

Integrated patient education on U.S. hospital web sites

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Abstract

Based on a census of the 2015 Most Wired Hospitals, this content analysis aimed to find out how patient education has been integrated on these best IT hospitals' Web sites to serve the purposes of marketing and meeting online visitors' needs. This study will help hospitals to understand where the weaknesses are in their interactive patient education implementation and come up with a smart integration strategy. The study found that 70% of these hospitals had adopted interactive patient education contents, 76.6% of such contents were from a third-party developer, and only 20% of the hospitals linked their patient education contents to one or more of the hospital's resources while 26% cross-references such contents. The authors concluded that more hospitals should take advantage of modern information communication technology to cross-reference their patient education contents and to integrate such contents into their overall online marketing strategy to benefit patients and themselves.

Introduction

Strategically investing in IT serves as a hospital's commitment to all parties in healthcare, including patients [1]. IT can impact patients' healthcare-related decisions and trust in caregiver [2]. By 2011, 47% of the U.S. hospitals had provided interactive patient education contents on their Web sites [3]. By examining the 2015 Most Wired Hospitals, this study aimed to find out how patient education has been integrated on these best IT hospitals' Web sites to serve the purposes of marketing and meeting online visitors' needs.

Patient education has been understood as an important part of IT development in a hospital because it can improve patient care, reduce hospital readmission rates, gain more patients, meet the regulatory compliance, cut cost for the hospital, insurers and the patients' employers, decrease administrative tasks, and increase the overall efficiency within the healthcare market [4-7]. Patient education can greatly influence patients during their decision-making process; the lack of such education can put a patient at risk and a hospital's revenue at risk [8-10]. Today, patients are encouraged by providers to be full partners and seen as an integral part of the healthcare team due to the equal accessibility to healthcare information for patients and for physicians [6,11]. In his study regarding the challenges in asthma patient education, Cabana [12] pointed out that "many of the recommended components of asthma care might not be effective without adequate patient education". A 2008 survey among the Most Wired Hospitals found that patients favored hospitals with advanced IT; hospitals with best IT implementation tended to have a better overall assessment; the patient's are more likely to recommend such hospitals [1].

Nevertheless, many hospitals, for different reasons, still have not seen the benefits of incorporating patient education [13]. Even the Most Wired hospitals still have a long way to go in e-health implementation [3,14]. It was found that more than 40% of e-health sites operated by hospitals and healthcare systems offer little or no consumer-focused health information [15]. As a result, users may pass over most hospital Web sites due to lack of relevant or useful health information [16,17] and are more likely to begin their online searches for health information in Google and WebMD rather than on a hospital's web site [18]. The

Wall Street Journal reported in a 2009 survey that 64% of patients say that no one at the hospital talked to them about managing their care at home [7]. Under such circumstances, providing online patient education both before a patient's hospital visit and after the diagnosis or procedure takes on salient significance [2,19]. Hospital Web site development involves the hospital administration's awareness, commitment, and strategic planning [20-22]. Over the years, the topic of how to provide appropriate patient education has attracted attention from researchers not only from the United States but also from many other countries [23-25]. Researchers are still attempting to find out to what extent hospital Web sites are helping hospitals to be the cornerstones of patient education [26].

This study will help hospitals to understand where the weaknesses are in their interactive patient education implementation and come up with a smart strategy to integrate patient education with their overall marketing strategy so that they can best serve their patients and serve themselves.

Literature review

A hospital Web site has been traditionally regarded as a marketing tool [27,28], and 80% of the patients in a survey also think that a hospital Web sites is more of a marketing tool than a patient education tool [17]. From a practitioner's perspective, Verkamp [29] wrote: "In my experience, consumers are no longer trusting of advertising and don't want to be marketed to". Hastings and Saren [30] pointed out that hospitals should work with their patients to reach a mutually beneficial way forward instead of simply seeking hospitals' own interests. Scholars have increasingly emphasized patient-centered

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hospital Web development [2,11]. Huang [31] concluded, "Patient education provided on hospital Web sites is, in fact, implicitly altruistic marketing. Such information could show to the healthcare information seekers that the information provider cares about them". With altruistic patient education content appropriately implemented on their Web sites, hospital can better compete with Google and WebMD for internet traffic and eventually boost revenues [32,33].

Patient education has been provided in the form of pamphlet and brochure in doctors' offices for decades; however, they are not interactive, not interesting, and not efficient [24,34]. If an article regarding a condition or disease is simply posted as a static Web page that is not incorporated in a design structure, such as dropdown menu or database for searching, or has no links, that page is not interactive and is widely called brochure-ware [13]. Many hospitals today are allowing their online visitors to find specific patient education through interactive mechanisms and multimedia. Huang and Chang [3] found that 21 interactive e-health tools used by U.S. hospitals in 2011 and that 47% of the hospitals provided interactive patient education contents. They also found that overall, larger hospitals were more likely than smaller hospitals to provide interactive tools on their Web sites [Ibid.]. Lustria [35] found that interactivity could significantly boost comprehension as well as attitudes toward a hospital's Web site. Studies over the years have repeatedly and positively correlate interactivity to customer satisfaction and conversion rates [23,36]. Interactive patient education provides the opportunity for increased user engagement with health information and best meets users' needs and expectations [16]. "In so doing, hospitals are increasingly seeking to take on the role of trusted adviser, a role that is closely aligned with the accountable care organization (ACO) model in which health care providers work to empower patients to improve population health" [37]. In addition, more hospitals have turned to videos to provide patient education [7]. Huang [38] found that out of four categories of healthcare videos (Advertising, Informational, educational, and entertaining) on U.S. hospitals' YouTube channels, only 22.59% were patient education videos, but the video views showed that users were enthusiastic about patient education videos on YouTube. Huang [31] concluded, "Showing care and love, adding patient education videos to a hospital Web site constitutes altruistic, alternative marketing".

Scholars have promoted the integration approach when developing a hospital Web site [17,39]. Integrated Web design, Stoop, Riet & Berg [2] believe, can offer surplus value to the available education means. Kransnoff and Loubeau [21] argue, "The most effective Web sites are interactive and provide a wealth of assistance to patients while enhancing the institution's marketing effort"; they maintain that "[t]he ultimate hospital Web site should be a single, comprehensive source of information that balances the consumer's need for quality information and interactivity with the hospital's desire to attract customers, increase market share and build the bottom line". From the organizational perspective, Campbell, Sherry and Sternberg [15] suggest that all departments in a hospital, not just the marketing department, should demonstrate ownership to its Web site development; they maintain, "Integration means the e-health Web site is an integral part of the operating practices of the organization and is part of the daily activities of a large number of staff and physicians".

Some large hospitals, such as Mayo Clinic and Cleveland Clinic, have relied on themselves to develop numerous number of copyrighted patient education materials to post on their Web sites. Nevertheless, creating such materials is resource-intensive and time-consuming, and many hospitals do not have the manpower to do such a job; therefore,

many healthcare marketers have spent \$15,000 to \$20,000 a year to license third-party interactive patient education contents from third-party content developers, such as A.D.A.M., Healthwise, and Krames Staywell, or use free health information from MEDLINEplus, sponsored by the National Institutes of Health, to put on their hospitals' Web sites [10,39,40].

Huang and Chang [3] found that 10% of U.S. hospitals licensed such third-party patient education contents in 2011 and that large and medium-sized hospitals were more likely to use third-party contents than smaller hospitals did.

A major concern is that such third-party contents contain inaccurate statements significantly more often than did the sites of professional groups or of organizations such as universities [10]. Quality patient education enhances a hospital's credibility and establishes trust for users [16]. "If they recognize your brand and trust the information they receive from your organization, they will most likely use your services and recommend you to family and friends," Cosentino & Haimowitz [39] argue. Ansel [7] says, quality patient education contents mean two things: 1) patients and caregivers value, and 2) physicians will refer to their patients. A Web site that is useful for patients should provide in-depth information on a wide array of specific health issues, such as procedures, disease management, discharge and medications, and home care, and such information should be financially nonbiased and meet high ethical standards [7,10].

Based on the literature review, the general research question of this study was how the 2015 Most Wired Hospitals have integrated patient education on their Web sites.

Here are five specific research questions based on the general research questions:

1. How consistent are hospitals in naming patient education contents so that patients can easily identify and find such contents?
2. How many hospitals have incorporated interactive videos and tools in their patient education contents, and calendars for local patient education classes/events?
3. How many hospitals have integrated patient education contents, either internally or externally developed, into their marketing efforts?
4. How have hospital size and university affiliation status affected hospitals' patient education development and the integration of such contents in their marketing efforts?
5. What are the best practices in interactive patient education?

Methodology

In this study, interactive patient education was defined as healthcare information that informs an online visitor regarding conditions, diagnosis, procedures, drugs, wellness, etc. and such non-hospital-specific information is presented under a menu name and in the form of 1) articles, 2) videos, or 3) patient education tools, including calculators (i.e. BMI calculator, ovulation date calculator), quizzes, health risk assessors, or animated navigator tools (e.g. anatomy navigator, conditions navigator).

Since the purpose of this study was to examine patient education contents on hospital Web sites, content analysis naturally became the research approach. Although there are close to 6000 hospitals in the United States,¹ this study aimed to find out how the hospitals that

had best taken advantage of information technology in the United States had integrated interactive patient education on their Web sites; therefore, the study was based on a census of the 326 hospitals titled the 2015 Most Wired Hospitals.² Based on the number of beds, the hospitals were sorted into four categories: Small hospitals (1–200 beds), medium-sized hospitals (201–500 beds), large hospitals (501–2000 beds), and mega hospitals (more than 2000 beds).

As Hanif, *et al.* [10] mentioned the differences regarding the quality of patient education contents developed by government/universities and commercial developers, in this study, all hospitals were coded as university-affiliated and non-university-affiliated based on the relevant information presented on the hospitals' Web sites in an attempt to detect whether university-affiliated hospitals tended to develop their own contents.

Hospital size and university affiliation were the two independent variables. The dependent variables observed included what the menu names were for major patient education content, such as healthcare library, whether the hospital used its own patient education content or used the third-party content, whether patient education contents were associated with the hospital's departments or doctors, and whether patient education contents included videos, class announcements/calendars, or interactive tools, such as various kinds of health calculators, quizzes, health risk assessments, and symptom navigators.

The coding was conducted in the fall of 2015 by two coders. The coders went through multiple rounds of coding training and pilot studies. After the coding was completed, the coders compared the coding work and adjusted most of the coding that differed. Eventually, the Scott's Pi was on average 0.97.

Since the data were based on a census, both descriptive statistics and inferential statistics were employed in data analysis, which was conducted in SPSS.

Findings

Here are the demographic data regarding the hospital sizes (small: 27.3%, medium-sized: 31.3%, large: 34%, mega: 7.4%) and university affiliation type (university-affiliated: 30%, non-university-affiliated: 70%).

1. How consistent are hospitals in naming patient education contents so that patients can easily identify and find such contents?

Out of these 326 Most Wired Hospitals in 2015, 70% carried interactive patient education contents clearly listed under a menu name or immediately featured on the home page; 2% carried no text-based patient education contents listed under a menu name but showed patient education videos or interactive tools only. More hospitals (83.3%) posted local patient education class or event information on their Web sites. The following data are all based on the 228 hospitals (70%) that did carry interactive patient education contents.

In total, 77 menu names were used to present such contents. The most popular name was Health Library (20.9%), the second most popular was Health Information (7.6%); Health and Wellness (4.3%) and Health Resources (4.3%) were a tie as the third most popular.

2. How many hospitals have incorporated patient education videos and tools in their patient education contents, and calendars for local patient education classes/events?

Fifty-two percent of the hospitals used patient education videos (third-party: 82.3%, internally developed: 16.1%, both: 1.6%) and

64.5% provided patient education tools (third-party: 89.1%, Internally developed: 9.5%, both: 1.4%).

3. How many hospitals have integrated patient education contents, either internally or externally developed, into their marketing efforts?

In terms of patient education articles, 23.4% hospitals produced their own while 76.6% used the articles written by a third-party company or, rarely, a government agency.

Twenty percent of the hospitals linked their patient education contents to one or more of the hospital's resources, including departments and services (13.3%), doctors (8.4%), local patient education classes and events (2.7%), and hospital locations (2.2%). More hospitals (26%) cross-referenced their patient education contents to patient education tools (21.6%), news and articles (20.7%), diseases and conditions (20.3%), drug and supplement information (18.1%), and tests and procedures (17.2%).

4. How have hospital size and university affiliation status affected hospitals' patient education development and the integration of such contents in their marketing efforts?

Multiple Chi-Square tests show that hospital size

- has no correlation with hospitals' rate of adopting interactive patient education.
- does not affect hospitals' ways of associating patient education contents to their hospital resources, and
- shows no significant difference between developing their own contents and adopting third-party contents.

On the other hand, significantly more non-university-affiliated hospitals used third-party patient education contents and significantly more university-affiliated hospitals developed their own contents (Chi-Square=3.6, df=1, $p<0.05$).

5. What are the best practices in interactive patient education?

The following hospitals can provide a glimpse of the best practices on using interactive patient education. UC San Diego Health (health.ucsd.edu) had 586 beds. Its interactive patient education is under the menu item Health Info, which housed classes and events, Health Encyclopedia, a video library, Interactive Tools, and so on. The Web site used 99 videos in its video library and more than 100 patient education tools. Although all patient education contents, except for classes and events, were licensed from a third-party company, the design of the Health Encyclopedia was contextual. On the right-hand side of most of the articles in the Encyclopedia, the hospital's physicians, specialists, departments, services related to a term were listed. In addition, other patient education elements related to that term, such as diseases and conditions, tests and procedures, articles, news, interactive tools, drug references, were also listed below the physician photos. Medical University of South Carolina (MUSC) (muschealth.org), with 710 beds, used almost an identical interactive patient education module as UC San Diego Health's, and both were university-affiliated hospitals; however, a significant difference is that MUSC built its Health Library completely on the third-party site though the top menu could bring a user back to the hospital site easily.

Genesis Healthcare System (genesishcs.org) had 465 beds. As a non-university-affiliated hospital, it had also highly integrated third-party patient education contents on its own Web site. Numerous article pages in its Health Library were integrated for marketing purpose. For

instance, if a user is surfing a topic on “Men’s Health,” the pictures and names of and links to the physicians from this hospital who were related to men’s health were listed on the right-hand side so that a user could pick one to continue to the next step. In addition, below and to the lower-right of the article were a wealth of more related information, including Health Topics, Medical Tests, Medications, Make a Wise Decision, Interactive Tools, and Symptom Checker. In short, a user’s surfing experience could be highly navigated. Mary Greeley Medical Center (mgmc.org), another non-university-affiliated hospital with 190 beds, used almost an identical model to Genesis Healthcare System’s except that below the physicians’ photos, names, and links, there was a phone number for First Nurse.

Discussion and Conclusions

The 70% adoption rate for adopting interactive patient education contents among the 2015 Most Wired Hospitals is higher than the 47% adoption rate among all the U.S. hospitals in 2011, as revealed in Huang and Chang’s 2012 study. However, this new adoption rate shows that interactive patient education on hospital Web sites is far from being ubiquitous among these advanced IT adopters; it is reasonable to deduce that there is still a long way to go for U.S. hospitals to compete with Google, WebMD or the like through interactive patient education for traffic. Hospitals need to more aggressively take the initiative to provide such basic information to cater to their online visitors’ needs.

What menu name to use for interactive patient education contents may sound trivial, but online visitors sometimes shop around, and helping them easily find what they want probably is something hospitals can easily entertain. An Education & Events menu item that covers only local events can be misleading, but it is implemented so on a Most Wired Hospital’s Web site. Additional Resources or Fast Health sounds vague and confusing. Sometimes, Education in a menu on a university-affiliated hospital Web site means degree programs and has nothing to do with patient education. Therefore, coming up with an industry standard for naming for interactive patient education contents could help.

Huang [41] found that, by the end of 2008, 42% of the hospitals that presented online videos contained patient education videos. After seven years of development, even the 2015 Most Wired Hospitals did not seem to get much of an edge with a 52% adoption rate. Of all the digital and social media tools available to online users, hospital marketers say online video is one of the most effective tools because, after patients have watched a video from a credible source, 60% went on to make a direct contact with the physician or hospital featured in the video [42]. Another study found that YouTube was responsible for 84% of the referrals to hospital Web sites [43]. Therefore, integrating videos in patient education contents can do both patients and hospitals a big favor, and the adoption of patient education videos on hospital Web sites should be expedited.

So far, no data from earlier studies can serve as benchmark for the adoption of patient education tools on hospitals’ Web sites. The 64.5% adoption rate has certainly left much room for growth. Since several third-party developers have extensively developed such very useful tools for users and widely adopted by these Most Wired Hospitals (89.1%), any hospital can just include them in their licensing.

It is understandable that most of the hospitals do not have the manpower to develop their own patient education contents such as health encyclopedia, and it is probably unnecessary for so many hospitals each to revamp wheels. Therefore, licensing a health library

is the right decision for most organizations. Nevertheless, both the low rates of cross-referencing patient education contents (26%) and integrating such contents into a hospital’s marketing effort (20%) are crying for big improvement. Integration will both help a hospital find the patients it needs and help patients find the doctors and other service information they need. Integration brings a win-win situation. O’neill [40] maintains: “While attaching a health content library is a necessary step to providing a truly integrated experience, settling only for an attached library is a compromise that provides minimal utility to site visitors and a poor return on the investment you’ve made licensing quality health content.” O’neill [40] suggests that such third-party content be customized to best fit a hospital’s needs and brand. Today’s content management systems (CMS) can use taxonomy to automatically promote the hospital’s physicians and departments most related to the concept mentioned in a health library article (Ibid.), and no manual work is needed. Campbell, Sherry and Sternberg [15] said, “Each component of the marketing mix must be considered—from public promotion of the site to creating awareness among hospital staff to the site’s appearance and navigation”. Therefore, more hospitals should take advantage of modern information communication technology to cross-reference their patient education contents and to integrate such contents into their overall online marketing strategy while maintaining the integrity of a hospital’s branding by keeping all third-party contents on the hospital’s own server.

The best practice examples from this study show that, whether a hospital is large or small or whether it is affiliated to a university or not, it can come up with a user-friendly interactive patient education package to attract and serve its online visitors. While the hospitals provide abundant local patient education classes and events, they should consider enhancing their online patient education presence to reach farther than their geographic restriction.

This study has its limitations. The data are based on the elite hospitals in using IT and cannot be extrapolated to all the hospitals in the United States. Most crucially, no study has investigated how online visitors have used interactive patient education contents on hospital Web sites, but such a study is very much needed in the near future [44-49].

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(Endnotes)

1. See figures at <http://www.aha.org/research/rc/stat-studies/fast-facts.shtml>
2. See the list at <http://www.hhnmostwired.com/winners/index.dhtml>

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