From Professional MD to Web MD: How online healthcare information is impacting the clinician-patient relationship in a rural hospital

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Abstract

The Internet is rapidly changing the relationship between patients and healthcare providers. In North America, 80% of the general population currently accesses health information on the Internet for themselves, family, or friends (Ahmad et al., 2006). Although patients are able to more actively participate in their own healthcare by accessing online information, research suggests that having this information available online may lead to misinformed patients and a de-professionalization of medicine (Anderson, Rainey & Eysenbach, 2000; Murray et al, 2003; Broom, 2005; Kassirer, 2000). Much of the available research on the effects of the Internet on the clinician-patient relationship has been studied from the patient’s perspective; consequently, much less is known about how the Internet has affected healthcare providers. Additionally, virtually no studies have examined the effects of the Internet on the clinician-patient relationship in rural settings. The purpose of this study was to (a) examine providers’ perspectives about how the Internet has affected the clinician-patient relationship in a rural medical center, and (b) assess the level and degree of satisfaction with any formal training/education that providers had received about the effects of the Internet on the clinician-patient relationship. Data was collected from medical doctors (MDs), doctors of osteopathic medicine (DOs), nurse practitioners (NP), and doctors of podiatric medicine (DPM) across all sub-specialties of medicine practicing at Community General Hospital (CGH) Medical Center, a rural hospital in Sterling, IL. A total of 19 clinicians completed a self-devised questionnaire that assessed their current and past experiences with patients who use the Internet to gain health
information. Specific domains that were assessed included the impact the availability of this online healthcare information has had on clinicians and patients, as well as the continuing education/training that clinicians have received on this topic. Data analysis was completed using SPSS. Results indicated that although Internet usage has increased, most clinicians (58%) did not feel that this had adversely affected their medical practice. Further, few clinicians reported having formal training on this topic. Results of this study suggest that the increase of online healthcare information has mixed outcomes for patients and that continuing education programs are needed to help clinicians address this addition to medicine.

**Key words:** clinician-patient relationship, Internet use, online healthcare information, and continuing education
Introduction

The Internet is drastically changing the practice of medicine (Hartzband and Groopman, 2010). Traditionally, health information has flowed from doctor or patient, but the Internet is changing the roles of clinicians and patients (Hartzband and Groopman, 2010). Patients are increasingly using the Internet to gain diagnostic and treatment options, to seek support from others suffering from similar illnesses, and to search for information about medical professionals. With this online information, the patient is able to take more responsibility for his or her own healthcare and actively participate in healthcare decisions (Anderson, Rainey, and Eysenbach, 2003). The addition of this online information has impacted and will continue to greatly impact many areas of medicine including the doctor-patient relationship, the clinician’s role in medical decision-making, the role of the patient in the ever-changing world of medicine, and the education and training that our medical professionals will receive.

Effects of the Internet on the Clinician-Patient Relationship

Recent research has examined the changes that online health information has had or will likely have on the clinician-patient relationship. While a few decades ago, patients were expected to be passive recipients of health information because clinicians were thought of as the “expert” in the clinician-patient relationship, today they are encouraged to play an active role in their health and medical decision-making (Xie, 2009). The idea of the professional MD, or “traditional” doctor, has somewhat taken a backseat and a more equal partnership between patients and clinicians is stepping forward.

Several studies suggest that healthcare professionals view the Internet as positive facilitator of the patient-provider relationship. A meta-analysis review study conducted by Lo
and Parham (2010), examined the impact that the Internet and web-based medical information websites could have on the clinician-patient relationship. They explored the influence of a hypothetical personally controlled health record (PCHR) system. This hypothetical program, entitled Web 2.0, illustrated “innovations in digital health information technology that may profoundly change medical care and the doctor-patient relationship” (Lo and Parham, 2010, p. 18). Although this was only a hypothetical program, the implications that it could have had on healthcare were examined in the hopes of someday creating a real program. This hypothetical program allows for patients to play a more active role in their healthcare, by having access to their medical records, by having the ability to input their personal measurements (blood pressure, weight loss, glucose levels, etc.), and by providing them with trustworthy online health information.

Lo and Parham identified several benefits of healthcare programs such as Web 2.0, including 1) improved access to health information; 2) improved access to health services; 3) enhanced patient role in decision-making; 4) improved quality of care; 5) psychosocial benefits; and 6) an improved doctor-patient relationship. The risks included 1) inaccurate or misleading information; 2) medical risks; 3) psychosocial risks; 4) privacy risks; and 5) risks to the doctor-patient relationship (Lo and Parham, 2010).

Another study conducted by Sommerhalder et al. (2009) took a more qualitative approach to the idea of possible benefits for patients who use the Internet. They interviewed 32 patients and 20 physicians about the impact the Internet has had on their medical consultations. The article explored the strategies, benefits, and difficulties the Internet has had on medical consultations. Results indicated that physicians perceived the inclusion of online healthcare information during the consultation generally positive, as it increased patient knowledge and led
to better conversations of health-related issues. One physician expressed a similar feeling, stating “There is a benefit to having patients who are well-informed; one can assume that certain things are known. One does not have to start the diagnosis or the therapy from scratch. One can discuss the treatment better. That’s certainly an advantage” (Sommerhalder, et al. 2009, p.269).

Overall, as can be seen by the above studies, the addition of online medical healthcare information has been seen as a positive dimension to the appointment by the clinician as long as the information does not contradict what he or she was suggesting for a diagnosis or treatment (Lo and Parham, 2010). The above studies also suggest that the Internet might give patients a more active role in medical decision-making because of the knowledge they have gained using online medical information sites.

Though a variety of studies indicate that the Internet has had positive effects on the clinician-patient relationship, a small number of studies have reported negative effects on the clinician-patient relationship. In a majority of the studies, clinicians expressed feeling overwhelmed and less competent in their role as a clinician as a result of the presence of the online healthcare information (Podichetty et al, 2006). This concept is addressed in many studies and has been coined as the “deprofessionalism of medicine.” Broom (2005) defined “deprofessionalism” as a demystification of medical expertise and increasing lay skepticism about health professionals. The clinicians surveyed in this study elaborated on this definition by saying that online medical information has caused them to feel as if they do not know what they are talking about and that they are not truly knowledgeable about medicine (Broom, 2005).

Incorrect information could lead to this deprofessionalism of medicine and in turn to an increase in “doctor shopping,” or visiting multiple other clinicians when one clinician does not comply with the patient’s request. Another possible negative impact the Internet has had on
the clinician-patient relationship is the increase in patient demands, such as increased asking for prescriptions and increased requesting of tests, resulting from the increase in knowledge. van Uden-Kraan and colleagues (2010) studied the perceptions of 238 Dutch rheumatologists and oncologists with respect to the effects of online health information on the clinician-patient relationship. When asked about the possible negative effects, 56% of the clinicians felt that patients raised more unreasonable demands, and 51% believed that Internet use led to more unnecessary discussion between physicians and patients (van Uden-Kraan, et al., 2010). Clinicians further explained that the Internet information could be either beneficial or harmful to patients depending on the particular patient and his/her relationship with their clinician. “If the relationship is good, Internet use is not a problem. The biggest problem is with new patients with whom no relationship has yet been forged and who arrive with a certain assertiveness or suspicion” (van Uden-Kraan, et al., 2010, p.1232).

In summary, as seen from the above studies, clinicians reported mixed opinions regarding the benefits and risks of the Internet on the patient-provider relationship. Though some studies conclude that it leads to more informed and involved patients, other studies conclude that it leads to the deprofessionalism of medicine.

The Clinician’s Role

In addition to affecting the patient-provider relationship, the Internet has also been found to affect the clinician’s role in multiple ways. In the study done by Ahmad et al. (2006), 48 family clinicians were addressed in six focus groups on the topic of Internet-based health information. The clinicians were asked questions about their perceived reactions of patients who use this kind of information, the clinician’s burden as a result of this information, and some
strategies about dealing with these patients who use the Internet for health-related reasons. Clinicians reported feeling “challenged” by patients who brought medical information from the Internet with them to consultations (8%). Some also had difficulty answering a series of questions concerning Internet health information (23%) and 7% saw this information as a threat to their medical expertise (Ahmad et al., 2006).

On the other hand, some studies show that some clinicians view the increase in knowledge as beneficial and even report that they enjoy when patients bring online information into a consultation, as it may allow them to communicate more fully with their patients and may even provide some intellectual stimulation for them (Murray et al., 2003). The largest concern addressed in the earlier study introduced above by Ahmad et al (2006) was the limited time that clinicians have with their patients for consultation. Because their time is already constrained, many clinicians see this increase of research to discuss more detrimental than beneficial because of the large time commitment and state that consulting with patients about online health information would only add to the time of each medical consultation (Anderson, Rainey, and Eysenbach, 2003).

Because of these concerns, there has been a shift in the role of the clinician in order to try to serve these patients who are using the Internet for health-related information. According to Gerber and Eiser in 200, a key challenge facing providers is the idea that they “must avoid frustration about having the role as the sole source of information challenged, or possibly risk losing patients” (Gerber and Eiser, 2001). Gerber and Eiser (2001) also introduce the idea of the Internet prescription, the idea that this increase in Internet use by patients may lead to a time when clinicians may be expected to prescribe online information just like they prescribe medicine. The problem with this idea is the constant challenge of ensuring quality online content.
Patient Benefits and Consequences

There are a multitude of possible benefits that patients may achieve as a result of online healthcare information, such as faster test results, easier consultations between medical staff members, increased social support from others online experiencing similar illnesses, and even an overall better understanding of diagnoses and treatments. It is also predicted that by more easily obtaining medical information prior to seeing their doctors, patients potentially have a greater ability to take part in decision-making and possess both preferences and greater knowledge prior to their visit (Gerber and Eiser, 2001). Lo and Parham (2010) found that there was potential for patients benefiting from online medical databases as long as they are able to tell the difference between correct and incorrect information. van Uden-Kraan and colleagues (2010) found that 54% of the physicians surveyed believed that patients who use the Internet for healthcare information are often better informed about both their illness and their treatment options.

Despite the possible benefits to patients, use of the Internet for health-related information may also pose risks. Some of the major concerns include the idea of patients finding misleading information on the Internet sites, the fact that the information that is found online is rarely checked or edited for accuracy, and the fact that some patients are not able to distinguish correct from incorrect information (Tentler et al., 2007). In a review of like studies done by Powell et al. (2003), it was found that little evaluation of online healthcare sites is ever carried out and users seldom remember the sites from which they receive information.

Another primary concern is the likelihood of misdiagnosis when relying solely on online diagnostic websites. In a study done by Wilson (1999), two separate examinations were done on the effectiveness of online diagnosis and treatment plans. In the first study, 26 diseases were diagnosed using only online diagnosing resources. Following this initial diagnosis, live
practicing clinicians again diagnosed the patients. Results indicated that only 11 cases (45%) were diagnosed correctly when only online diagnosis materials were used. In the second study conducted by Wilson (1999), of the 30 treatment plans using online healthcare diagnosis/treatment websites for a feverish child that were reviewed, only six followed published medical guidelines for treatment (Wilson, 1999), indicating that only a small percentage of those who use online diagnostic tools receive correct diagnoses. In a study conducted by Potts and Wyatt (2002), 800 doctors were surveyed online regarding the possible negative side effects of patients using the Internet for healthcare information. Two copies of the survey were distributed randomly to each of the participants. One version addressed the possible benefits of the Internet and the other addressed the possible harms. The top three perceived problems for patients from Internet use were patients receiving misinformation about the diagnosis (26%), patients receiving misleading advice (18%), and patients receiving misleading second opinions from others online (17%). The greatest possible consequence for patients seems to revolve around the idea that the information online may be misleading or inaccurate.

**Continuing Education for Clinicians**

Clinicians report struggling to figure out how best to use this new medical technology in the interests of their patients and themselves (Hartzband and Groopman, 2010). van Uden-Krann et al. (2010) found that 53% of the 238 clinicians in their study found it difficult to refer patients to reliable health-related Internet sites and online support groups even though they saw the potential these websites could have for their patients. One of the clinicians in this study illustrated the importance of continuing education/formal training for working clinicians by saying, “It is imperative that doctors are trained in Internet usage. I rarely know which website to
recommend to patients” (van Uden-Krann et al., 2010, p. 1233). Some of the other clinicians in this study also indicated that an up-to-date list with accredited websites for patients would help them daily with referrals.

After conducting initial research, there is a lack of studies that have focused on the role of continuing education in training physicians who work with patients who use the Internet for health-related information. Jones et al. (2001) held a symposium with 109 clinicians to construct a four-stage multidisciplinary study to address the clinician’s role in meeting patient information needs. The purpose of this meeting was to identify learning outcomes for clinicians in meeting patient information needs and working with well-informed patients. Stage one consisted of interviews of 20 clinicians from Glasgow, Scotland. Part two consisted of interviews with 52 clinicians from Nottingham and London, England. Part three consisted of a test of consensus concerning the relative importance of the identified aims as was investigated by an additional 37 clinicians. The final stage was a conference for all participants to discuss results. The authors devised eight key goals that continuing education programs should teach clinicians regarding patient Internet usage: (1) To place a higher priority on patient information and education to get them involved in their treatment, (2) To better understand the patient’s information needs and environment, (3) To understand the emotional aspects of learning, (4) To develop patient understanding, (5) To help patients to understand health care and health care information, (6) To learn how to learn from the patient, (7) To have a better understanding about information sources and their use, and (8) To address issues of multidisciplinary workings (Jones, et al., 2001). These goals are currently just suggested guidelines for programs for third-year medical school students. It is believed that medical education should be responsive to changes in society so that patients get the information they want in a way that benefits them.
Internet Usage in Rural Settings

Given that a majority of studies to date have examined health-related Internet use in large metropolitan areas, there is a paucity of research pertaining to health-related Internet usage in rural areas. It is possible that fewer patients utilize the Internet in rural areas due to a decreased access to the Internet in these areas and a stronger clinician-patient relationship in these areas. However, it is also possible that Internet use in rural areas is comparable to that of metropolitan areas given the growing widespread availability of the Internet.

Study Aims

The purpose of this study was to (1) explore the perspectives of rural healthcare providers regarding the effects of the Internet on the clinician-patient relationship and (2) assess the level and degree of satisfaction with any formal training/education that providers may have received about the effects of the Internet on the clinician-patient relationship.

Methods

Participants

Participants consisted of 25 clinicians practicing at Community General Hospital (CGH) in Sterling, IL. The breakdown of professionals was as follows: 13 (68.4%) medical doctors (MDs), 2 (10.5%) doctors of osteopathic medicine (DOs), 1 (5.3%) doctor of podiatric medicine (DPM), and 3 (15.8%) nurse practitioners (NPs). The participants ranged in age from 35-74 with a mean age of 48.4 years (SD=10.8). A majority of the participants were male (68%). The ethnic breakdown was as follows: 68.4% Caucasian/Non-Hispanic, 10.5% Hispanic/Latino, 5.3% African-American/Black, 10.5% Asian/Pacific Islander, and 5.3% Indo-European. The specialty
areas of the participants were as follows: Family Medicine (n=4, 21.1%) followed by Surgery, Anesthesiology, Internal Medicine, Cardiology, and Gastroenterology, each at n= 2 (10.5%), and then by Ophthalmology, Podiatric Surgery, Plastic Surgery, Orthopedics, and Pediatrics, each at n=1 (5.3%). The participants also ranged in the years of practice they had had and the years of practice at CGH Medical Center (1-35 years). A majority of the participants (42%) worked at both the CGH Hospital and the CGH Clinic, but some participants worked at only one of the above locations and some worked for additional private practices.

Measures

*Internet Usage Questionnaire (Appendix C).* This self-devised survey consisted of 30 Likert scale and 8 free response questions that assessed the patient’s frequency of Internet use and types of uses, the impact of the Internet on clinician roles and patient outcomes, and clinicians’ received/desired continuing education on this topic

*Demographics form (Appendix D).* This form asked about the participant’s age, gender, ethnicity and terminal degree. Other topics that were addressed were the participant’s current area of practice, years of practice since obtaining their terminal degree, years of practice at CGH, and their current place of practice within the hospital, clinic, and private practice settings of CGH hospital.

Methods

Data collection occurred across two different dates in December 2012 during hospital-wide clinician meetings. North Central College Research Ethics Committee approved the protocol prior to this study, and hospital permission was also obtained to attend these practitioner
faculty meetings. At the beginning of each meeting, the purpose and voluntary nature of the study was explained. Next, informed consent forms were distributed to those interested in completing the study. Following the signing of these forms, questionnaires were distributed. Practitioners had thirty minutes to complete the surveys and return them to the clinician in charge of the meetings at the end of the meeting. A drawing was conducted using the surveys completed for two separate $25 Amazon gift card (one at each of the two meetings) to show appreciation for their involvement in the study. Participants were provided with a debriefing form explaining the nature and purpose of the study upon completion of questionnaires.

**Results**

*Frequency of Patient and Clinician Internet Use*

SPSS was used for all data analyses involving quantitative data, and thematic coding was used to analyze free response (qualitative) data. Of the 25 clinicians who completed questionnaires, 19 resulted in fully completed questionnaires and were included in these analyses. With respect to frequency of patient Internet usage, 89.5% of those surveyed expressed noticing an increase (in the last 5 years) in the number of patients using the Internet for health-related information. Despite this general observed increase, only 31.6% of clinicians reported an increase in patients’ requests (from physicians) for online health-related websites, and only 15.8% reported noticing an increase in patient Internet usage in the last month specifically.

Similar results were obtained with respect to frequency of clinician Internet use. When asked about how often they themselves are using the Internet to visit health-related sites or online support groups to gain information for their patients, 31.6% of participants answered “often” or “very often.” A slightly lower percentage of the participants (15.8%) answered
“often” or “very often” when asked how often they referred their patients to health-related Internet sites or online support groups in the last month.

**Clinician-Reported Reasons for Patient Internet Use**

According to clinicians, the top three perceived reasons for patient Internet usage indicated by a response of “often” or “very often” by the participants were to research symptoms they or a loved one is experiencing (52.6%), to research alternative treatment options (52.6%), and to research drug information (47.4%).

**Effects of the Internet on the Clinician’s Role**

Clinicians were asked a variety of questions to assess how patient Internet usage has affected their role as a clinician. Table 1 (Appendix A) summarizes the mean scores obtained on these questions. Clinicians expressed the greatest difficulty with staying up to date on reliable Internet sites (X=3.11, SD=0.81), with 36.8% of participants describing this task as “difficult.” The other four categories each scored a mean score of 2.53 or below on the same scale. A majority of clinicians expressed in both the Likert scale questions as well as the open-ended questions that they found it “very easy” to talk to these patients about diagnoses and treatment options.

When asked in free response format to comment on how online health-related information has changed the role of the clinician, 15.8% mentioned that they thought it made their jobs easier because it lead to more informed patients, whereas 31.6% thought that it was risky because of the increased risk of misinformation. One clinician explained this view by adding that by having this information available online “patients have more info but no
necessarily greater clarity in ability to apply [this] knowledge.” Another clinician bridged the gap between these two common responses addressed above when she said, “It is great to have more informed patients but it may be at the expense of receiving wrong or inadequate info from the Internet.”

The clinicians were also asked to elaborate on how they would approach a patient who did not agree with their method of treatment because of information obtained from the Internet. The most popular response was that they would discuss the finding their patients had found using the Internet and compare them with their own treatment plans (31.6%). The next most popular response was for clinicians to provide their patients with correct information and try to educate them on their views instead of using the information they found on the Internet to come to an agreement (21.1%). When asked whether they thought clinicians should be expected to “prescribe” or refer patients to specific online sites, 42.1% indicated that they should, 31.6% indicated that this was not their responsibility as a clinician, and 15.8% said that they thought it was “sometimes” their responsibility. It was seldom reported by clinicians that they thought patients were undermining them as clinicians if they did not agree with the diagnosis or treatment the patients found on the Internet.

**Patient Outcomes**

Most participants (57.9%) expressed the belief that their patients are better informed about their illness and treatment options because of Internet knowledge and therefore saw the Internet as an overall positive addition to healthcare. Similarly, 47.4% of clinicians felt that patients who used the Internet to gain information were more likely to want to play an active role in treatment decision-making. When asked broadly about whether online healthcare information
has made a positive or negative contribution to medical practice, over half (52.6%) viewed it as a positive contribution, 21.1% viewed it as a neutral, and a small percentage (15.8%) viewed it as a negative contribution (primarily due to the risk of misinterpretation of information and the risk of false information being available).

Continuing Education

With respect to continuing education on the topic of online healthcare information, 31.6% reported receiving continuing education 1-2 times, and 21.1% of participants reported “never” having received continuing education on this topic. Table 2 (Appendix B) summarizes all of the results of this study. Somewhat different responses were provided in the free response portion of the survey; when asked in this portion to explain any prior continuing education experiences, 14 participants (73.7%) stated they had never had any prior continuing education on this topic.

When asked whether they would participate in continuing education based on Internet use and on treating patients who use the Internet to gain health-care information, 68.4% said they would. The few clinicians (x=2, 10.5%) who did report having had some type of education on this topic reported receiving this education by reading journal articles on their own time. No clinicians ever reported having any hands on training or live training on this topic. Analysis of qualitative responses pertaining to the types of issues participants would like to see addressed in a continuing education program revealed that most clinicians (57.6%) would like a list of reliable sites to give their patients who want to perform Internet research. Some (42.4%) also wished to have a list of unreliable sites that they could warn their patients about using. One participant expressed a need for both of these in a continuing education program by stating they would like a program that provided “updated lists of appropriate websites, popular websites patients might
Discussion

Results of this study suggest that there has been a noticeable increase in patients’ use of the Internet for healthcare information, even in a rural hospital. However, it appears that the Internet is less heavily utilized in rural medical settings compared to larger metropolitan areas though use of the Internet by clinicians is increasing. Overall, the clinicians in this study reported mixed opinions regarding the effects of the Internet on the patient-provider relationship. Those who believed it to be a positive addition believed that it adds to their patients’ ability to participate in their own healthcare. Clinicians also stated that in order for it to be a positive for their patients, their patients must be able to correctly interpret the information they are reading. Those who believed the Internet to be a negative addition expressed concern about their patients’ ability to distinguish between “good” and “bad” information.

Overall clinicians reported finding it relatively easy to interact with patients who are using the Internet to gain health-related information. The primary difficulty endorsed by clinicians was their own ability to stay up-to-date with reliable health-related Internet sites for patients. Clinicians did not express difficulty in dealing with patients’ increasing Internet use, clearing up misunderstandings caused by Internet use, remaining in an expert role when questioned based on Internet information, and addressing alternate treatment options.

The results of this study clearly suggest that continuing education in the area of Internet healthcare information is significantly lacking but highly desired among healthcare providers. It is particularly interesting that even in a rural hospital setting, 68% of clinicians expressed desire for additional training in this area. The primary areas that clinicians expressed desire for
additional training in were: 1) reliable websites to give to their patients; 2) the major websites they should encourage their patients to avoid; and 3) how to use the Internet and social media to their practice’s advantage.

In the study by Lo and Parham (2010), a list of recommendations was made to increase the benefits of Internet health information. They addressed their changes specifically to the patients, the physicians, and the health care institutions. They suggested that patients should learn to assess the quality of health information they are reading and consider strategies for presenting the Internet information they find to physicians in a way as to not question their credibility. According to the study, physicians should promote informed decision-making in their patients and recognize and minimize counterproductive ideas found by their patients on the Internet. It was also suggested that health institutions provide kiosks to access the Internet and provide ways for patients and physicians to learn how to use the Internet positively (Lo and Parham, 2010).

There were several limitations in the present study. First, the small sample size limited the ability to make comparisons across medical specialties; future research should aim to explore whether certain types of providers encounter patients who use the Internet for health-related information more frequently than others. Second, the questionnaire was self-devised and therefore was not normed or standardized; future studies should aim to design a normed, standardized measure that can assess clinicians’ perspectives on health-related Internet usage. Lastly, future studies should aim developing and testing the effectiveness of continuing education programs for physicians aimed at improving their ability to effectively use the Internet to the advantage of their patients.
## Appendix A

*Table 1*

Table 1: Percentage of clinicians endorsing difficulty across a variety of areas related to patients’ Internet usage

<table>
<thead>
<tr>
<th>Question</th>
<th>Very Easy</th>
<th>Easy</th>
<th>Neutral</th>
<th>Difficult</th>
<th>Very Difficult</th>
</tr>
</thead>
<tbody>
<tr>
<td>How difficult is it for you as a clinician to… deal properly with patients' increasing Internet use?</td>
<td>26.30%</td>
<td>47.40%</td>
<td>26.30%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>clear up misunderstandings caused by Internet use?</td>
<td>26.30%</td>
<td>36.80%</td>
<td>31.60%</td>
<td>5.30%</td>
<td>0%</td>
</tr>
<tr>
<td>stay up to date with reliable health-related Internet sites for patients?</td>
<td>0%</td>
<td>26.30%</td>
<td>36.80%</td>
<td>36.80%</td>
<td>0%</td>
</tr>
<tr>
<td>remain in an expert role when questioned based on Internet information?</td>
<td>15.80%</td>
<td>47.40%</td>
<td>26.30%</td>
<td>10.50%</td>
<td>0%</td>
</tr>
<tr>
<td>address treatment options that you may not have thought about but that have been suggested by the patient based on their Internet research?</td>
<td>5.30%</td>
<td>47.40%</td>
<td>36.80%</td>
<td>10.55%</td>
<td>0%</td>
</tr>
</tbody>
</table>
### Appendix B

*Table 2*

Table 2: Clinician reports of prior continuing education on the topic of health-related Internet usage in patients.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>4</td>
<td>21.1%</td>
</tr>
<tr>
<td>1-2 times</td>
<td>6</td>
<td>31.6%</td>
</tr>
<tr>
<td>3-4 times</td>
<td>5</td>
<td>21.1%</td>
</tr>
<tr>
<td>5-6 times</td>
<td>1</td>
<td>5.3%</td>
</tr>
<tr>
<td>7 or more times</td>
<td>4</td>
<td>21.1%</td>
</tr>
</tbody>
</table>
# Appendix C

**Internet Usage Questionnaire**

<table>
<thead>
<tr>
<th>Question</th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many times in the last month have your patients...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>...discussed their health-related Internet use with you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>...asked for referrals to health-related Internet sites?</td>
<td></td>
<td></td>
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<tr>
<td>...questioned your diagnosis based on information they found on the Internet?</td>
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<tr>
<td>...suggested a different treatment plan based on something they found on the Internet?</td>
<td></td>
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<tr>
<td>How often have patients ever questioned your knowledge as a clinician because it conflicted with what they found on the Internet?</td>
<td></td>
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<tr>
<td>Have you noticed an increase in your patients' health-related Internet use over the last 5 years?</td>
<td>Yes</td>
<td>No</td>
<td></td>
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<tr>
<td>How many times in the last month have you...</td>
<td></td>
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<tr>
<td>...referred patients to health-related Internet sites or online support groups?</td>
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<tr>
<td>...visited health-related Internet sites or online support groups to gain information for your patient?</td>
<td></td>
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</tr>
<tr>
<td>How difficult is it for you as a clinician to...</td>
<td>Very</td>
<td>Easy</td>
<td>Neutral</td>
<td>Difficult</td>
<td>Very</td>
</tr>
<tr>
<td>...deal properly with patients' increasing Internet use?</td>
<td></td>
<td></td>
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<tr>
<td>...clear up misunderstandings caused by Internet use?</td>
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<tr>
<td></td>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
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<tr>
<td><strong>11</strong></td>
<td>… stay up to date with reliable health-related Internet sites for patients?</td>
<td></td>
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</tr>
<tr>
<td><strong>12</strong></td>
<td>… remain in an expert role when questioned based on Internet information?</td>
<td></td>
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</tr>
<tr>
<td><strong>13</strong></td>
<td>… address treatment options that you may not have thought about but that have been suggested by the patient based on their Internet research?</td>
<td></td>
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</tr>
<tr>
<td><strong>14</strong></td>
<td>In your opinion, patients that use the Internet for health related information…</td>
<td></td>
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<tr>
<td><strong>15</strong></td>
<td>… are better informed about their illness(es)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>16</strong></td>
<td>… are better informed about treatment options</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>17</strong></td>
<td>… are more satisfied with their treatment</td>
<td></td>
<td></td>
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<tr>
<td><strong>18</strong></td>
<td>… tend to agree with your diagnosis and treatment option</td>
<td></td>
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<tr>
<td><strong>19</strong></td>
<td>… tend to question your diagnosis or treatment plan more than patients who do not use the Internet for health-related information</td>
<td></td>
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<tr>
<td><strong>20</strong></td>
<td>… have unrealistic anticipations of treatment outcomes</td>
<td></td>
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<tr>
<td><strong>21</strong></td>
<td>… are more likely to want to play an active role in treatment-decision making</td>
<td></td>
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</tbody>
</table>

**How often do you think patients who use the Internet for health information are relying on it for…**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>21</strong></td>
<td>… the diagnosis of an illness?</td>
<td></td>
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<tr>
<td><strong>22</strong></td>
<td>… information about the symptoms they are experiencing?</td>
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<td><strong>23</strong></td>
<td>… treatment options?</td>
<td></td>
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<tr>
<td><strong>24</strong></td>
<td>… drug information?</td>
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<tr>
<td><strong>25</strong></td>
<td>… clinician/provider satisfaction ratings?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Question</td>
<td>Never</td>
<td>Seldom</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
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</tr>
<tr>
<td>When interacting with patients who use the Internet, how often do you</td>
<td></td>
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<tr>
<td>wish you had access to or continuing education about…</td>
<td></td>
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<tr>
<td>…a list of appropriate medical websites to share with your patients?</td>
<td></td>
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<tr>
<td>…navigating the different health-related websites on the Internet?</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Never</th>
<th>1-2 times</th>
<th>3-4 times</th>
<th>5-6 times</th>
<th>7 or more times</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often have you received continuing education or any type of formal</td>
<td></td>
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<tr>
<td>training on this topic of health-related Internet use?</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>If continuing education or some type of formal training was offered to</td>
<td></td>
<td></td>
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<tr>
<td>you on Internet use would you participate in it?</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>If continuing education or some type of formal training was offered to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>you on treating patients who use the Internet to gain health-related</td>
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<tr>
<td>information would you use it?</td>
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</table>

**FREE RESPONSE QUESTIONS:** The following questions are designed to more fully understand your experiences with patients who use the Internet. Please print your responses in the space provided below.

1. How, if at all, do you think the practice of medicine and your role as a clinician has changed now that patients are more easily able to obtain healthcare information online?
2. "Have you noticed that patients who use the Internet for health concerns respond to your diagnosis and/or treatment differently compared to patients who do not regularly use the Internet? If so, what differences have you observed?"

3. How do you approach a patient who does not with your method of treatment because of misinformation obtained from the Internet?

4. How do you think the rural location of CGH Medical Center influences the methods that patients use to gain healthcare information?

5. Do you believe that your role as a clinician should now include referring patients to relevant Internet sites? Please explain why or why not.

6. In your opinion, has the availability of online healthcare information made a positive or negative contribution to medical practice? Please explain.

7. Please describe any formal or informal education (such as continuing education, independent journal article reading, support groups, etc.) you have had on the topic of healthcare Internet usage among patients.

8. If you would be interested in taking part in continuing education on this topic what are some specific topics you would like to see addressed?
Appendix D  
Demographics Form

1. Age __________

2. Gender (circle one): Male  Female

3. Ethnicity (circle one):
   Caucasian/Non-Hispanic
   Hispanic/Latino
   African American/Black
   Asian/Pacific Islander
   Biracial
   Other (please specify): _______________________

4. Terminal Degree (circle one): MD  DO  PA  NP

5. Specialty (Area of current practice): ____________________________

6. Years of Practice since obtaining terminal degree: _______________

7. Years of Practice at CGH Medical Center/Clinic: ________________

9. Place of Practice (circle all that apply): Hospital  Clinic  Private Practice
References


