©Operative Dentistry, 2015, **40-5,** 451-457

**Literature Review**

# Health Information Seeking and Implications for the Operative Dentist

K Walker

### Clinical Relevance

This literature review provides the operative dentist with information about the demographics and psychology of the e-patient, the benefits and drawbacks of Internet use for information seeking, and tips for effectively communicating with today's e-health information seeker.


## SUMMARY

**The steady increase in online health information seeking by patients is ingrained in central notions of patient-centered care and shared decision-making models reflected in operative dentistry and the healthcare industry at large. More patients today seek health information prior to an appointment, communicate their findings with their providers, and expect two-way communication exchanges. This e-consumer trend has many implications for operative dentistry, for which surgery, by its very nature, lends to a confluence of questioning and informational needs. Operative dentists must acknowledge patient information and be prepared to address the breadth of information brought to them. The purpose of this literature review is threefold: 1) to provide the operative dentist with information about the demographics, psychology, and behavior of today's e-health patient; 2) to provide a review of the benefits and challenges of communicating with e-health patients; and 3) to provide recommendations for communicating with e-patients interpersonally and through Internet communication. In so doing, it is hoped that discussion can provide insight useful for improving provider/patient relationships in the progressive communication era.**


*Kimberly K Walker, PhD, Indiana University School of Dentistry, Preventive and Community, Indianapolis, IN, USA

*Corresponding author: 415 Lansing Street, Indianapolis, IN 46202, USA; e-mail: kikwalke@indiana.edu

DOI: 10.2341/14-312-LIT

## INTRODUCTION

The health consumer movement and the rise of the e-patient have led to a model of patient-centered communication and shared decision making reflected in operative dental practice and the healthcare industry at large.[1] Historically, dentists presented evidence and treatment options with a paternalistic approach, in which the dentist took full responsibility for the decision-making process.[2] The last few decades have witnessed a powerful movement toward the active, self-managing, responsible patient. More patients today seek out health information, communicate their findings to their providers, and expect two-way communication exchanges.[2]

| Table 1: *Health Information Seeking Habits* |
|---|
| One in three American adults have searched online for health information. |
| Fifteen percent of those seeking health information specifically looked for dental health information.[5] |
| Almost 70% of individuals who turned to online resources prior to a medical visit reported they were planning to ask their healthcare provider questions about the information they found.[6] |
| About 40% of individuals have printed out information to take with them to discuss with their provider.[6] |
| More than 50% of subjects said they intended to make at least one request of their provider based on the information found.[6] |

| Table 2: *Patients Who Seek Internet Information and Support Preferences* |
|---|
| Most likely to seek information |
| Individuals from higher incomes and higher education brackets |
| Females |
| Non-Hispanic whites (vs non-Hispanic blacks and Hispanics) |
| Adults aged 18-34 y and 35-49 y (vs those 75 y and older)[9] |
| Patients with higher self-literacy[10] |
| Cultural differences in preferences for types of media and interpersonal support |
| Hispanics are less interested in Internet support than e-mail or telephone support before medical visits. |
| English- and Spanish-speaking Hispanics have lower rates of information seeking that may result from culturally based concepts of fatalism and deference to medical professionals regarding health decisions. |
| African Americans may be more interested than whites in a combination of Internet, e-mail, and telephone support.[10] |

A key element in the shift from a more passive to a more active patient process has been the unlimited access to health-related information, particularly that which is ubiquitous on Web sites and online forums on the Internet.[3] There are more than 70,000 Web sites that provide health information for patients.[4] Table 1 presents data from the Pew Internet and Life Project Report and another large study, which shows how health information is being used.[5,6] Indeed, health-information–seeking interactions between health providers and patients have become so common that it has been recommended that courses such as 'patient informatics' be integrated into current health professionals' education.[7]

The purpose of this article is to present literature on the demographics and psychology of the e-patient, the benefits and drawbacks of Internet use for information seeking, and tips for effectively communicating with today's e-user. Although much of the research stems from the medical field, it is of relevance to operative dentistry, as dental surgery provides a critical encounter during which this professional communication takes place.[8]

## What Is the Profile of a Typical Online Health Information Seeker?

Table 2 lists the characteristics of those most likely to seek and possibly bring Internet information to a consultation. It also lists cultural differences in preferences for types of media and interpersonal support, as studies indicate that the combination of race and ethnicity with language strongly influences preferences.

## Where Do People Go for Online Health Information?

Consumers of health information typically access information by searching directly for health information or by participating in support groups.[4] Data from the latest Pew Research Internet Project found that most consumers (77%) accessed their health information through Google, Bing, or Yahoo, while 13% started their online health information search with centralized health sources such as WebMD, Medline, and Yahoo!health.[5] Two percent of consumers started their searches from a general site such as Wikipedia, and 1% began with a social media site such as Facebook.[5] One in four health information seekers also join a support group.[4] WebMD, Drugs.com, and MDJunction, for instance, have general oral and dental health community support groups. There are also support groups for specific oral health conditions, such as oral cancer, burning mouth syndrome, and dental anxiety. Online support groups provide a means for people to obtain advice about medical conditions, share their experiences, and seek emotional support.[4] Other advantages of online support groups have been noted, such as the 24-hour access, anonymity, selectivity in responding, capacity for immediate and time-delayed reactions, unlimited number of participants, and exposure to a larger pool of opinions, expertise, and experience that these gropus provide.[4] Acquisition of information on patient support groups has also been shown to influence medical decision making and self-management of care.[4] One study[11] found that users rated online support groups more helpful than physicians in numerous ways, including in terms of their provision of in-depth information, emotional support, and convenience.

### Why Do Individuals Seek Online Health Information?

Individuals are active consumers of communication, seeking the channel of communication (Internet vs interpersonal) perceived to provide the greatest benefits for a particular task.[12] Although research of oral health communication needs is still in the primitive stages, when looking to broad patterns, the majority of people seeking online health information do so for information about disease, treatment, and procedures.[13-15] This pursuit of information is relevant to operative dentistry because research suggests that patients question dentists' behavior and attitudes most during visits in which technical procedures are performed.[16]

Communication gaps between patients and their health providers are well documented. A recent study[17] found that dentists recall more information than do their patients and report giving more dental health education and discussion of future actions than patients remember having received. Similarly, a current literature review[15] of Internet use by patients found that dissatisfaction with the amount of detailed information provided by the health provider during the medical encounter was one of the top two reasons for which patients sought online information. Patients have more confidence in dentists who they perceive communicate well. Furthermore, patients who express more confidence and trust in their dentists' communication abilities are less likely to assume an involved role in the decision-making process.[16] This is evidenced in a recent study[17] that found that patient communication behavior was negatively correlated with the number of questions patients asked during emergency consultations, indicating that the more adept the dentist is at communicating, the less information patients seek during consultation.

Although patients have more confidence in dentists who they perceive to communicate well,[16] the latest research indicates that the questioning of a dental practitioner's motivations and advice may not necessarily be due to mistrust but rather may be more of a by-product of the psychological makeup of today's online health consumer concerning three variables: 1) degree of perceived "distressfulness" of the health challenge, 2) inquisitiveness, and 3) choice.

The study of Hu and others[6] found that reliance on the Internet prior to a medical visit was not affected by level of trust in the provider, but was predicted when health situations are distressful and/or when people feel that they can have some level of personal control over their condition. The authors concluded that, "Many people go online to get information when they anticipate a challenge in their life. It makes sense that they would do the same when dealing with a health issue."

The same study[6] found that users also go online simply because they are curious and want to be more informed. Some individuals have a high need for orientation (NFO). An individual's NFO is a personality variable that reflects the extent to which individuals desire orienting cues and background information to explain the environment around them. Two variables that increase NFO are relevance and uncertainty. If individuals find the topic highly relevant and are highly uncertain of the outcomes, they experience a high need for orientation and actively seek information.[18] In other words, the higher the patient's relevance to the oral issue and the higher the patient's uncertainty about the outcome, the more likely the patient is to seek multiple communications.

A third factor that drives individuals to seek online health information is the perceived satisfaction of having choice. The belief that the provision of choice yields beneficial outcomes for both individuals and society at large is inherent in basic social science theory and research.[19] American society is guided by an assumption that the more choice one has, the greater one's well-being.[20] Choice makes most Americans feel more in control, free, and independent and thus can have positive consequences for individuals' motivation and well-being.[20] The pursuit of choice is reflected in data from a large survey concerning patients' reasons for turning to the Internet, which found that 41% go online to find information about alternative medicine, and another 41% go online to obtain second opinions about their medical condition.[21]

### Pros and Cons of Information Seeking

Dual paradigms of beliefs concerning the effectiveness of health information seeking for the patient/provider relationship exist. Generally, there is now greater acceptance of the more informed and educated patient, as the "participatory" decision-making model has become the preferred model for the clinical encounter.[22] This model allows the patient to take responsibility for disclosing preferences, obtaining information, and weighing treatment alternatives.[22] Research shows that patients who seek knowledge and information for themselves report greater feelings of empowerment (belief in

ability to control one's health) and are more active in self-managing their care.[14]

From the health provider's perspective, the greatest impact on decision making may come from the increase in knowledge patients obtain prior to the clinical visit because it allows them to have opportunity to reflect on and consider preferences prior to the appointment. In this way, instead of utilizing scheduled time to provide the patient with basic knowledge, extra time can be given to refining what the patient has learned and to offering more discussion of treatment options.[22] Theoretically, prior research means more time can be spent on discussions necessary to arrive at a clinical decision. Furthermore, it has been posited that the knowledge patients bring to the appointment can make informed consent more of a reality than a theoretical concept.[22]

The above improvements in knowledge, efficiency, and treatment are dependent upon the patient's ability to access and interpret quality information. Numerous studies[23-25] have criticized the poor quality of health information on the Internet. In recognition of this, Healthy People 2020 objectives include the improvement of quality of health information on the Internet. Low health literacy rates in the United States that are dispersed among all races and ethnic groups also negatively affect the patient's ability to interpret information. The National Assessment of Adult Literacy reports that only 12% of all US adults have proficient health literacy rates.[26]

Operative dentists who are faced with inaccurate information can become frustrated and resistant as a result of the time associated with debunking myths and fallacies.[4] Given the breadth of information available, even accurate information can prompt stress and frustration when the parties involved are unprepared to deal with the magnitude of available information brought forth.[27] Conflicts may also occur if the location of information leads patients to challenge, question, or second-guess the surgeon. Most importantly, incorrect information could ultimately challenge patient care. Some fear that patients who lack technical background and who interpret information incorrectly could opt for inappropriate treatments, reducing medical outcomes.[28] Furthermore, in the pressure to embrace patient-centered care, a provider may acquiesce to requests that may make the patient happy but are not necessarily what he needs.[29] A recent national survey of 3500 physicians, for instance, found that 43% of physicians in practice more than 30 years sometimes or often gave in to patients' demands for brand-name drugs because the patient wanted it, even though a generic is available.[30]

### Ways to Communicate More Efficiently

Despite potential drawbacks, the trend of consumer health information seeking is only increasing. Given the nature of technical information required during surgical proceedings, operative dentists are likely to remain at the crux of Internet exchanges and provision of care. The following are tips to help operative dentists effectively communicate with today's e-net user.

*Listen*—When e-information is brought forward, try not to respond defensively and assert an expert opinion without listening.[15] In a recent survey, one-third of medical patients who felt their relationship with their physician was "low" in participatory decision making changed providers within a year.[31] Communication skills are one of the most important features by which patients judge their dentists.[32] In addition to technical knowledge, patients expect their dentist to communicate effectively, which is specifically defined by use of active listening skills and the effective use of gathering and imparting of information.[33] It is imperative today to acknowledge patients' search for knowledge and to provide some discussion of the information offered.

*Guide Patients to Reliable Health Web Sites*—Once information is acknowledged, take advantage of the opportunity to create, support, reference, and promote awareness of quality electronic sources of medical information. Consider guiding patients to reliable Web sites in two ways: by providing a tip sheet to help patients understand and evaluate Web site credibility and by providing a list of specific Web sites to read. Templates of credibility fact sheets such as those found at the US Food and Drug Administration can be used as models within the dentist's own practice. The US Food and Drug Administration addresses questions that consumers should ask to evaluate the credibility of information found on the Internet, including who runs the Web site, the purpose of the Web site, the original source of information on the Web site (.gov, .edu, .org), review of credentials, timeliness, and the Web site's linking policy.[34] Additionally, dentists could prepare a list of Web sites that they trust and share it with their patients. Web sites sponsored by the government, academic medical centers, or professional medical societies typically have authoritative information that can be relied upon.[35] A leading

healthcare provider[36] recommends that medical professionals start prescribing the right sites to be used for further information about the patient's condition, and this can be done for operative dentistry patients as well. The list would not only provide authentic material to the patient but would also save the patient time.[36]

*Prepare Written Materials*—Consider preparing written materials about commonly asked procedures, especially those for which patients have little knowledge or are misinformed about. There are some questions that arise over and over that stem from natural anxieties and lack of knowledge about surgical procedures. Take these questions and create brochures and other written materials addressing them. Research shows that up to 80% of information given during consultation is forgotten by the patient, indicating a functional need for both the patient and the dentist.[37] "A Patient's Guide to Orthognathic Surgery" is an example of an article written to give information related to commonly misconstrued ideas about orthognathic surgery, its purposes, and complications.[38] The Centers for Disease Control and Prevention offers practical tips for writing clear health communications.[39]

*Use Social Media*—The external media environment also places "trending" health issues and behaviors on the public agenda with stories and anecdotal evidence that can quickly become salient to the public. To counteract popular trending fallacies, consider meeting patients where they are on social media. Take examples from hospitals like the Mayo Clinic, which have well-established social media networks. Dr. Farris, Assistant Professor of Medicine and Medical Director for the Mayo Clinic Center for Social Media, believes that the provision of correct information for the mass audience is more of a moral obligation than a function of efficiency. The popular misconception that vaccinations do more harm than good that has been cultivated by media celebrities is an example of an issue he feels morally obligated to counteract. In an interview with the author, he said that he spends approximately 10 minutes per visit talking about the rationale for vaccinations with his patients and has approximately one refusal a month. The impact of even one vaccine refusal a month can be catastrophic to healthcare, and when individuals become ill, they often sue. Bike helmet safety is another issue that he says pediatricians talk about at least 15 times a week. Posting a simple, short video demonstrating bike safety has saved consultation time and advanced provision of care.

*Speak In Loss-framed Language*—For the impenetrable patient bent on information deemed contradictory to best surgical practice, speak in loss-term language. In health communication, a loss-frame refers to phrasing an argument in terms of the consequences that will occur if a behavior/treatment is not undertaken.[40] For example: If you do not have orthognathic surgery, you may have masticatory insufficiency. Prospect theory research in the health arena demonstrates individuals tend to be more inclined to risk taking with behaviors involving detection and high risk (eg, surgery) when the discussions are positioned in terms of what will be lost.[41] On the other hand, individuals tend to be more motivated to perform preventive behaviors (eg, brushing/flossing) when conversations are framed in terms of the gains they obtain from performing the behavior (strong, clean teeth). If it is a detection/surgical behavior deemed in the patient's best interest, speak in terms of possible losses acquired by not following the procedure.

## CONCLUSION

The trend of seeking online health information has many implications for operative dentistry, which by its very surgical nature creates a confluence of questioning and informational needs. Operative dentists must acknowledge patient information and be prepared to address the breadth of information and misinformation brought to them.

### Conflict of Interest

The authors of this manuscript certify that they have no proprietary, financial, or other personal interest of any nature or kind in any product, service, and/or company that is presented in this article.

### Note

This study was conducted at the Indiana University School of Dentistry.

*(Accepted 4 November 2014)*

### REFERENCES

1. Ha JF, Anat DS, & Longnecker N (2010) Doctor-patient communication: A review *Ochsner Journal* **10(1)** 38-43.
2. Jacquot J (2005) Trust in the dentist-patient relationship: A review *Journal of Young Investigators* Retrieved online September 4, 2014 from: http://www.jyi.org/issue/trust-in-the-dentist-patient-relationship-a-review
3. Sudau F, Friede T, Grabowski J, Koschack J, Makedonski P, & Himmel W (2014) Sources of information and

behavioral patterns in online health forums: Observational study *Journal of Medical Internet Research* **16(1)** e10. http://dx.doi.org/10.2196/jmir.2875

4. Cline RJW, & Haynes KM (2001) Consumer health information seeking on the Internet: The state of the art *Health Education Journal* **16(6)** 671-692.
5. Fox S, & Duggan M (2013) Pew Research Internet Project. Health online 2013. Retrieved online August 31, 2014 from: http://www.pewinternet.org/2013/01/15/health-online-2013/
6. Hu X, Bell RA, Kravitz RL, & Orrange S (2012) The prepared patient: Information seeking of online support group members before their medical appointments *Journal of Health Communication: International Perspectives* **17(8)** 960-978. http://dx.doi.org/10.1080/10810730.2011.650828
7. Bader SS, & Braude RM (1998) 'Patient informatics': Creating new partnerships in medical decision making Academic Medicine **73(4)** 408-411.
8. Masaryk University. Communication in dental medicine. Retrieved online October 1, 2014 from: http://www.med.muni.cz/dokumenty/doc/78342a_02_kapitola_2.doc
9. Kontos E, Blake KD, Chou WYS, & Prestin A (2014) Predictors of eHealth usage: Insights on the digital divide from the Health Information National Trends Survey 2012 *Journal of Medical Internet Research* **16(7)** e172. http://dx.doi.org/10.2196/jmir.3117
10. Sarkar U, Piette JD, Gonzales R, Lessler D, Chew LD, Reilly B, Johnson J, Brunt M, Huang J, Regenstein J, & Schillinger D (2008) Preferences for self-management support: Findings from a survey of diabetes patients in safety-net health systems *Patient Education Counseling* **70(1)** 102-110.
11. Grandinetti DA (2000) Doctors and the Web: Help your patients surf the Net safely *Medical Economics* **77(5)** 186-188.
12. Rubin AM, & Perse EM (1987) Audience activity and television news gratifications *Communication Research* **14(1)** 58-84.
13. Pew Research Internet Project. Health Fact Sheet. 2014. Retrieved online October 1, 2014 from: http://www.pewinternet.org/fact-sheets/health-fact-sheet/
14. Walker KK (2014) Cognitive and affective uses of a Thoracic Outlet Syndrome Facebook support group *Health Communication* **29(8**) 773-781.
15. McMullan M (2006) Patients using the Internet to obtain health information: How this affects the patient-health professional relationship *Patient Education Counseling* **63(1-2**) 24-28.
16. Sbaraini A, Carter SM, Evans R, & Blinkhorn A (2012) Experiences of dental care: What do patients value? *BMC Health Services Research* **12** 177. http://dx.doi.org/10.1186/1472-6963-12-177
17. Misra S, Daly B, Dunne S, Millar B, Packer M, &Asimakopoulou K (2013) Dentist–patient communication: What do patients and dentists remember following a consultation? Implications for patient compliance *Journal of Patient Preference and Adherence* **7** 543-549. http://dx.doi.org/10.2147/PPA.S43255
18. Weaver D (1977) Political issues and voter need for orientation In: Shaw DL, McCombs ME (eds) *The Emergence of American Public Issues: The Agenda Setting Function of the Press* West, St Paul, MN 107-119.
19. Botti S, & Iyengar SS (2006) The dark side of choice: When choice impairs social welfare *Journal of Public Policy & Marketing* **25(1**) 24-38.
20. Savani K, Stephens NM, & Markus HR (2011) The unanticipated interpersonal and societal consequences of choice: Victim blaming and reduced support for the public good *Psychological Science* **22(6**) 795-802. http://dx.doi.org/10.1177/0956797611407928
21. Diaz JA, Griffith RA, Ng JJ, Reinert SE, Friedmann PD, & Moulton AW (2002) Patients' use of the Internet for medical information *Journal of General Internal Medicin*e **17(3)** 180-185. http://dx.doi.org/10.1046/j.1525-1497.2002.10603.x
22. Gerber BS, & Eiser AR (2001) The patient-physician relationship in the Internet age: Future prospects and the research agenda *Journal of Medical Internet Research* **3(2)** e15. http://dx.doi.org/10.2196/jmir.3.2.e15
23. Eysenbach G, &Diepgen TL (1998) Towards quality management of medical information on the Internet: Evaluation, labeling, and filtering of information *BMJ* **317** 1496. doi:http://dx.doi.org/10.1136/bmj.317.7171.1496
24. Robinson TN, Patrick K, Eng TR, & Gustafson D (1998) An evidence-based approach to interactive health communication: A challenge to medicine in the information age. Science Panel on Interactive Communication and Health *JAMA* **280(14)** 1264-1269.
25. Walker KK (2012) Thoracic outlet syndrome on the top consumer health/medical websites: A case for continuing Healthy People 2020 quality of health-related website objectives *Journal of Communication in Healthcare* **5(2)** 75-83. http://dx.doi.org/10.1179/1753807612Y0000000005Walker
26. National Center for Education Statistics (2003) National assessment of adult literacy (NAAL), Retrieved online October 14, 2014 from: http://nces.ed.gov/naal/
27. Coiera E (1996) The Internet's challenge to health care provision *British Medical Journal* **312** 3-4.
28. LaPerriére B, Edwards P, Romeder JM, & Maxwell-Young L (1998) Using the Internet to support self-care *Canadian Nurse* **94(5)** 47-48.
29. Epstein RM, & Street RL (2011) The values and value of patient-centered care *Annals of Family Medicine* **9(2)** 100-103. http://dx.doig.org/ 10.1370/afm.1239
30. Campbell EG, Pham-Kanter G, Vogeli C, & Iezzoni LI (2013) Physician acquiescence to patient demands for brand-name drugs: Results of a national survey of physicians *JAMA Internal Medicine* **173(3**) 237-239. http://dx.doi.org/10.1001/jamainternmed.2013.1539
31. Kaplan SH, Greenfield S, Gandek B, Rogers WH, & Ware JE (1996) Characteristics of physicians with participatory decision-making styles *Annals of Internal Medicine* **124(5)** 497-504.
32. Goedhart H, Eijkman MAJ, & ter Horst G (1996) Quality of dental care: The view of regular attenders *Community*

*Dentistry and Oral Epidemiology* **24(1**) 28-31. http://dx.doi.org/10.1111/j.1600-0528.1996.tb00808.x

33. Hannah A, Millichamp CJ, &Ayers KMS (2004) A communication skills course for undergraduate dental students *Journal of Dental Education* **68(9**) 970-977.
34. US Food and Drug Administration (2005) How to evaluate health information on the Internet. Retrieved online October 8, 2014 from: http://www.fda.gov/Drugs/ResourcesForYou/Consumers/BuyingUsingMedicineSafely/BuyingMedicinesOvertheInternet/ucm202863.htm
35. Pho K (2009) Wikipedia isn't really the patient's friend. *USA Today*. Retrieved October 11, 2014 from: http://blogs.usatoday.com/oped/2009/07/wikipedia-isnt-really-the-patients-friend.html
36. Shashank M, Akerkar LS, & Seth GS (2004) Health information on the internet: Patient empowerment or patient deceit? *Indian Journal of Medical Sciences* **58(8)** 321-326.
37. Rozier RG, Horowitz AM, & Podschun G (2011) Dentist-patient communication techniques used in the United States: The results of a national survey *Journal of the American Dental Association* **142(5)** 518-530.
38. Sarver D (2000) A patient's guide to orthognathic surgery *Orthodontic CYBERjournal* Retrieved October 1, 2014 from: http://orthocj.com/2000/06/a-patients-guide-to-orthognathic-surgery/
39. Centers for Disease Control and Prevention (2009) Simply put. A guide for creating easy to understand materials. Retrieved October 5, 2014 from: http://www.cdc.gov/healthliteracy/pdf/simply_put.pdf
40. Hatley-Major L (2009) Break it to me harshly: The effects of intersecting news frames in lung cancer and obesity coverage *Journal of Health Communication: International Perspectives* **14(2)** 174-188. http://dx.doi.org/10.1080/10810730802659939
41. O'Keefe DJ, & Jensen JD (2009) The relative persuasiveness of gain-framed and loss-framed messages for encouraging disease detection behaviors: A meta-analytic review *Journal of Communication* **59** 296-316. http://dx.doi.org/10.1111/j.1460-2466.2009.01417.x