included Neurologists, Psychiatrists and Geriatricians. The vast majority (96%) reported providing clinical care to at least some older adults; 27% reported that their practice focused primarily (>50%) on geriatric patients. Sixty percent of the respondents practiced within 20 miles of the three ADCs. There were no differences in age, gender, race or percentage of patients over age 65 between PCP and specialists. Sixty one percent of respondents participated in on-line CME programs in the past; 65% reported a desire to do so in the future.

Internet Use

Eighty-three percent of respondents reported use of internet resources in their medical practice at least once a week; less than 3% reported no internet use at all. Physicians who used the internet at least once a week were more likely to be younger (49.4 ± 10.4 y) compared with physicians who used the internet less often (55.9 ± 10.9 y, $p < .001$) and were more likely to be female ($p = .02$). No differences in internet use were found by race or medical specialty.

Perceptions of Medical Information Available on the Internet

Respondents were asked to rate their level of agreement with statements regarding internet resources. Most agreed that internet resources were helpful in clinical practice. However, most respondents generally thought that the internet resources that patients and their family members brought with them to office visits were not helpful. Compared to physicians that did not report participating in on-line CME programs, those that did were more likely to rate internet resources as helpful ($\chi^2 = 15$, $p = .005$), to download tools ($\chi^2 = 17$, $p = .002$) and patient handouts ($\chi^2 = 20$, $p = .001$), and to download dementia-specific information ($\chi^2 = 28$, $p < .001$). There was no relationship between use of on-line CME programming and awareness of specific medical websites for general medical information or information specific to dementia.

To inform potential targets for intervention and program development, perceptions of internet medical information and preferences for dementia-related information were compared by medical specialty (Table 1). PCPs and specialists responded similarly on all internet use items, except one -- PCPs reported a greater likelihood to download handouts for patients ($p < .008$).

Respondents were also asked "If an authoritative source of information were available on-line, what topics or tools would you be interested in?" The most frequently requested tools were downloadable information about screening tools, treatment options, diagnostic tools, community resources, and patient education. The least frequently requested tools were

caregiver assessments and information on billing codes and reimbursement. PCPs were more likely than specialists to request screening tools to detect possible dementia, caregiver assessments, and information on treatment options.

Quality of Internet Information

Seventy-eight percent of respondents agreed that internet-based resources are helpful in clinical care, but respondents expressed mixed views about the quality of the available information. Sixty percent of respondents (n=222) listed at least one site that they visit regularly for general medical information. Most respondents (80%) trust NIH-sponsored websites for information. However, when asked to list internet sites that provide reliable information, NIH-sponsored sites ranked 10th (Table 2). The two websites that were most commonly endorsed as providing reliable medical information include *UpToDate* and *WebMD*. Only 13% of respondents listed any websites that they viewed as providing reliable information on dementia; 18 physicians mentioned *UpToDate*; 7 mentioned the Alzheimer's Association, 7 mentioned NIH (Table 2).

DISCUSSION

The internet has the potential to be a great resource for practicing physicians (Cook, Levinson, Garside, Dupras, Erwin & Montori, 2008; Ryan & Waterston, 2000) and may serve as a conduit for disseminating dementia-specific information from AD Centers to providers in the community (Wearne 2008). Most clinicians responding to our survey reported using the internet at least once a week. While the majority of respondents were well-acquainted with internet-based resources for general medical practice and were regular users of such information, there was less familiarity with currently available dementia-related information. The majority of respondents expressed positive views about internet resources, with *UpToDate* and *WebMD* mentioned most often as a reliable site for general medical information. Most respondents expressed a high degree of trust in NIH-sponsored web resources, although NIH was listed less often as a clinical resource than other websites. Possible reasons for this disparity may include more aggressive marketing strategies by commercial websites, more difficult search engines on the NIH website, or a lack of familiarity with disease specific institutes within NIH. One possible strategy to overcome this is the more aggressively promote the Alzheimer Disease Education and Referral (ADEAR) Center (www.nia.nih.gov/alzheimers) that provides current, comprehensive information and resources from the National Institute on Aging to practicing physicians.

Internet users tended to be younger female physicians who frequently obtained CME credits using on-line programming. Consistent with other studies (Quijada & Monsanto-Planadeball, 2008), no differences in internet utilization were discovered by specialty. Compared to specialists, PCPs were more likely to download patient handouts from the internet. Tools designed to help with patient screening and diagnosis, treatment options, and community resources were the most-requested resources. Differences between PCP and specialists may reflect expertise, time constraints and practice models (continuing care vs. consultation). Regardless of frequency of internet use or medical specialty, respondents reported that internet resources patients and families brought to doctor visits were not helpful (also reported by Dilliway & Maudsley, 2008; Imes, Bylund, Sabee, Routsong & Sanford, 2008; Iverson, Howard & Penney, 2008).

This study was not without limitations. The non-random sampling of physicians in the three survey locations, with differential targeting of primary care and specialist physicians based on ADC-specific priorities limit the generalizability of findings. In addition, other factors not asked in this survey may also contribute to physicians' opinion and use of on-line resources. The low response rate (12%) also limits generalizability of findings. It is

impossible to determine whether non-respondents ever received the survey, as mail may be screened by office staff. No remuneration was offered (although each site offered a raffle for an I-Pod to those completing a separate mail-in postcard). Non-responders may have had an inherently poor view of physician surveys, the internet, research in general or of this particular topic and thus chose not to participate. Non-response bias is difficult to assess, however, physician response rates for mailed surveys are significantly lower than for the general population (Cummings, Savitz & Kolnrad, 2001). Demographic variables (age, gender, income, area, type of practice), however, tend not to be different between physician responders and non-responders (Kellerman & Herold, 2001).

Despite the limitations, results from this study can inform interventions designed to increase knowledge and awareness of AD among practicing physicians. Dementia outreach education programs should place a high emphasis on providing physicians with easy-to-use, web-based diagnostic tools, patient handouts and guidelines for treatment and management of the common symptoms of dementia (Cherry, Hahn, & Vickrey, 2009). NIA-funded ADCs, perhaps in collaboration with local chapters of the Alzheimer's Association (www.alz.org), are in a unique position to create and disseminate centralized, comprehensive resources for physicians on dementia diagnosis, treatment and care (Hunter, Rockman, Gingrich, Silveira, & Salach, 2008) and provide continuing education programs (Rampatige, Dunt, Doyle, Day & van Dort, 2009).

Despite the growing interest in internet education, a minority of physicians responding to our survey reported negative views of electronic learning (see also Vollmar et al, 2009). Current theories of diffusion of innovation (Rogers, 1995), suggest that we should expect early, middle, and late adopters of internet resources. The low users in this study may be late adopters and thus may be a prime target for internet-based education. Because innovation adoption has a strong social component, collegial interactions and discussions along with enlisting key local opinion leaders may facilitate adoption among practitioners (Chew, Grant, & Tote, 2004; Scott, Plotnikoff, Karunamuni, Bize, & Rogers, 2008).

Developing educational programs with the goal of increasing physician awareness and knowledge of AD and related disorders is critical to increasing access to accurate diagnoses and appropriate treatment (Perry, Draskovic, van Achterberg, Borm, van Eijken, Lucassen, Vernooij-Dassen, & Olde Rikkert, 2008; Cahill, 2006). Internet-based resources can play a large part in accomplishing this goal along increased awareness of dementia-specific local, regional, and national support services. The NIA-funded ADCs, in collaboration with local chapters of the Alzheimer Association and other community groups, are in an ideal position to capitalize on these unmet needs.

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Table 1

Respondents Perceptions of Medical Information Available on the Internet and the Preferences for Dementia-related Information

	Medical Specialty		
Perceptions of internet medical information (% Agree)	PCP	Specialist	p-value
Internet resources are helpful in my clinical practice	78.3	74.6	NS
It is difficult to assess the quality of medical info on-line	30.4	23.9	NS
I download clinical tools regularly from the internet	29.6	20.4	NS
I download handouts and other info regularly for my patients	32.9	19.7	.008
My on-line activities are limited to reading or downloading journal articles	28.4	36.2	NS
I generally trust info from NIH- sponsored medical websites	79.1	81.3	NS
Most often, internet resources brought in by patients are helpful for care	11.9	13.3	NS
I have accessed the internet specifically to obtain information on dementia	26.0	28.5	NS
I am satisfied with the dementia-related info I have found on-line	19.0	24.7	NS
Internet tool (% Desired)	PCP	Specialist	p-value
Screening tools	64.1	47.3	.03
Decision trees	55.4	41.3	NS
Caregiver assessments	32.7	14.9	.008
Behavioral interventions	38.0	27.6	NS
Community resources	63.5	51.4	NS
MRI/CT guidelines	34.9	28.9	NS
Diagnostic evaluation tools	60.6	52.6	NS
Treatment options	72.8	55.4	.02
Dementia management strategies	62.1	47.9	NS
Downloadable patient handouts	61.9	47.2	NS
Assessing driving safety	52.9	44.6	NS
Coding and reimbursement	34.0	29.2	NS

KEY: PCP=primary care providers, NS=not significant, NIH=National Institutes of Health, MRI=magnetic resonance imaging, CT=computerized tomography

Table 2

Most commonly reported sources of medical information

Internet resource: General medical information	# Endorsements
UpToDate	76
WebMD	64
Centers for Disease Control	33
American academy of family Physicians	30
MD Consult	29
Medscape	26
American College of Physicians	20
PubMed	18
Medline	16
National Institutes of Health	15
Internet resources: Dementia-specific information	# Endorsements
UpToDate	18
Alzheimer Association	7
National Institutes of Health	7
WebMD	5
American Geriatrics Society	4