

Patient Attitudes Regarding Use And Utility Of A New Patient Portal Platform

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Participants: Carestream Health, Inc. (Carestream) is a global manufacturer and marketer of diagnostic imaging technologies. The company's product portfolio includes dental and medical imaging systems and healthcare IT solutions; X-ray film and digital X-ray systems for non-destructive testing; and advanced materials for the precision films and electronics markets. It has developed a patient imaging portal, MyVue, that empowers patients to access, manage, and share, through secure protocols, their own imaging data. MyVue is commercially available in the United States and internationally.

In March, 2013, Carestream commissioned IDR Medical GmbH, an international marketing consultancy servicing the healthcare industry, to conduct a survey of U.S. based medical patients regarding certain attitudes toward patient portal technologies.

Context: Computer and personal communications technologies continue to be integrated into the daily lives and activities of the general population. It is not yet fully understood how the medical patient population will utilize certain technology platforms designed to enhance the patient experience and management of personal healthcare issues.

Objective: To determine patient opinions about patient portal technology, in general, and Carestream's MyVue imaging portal, specifically. Primary focus to determine how many patients may use MyVue, how they would interface with it, and whether it would have an impact on their overall satisfaction with the service.

Design, Setting, and Participants: A quantitative on-line survey of 15 minutes maximum duration using the following screening criteria:

1. N = 1,000 (95% Confidence Interval +-3%)
 2. At least 18 years of age
 3. 50% female; 50% male
 4. Age segmentation:
 - a. Tier 1 - 18-29 years*
 - b. Tier 2 - 30-60 years
 - c. Tier 3 - 61+ years
- *Respondents were screened out if below 18 years of age

An on-line survey was selected as an appropriate methodology given that the subject is a web portal. However, it was understood that some sample bias may exist as the sample population would comprise a subset of the general population that is already using the internet (approximately 78% of U.S. adults are internet users as defined by Nielsen Online 2012).

Respondents were first queried to obtain data about computer/internet competence and personal histories with medical imaging and health record maintenance. They were then provided with a four-slide non-branded description of the features of the MyVue patient portal followed by a series of questions probing them on anticipated behavior with their medical imaging and health record maintenance if a patient portal with MyVue features were available.

Hypotheses: Eight key hypotheses behind MyVue development were to be tested:

1. Patients ≤ 50 years of age will be more likely to use a portal than patients > 50 years of age.
2. Patients will be more likely to use a portal for their children's images than their own.
3. For those patients who do believe they would use a portal, there are certain exams considered to be more important that they have access to than others (i.e. ultrasound, mammogram, PET).
4. Patients who are currently using an online system to access general health information are more likely to use a portal.
5. Patients who get images taken more frequently are more likely to use a portal.
6. Patients with a history of having images re-taken are more likely to use a portal.
7. Patients who don't believe their physician remembers important information from their visits will be more likely to use a portal.
8. Security will be the primary obstacle preventing patients from using a portal.

Key Results

One thousand patient respondents meeting screen criteria completed the on-line survey over a two week period. Through the survey, respondents were further segmented by age as follows:

<u>Age Group</u>	<u>% Of Respondent Sample</u>
1. 18 - 30	32.3%
2. 31 - 40	14.8%
3. 41 - 50	10.8%
4. 51 - 60	8.9%
5. 61 - 70	29.5%
6. 70+	3.7%

- Over 60% (60.9%) of respondents characterized themselves as having moderate levels of computer / internet competence. 90.4% of younger respondents (18-30) profiled themselves as having advanced/moderate competence compared to 76.6% of older respondents (61-70).
- 92.4% of respondents confirmed they had a medical image taken in the past with the vast majority (83.5%) being x-rays followed by ultrasound

- (47%), MRI (47%), CT (31.8%), mammography (24.8%), and PET (8.5%).
- 50.2% of respondents with a history of medical imaging had received a copy in some format and in a range of <25% of medical images taken (30.5%) up to >75% of images taken (26.7%).
 - 66.4% of those receiving medical images obtained them in hard copy while 26.6% received them on CD/DVD/USB.
 - 54.3% of respondents indicated they would have shared their medical images with other physicians while 44.5% indicated the same for a family member/friend.
 - Over 36% of respondents reported that their current healthcare providers use an internet site or portal to provide access to medical records or other healthcare information. The most common uses of these sites were to access office location information (70.1%), book appointments (66.6%), email physicians (64.9%), and pay bills (62.5%).

Following respondents direction to view a four-slide stimulus package describing the features of MyVue, they were required to provide responses to a series of inquiries about their perceptions of this technology platform and potential use.

- Respondents were asked to rate their likelihood of using an on-line portal on a scale of 1 to 7 with 1 = "Extremely unlikely" and 7 = "Extremely likely". 68% rated their likelihood as 6 or 7.
- Over 90% of respondents with children under the age of 18 (31%) indicated they would use a patient portal to access their children's medical images. A slightly lower percentage (77%) indicated a higher likelihood of having to assist older and less computer literate family members in the use of a patient portal.
- Just under half (49.6%) of the respondents indicated a higher likelihood of seeking assistance from more computer literate family members or friends in the use of a patient portal but this incidence was, surprisingly, lower in the older age groups (>40 years of age).
- 17% of respondents indicated they were uncertain about the use of a patient portal (rating of 4 or less on scale of 1-7) with the largest percentage of that population (34.1%) concerned about security and privacy of personal medical records.
- 46.7% of respondents would want immediate access to their medical images while 39.8% would first want to discuss results with their physicians.
- 86.6% would want access to both their medical images and the written report associated with the images.
- A patient portal was favored by those respondents who required re-imaging (7.8%) because their original results had been misplaced.
- When asked which medical images respondents would be most interested in accessing with a patient portal, all types rated $\geq 93.5\%$.
- In spite of the advances in tablet and smart phone technologies, the personal computer was the preferred technology by just under 93% of respondents.

- When asked to rank the most important advantages to using a patient portal, 71.5% of respondents indicated the ability to share their medical images with other physicians. This was followed by the ability to maintain a personal record of imaging history (69.8%), belief that it will improve the quality of care delivered by the physician (50.9%), the ability to avoid repeat imaging (48.4%), and the ability to share images with family members (38.8%).
- Only 7.4% of respondents failed to see any advantage to having access to personal medical images and associated reports.
- Access to a patient portal would positively impact patients' relationships with their medical providers. Over 79% reported they would return to the imaging facility if needed in the future and over 76% indicated they would recommend the medical providers' services to a friend or colleague.

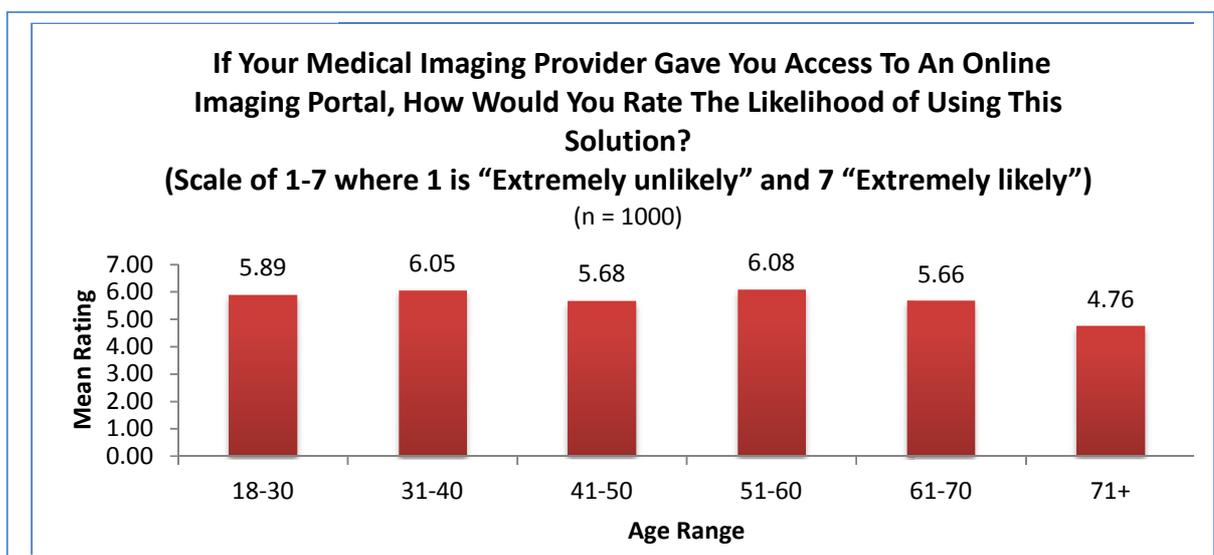
Hypothesis Test Results

Survey results produced conclusive answers to Carestream's eight hypotheses which served as the framework for the survey:

- Hypothesis 1 - Patients ≤ 50 years of age will be more likely to use a portal than patients > 50 years of age.

As evidenced in Figure 1, this proved to be incorrect. Respondents across all segmented age groups excepting the oldest (71+) indicated a high degree of likelihood of using a patient portal. Somewhat surprisingly, it was the 51-60 age group that rated the highest score of 6.08 and exceeded scores of 5.89 and 6.05 for age groups 18-30 and 31-40, respectively. Although an internet usage bias is inherent in the online survey structure, independent industry data demonstrates a relatively high degree of internet usage in older age groups (65+).

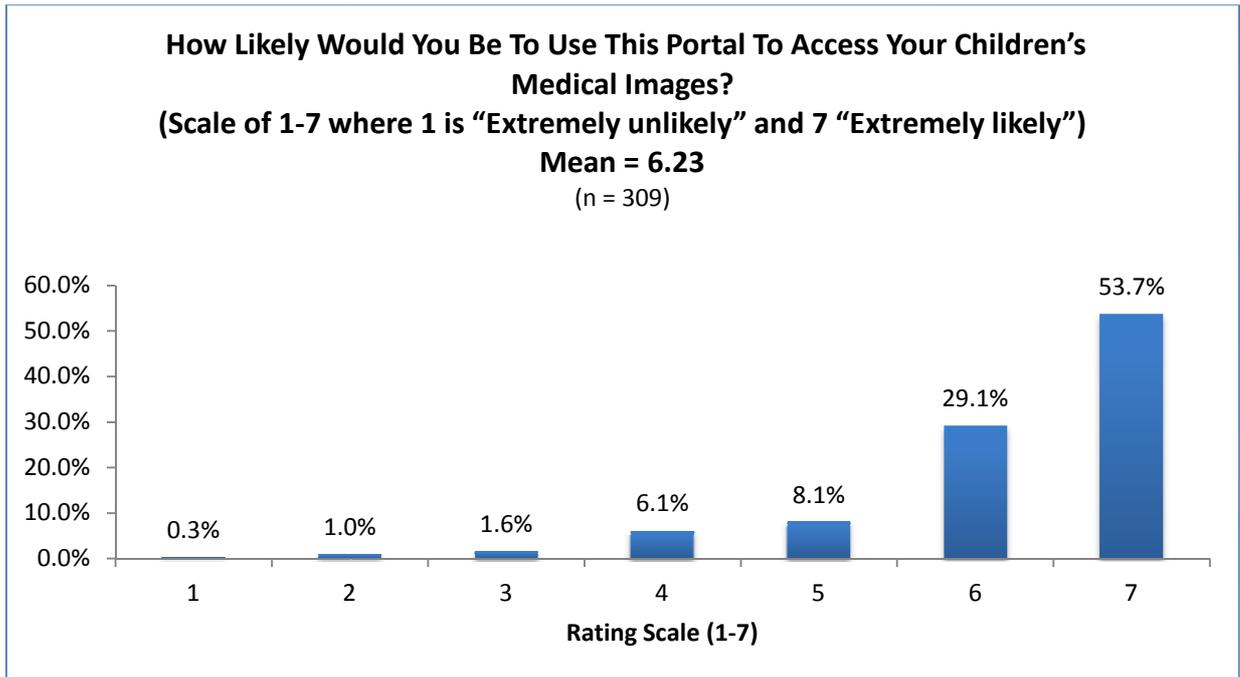
Figure 1. Attitudes Toward A Patient Portal By Age Segmentation



- Hypothesis 2 - Patients will be more likely to use a portal for their children's images than their own.

Approximately one-third of the total survey respondent population reported they had children ≤ 18 years of age. Results affirm that the majority of those respondents (90%) will use a patient portal to access their children's medical images as compared to the total survey respondents who would access their own images (82.7%) (Figure 2).

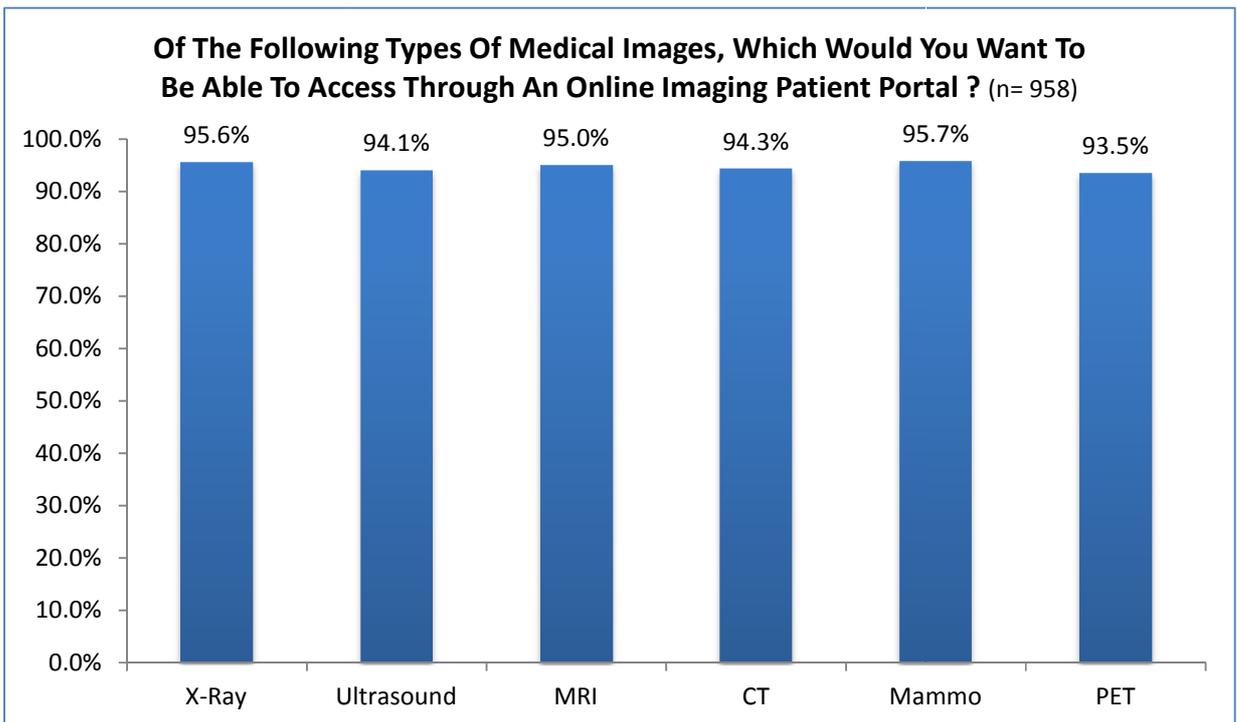
Figure 2. Use Of Patient Portal To Access Children's Medical Images



- Hypothesis 3 - For those patients who do believe they would use a portal, there are certain exams considered to be more important that they have access to than others (i.e. ultrasound, mammogram, PET).

Figure 3 reveals a consistently high degree of interest (no less than 93.5%) in access to all 6 medical image types referenced in the survey. With a sample population of 958, there is no gender bias that might have been associated with mammography and ultrasound images. This is, perhaps, revealing some interesting insight into the male/female relationship today and increased social awareness surrounding both pre-natal and breast health.

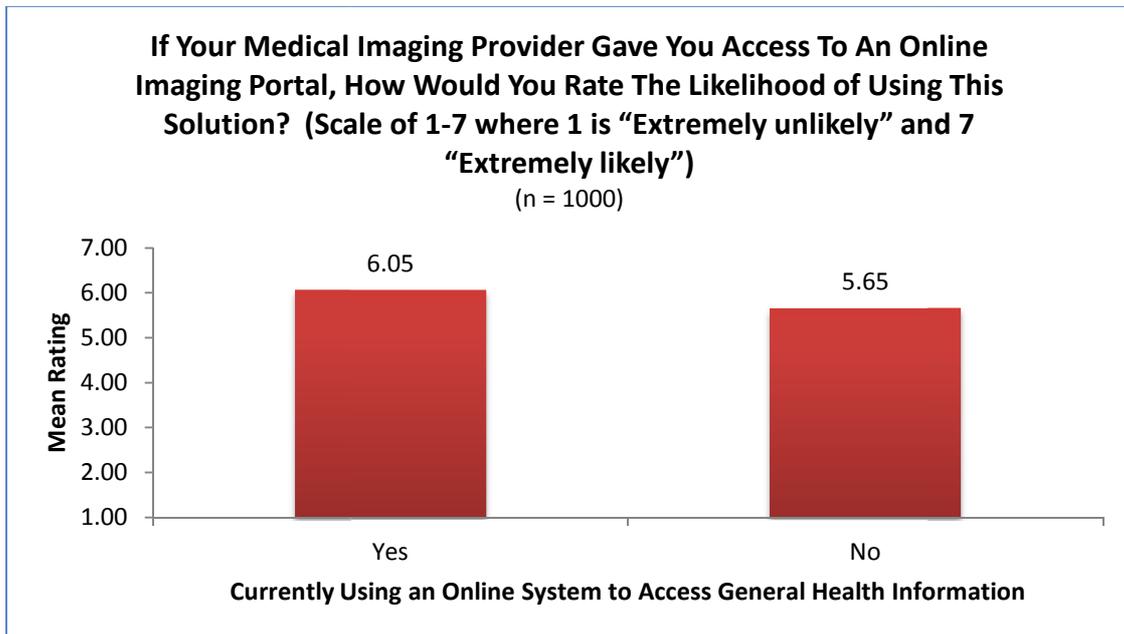
Figure 3. Preferred Image Modalities



- Hypothesis 4 - Patients who are currently using an online system to access general health information are more likely to use a portal.

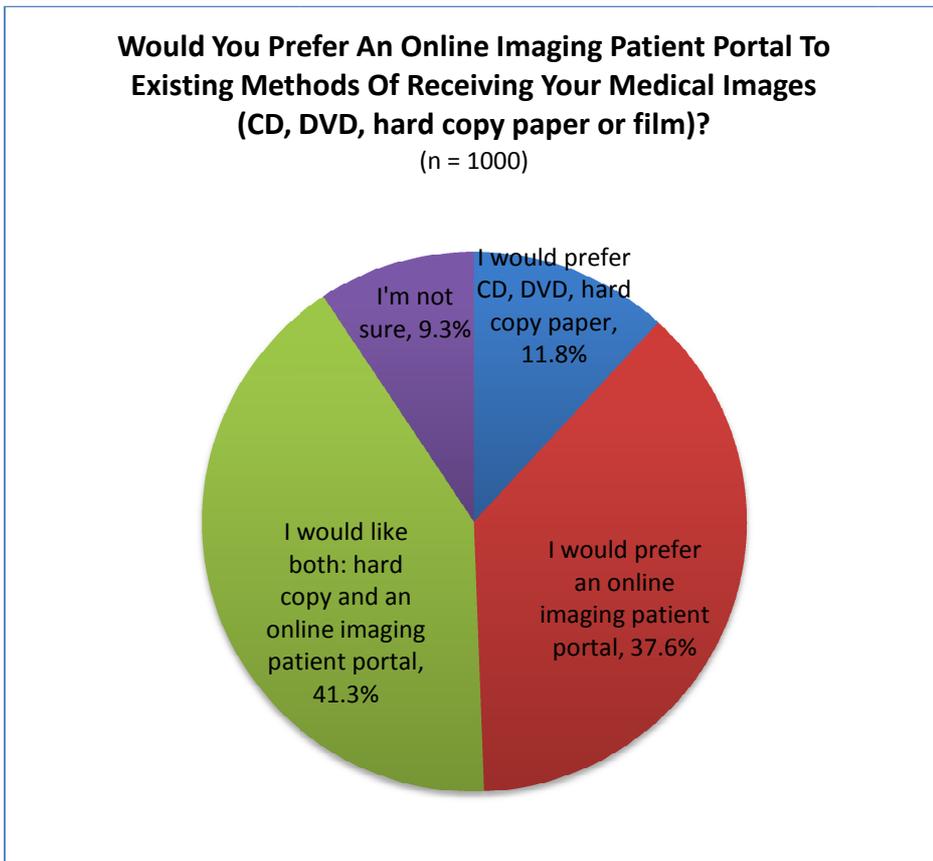
As expected, respondents who are currently accessing general medical information through online technology will be more inclined to use an online patient portal to access their images and records. Although statistical testing confirms a significant difference between the Mean Rating in Figure 4, even respondents not currently using online technology for medical information purposes are positive about the use of a patient portal if made available to them.

Figure 4. Patient Portal Use By Current Online System Users



When provided with a choice of media through which images and reports could be received, respondents indicated a significant preference (78.9%) for access to an online imaging portal, either singularly or in combination with hard copies of images and reports, as compared to 11.8% for current media (Figure 5).

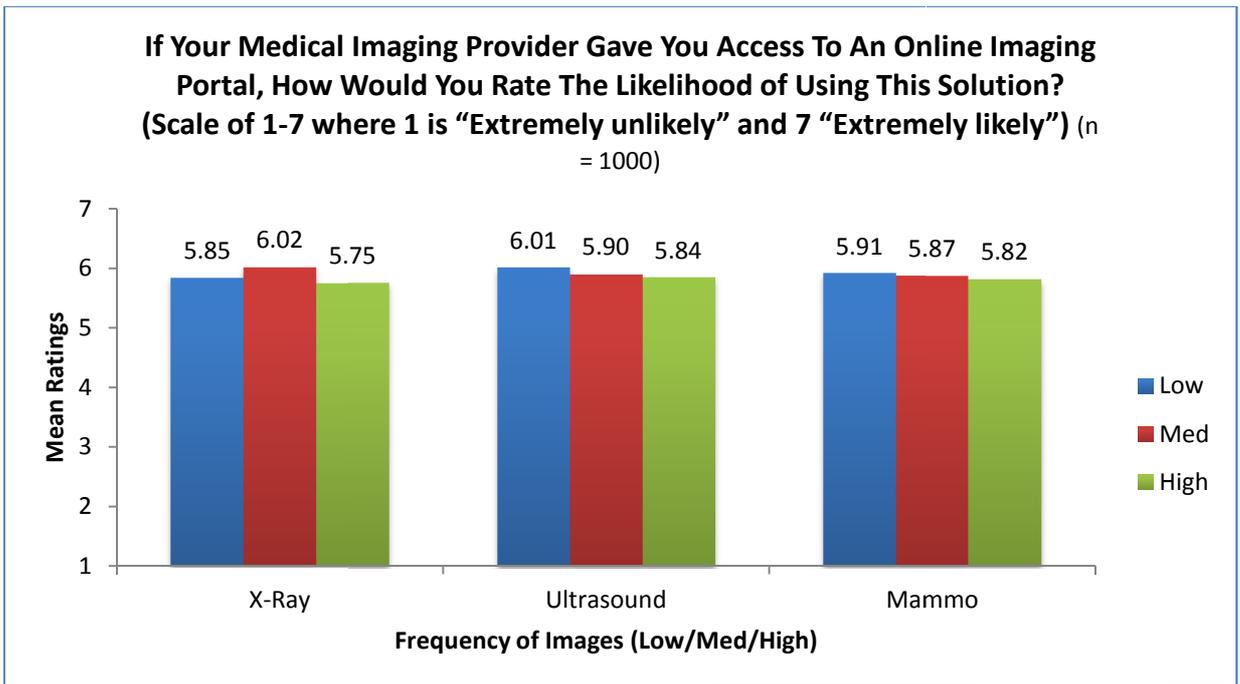
Figure 5. Preferred Media For Receipt Of Medical Images



- Hypothesis 5 - Patients who get images taken more frequently are more likely to use a portal.

Frequency of image taking over the past five years has no statistically significant bearing on interest in the use of a portal to access medical images (Figure 6). Overall interest is high on a scale of 1-7 and consistent across the three referenced modalities. Once again, this includes ultrasound and mammography and the entire survey sample population.

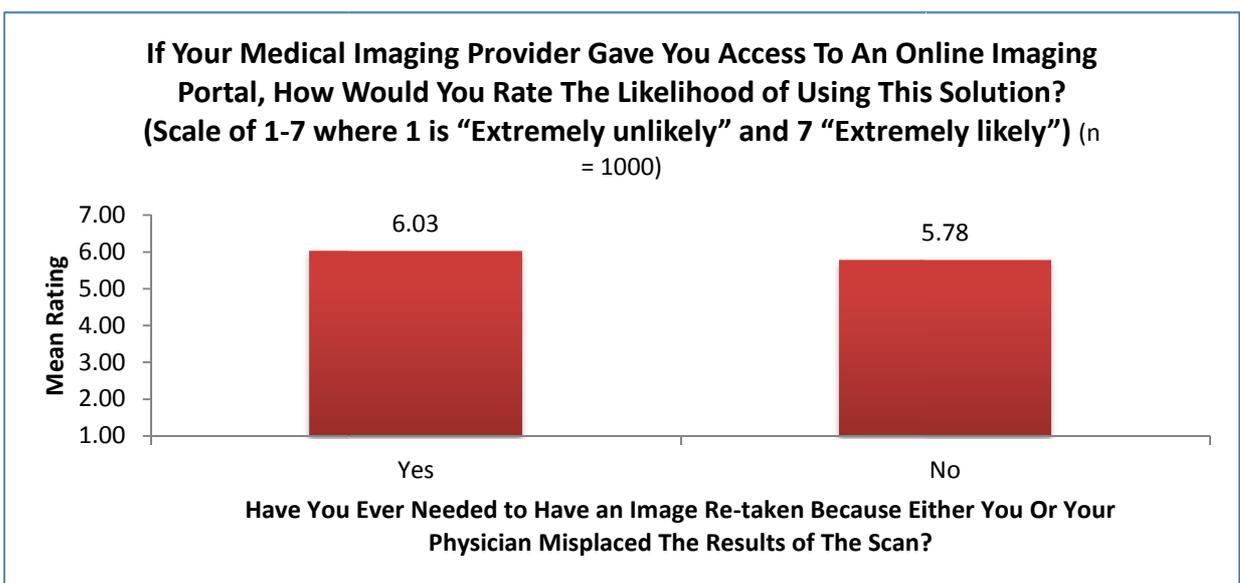
Figure 6. Patient Portal Use By Image Frequency



- Hypothesis 6 - Patients with a history of having images re-taken are more likely to use a portal.

Survey data does not confirm this (Figure 7). Although it would be expected to see patients with a history of image re-takes (7.8%) expressing interest in a patient portal, the vast majority of survey respondents (92.2%) with no history whatsoever also expressed interest. We found this to be compelling and indicative of a perceived unmet need in the general patient population. Medical providers should take note of this.

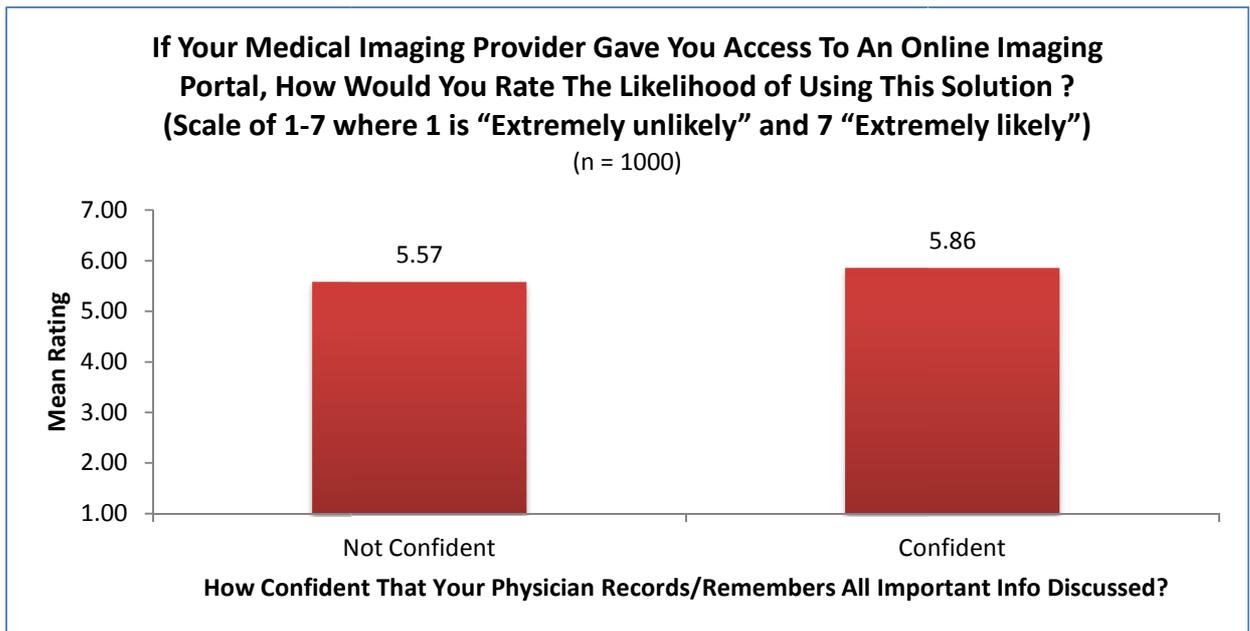
Figure 7. History Of Image Re-Takes



- Hypothesis 7 - Patients who don't believe their physician remembers important information from their visits will be more likely to use a portal.

Results confirm the opposite to be true. Rather surprisingly, it was those respondents who indicated the highest degree of confidence in their physicians who would use a patient portal (Figure 8). This may be attributable, in part, to considerably higher confidence levels as expressed by respondents in the segmented age groups from 41 years of age and higher (combined 52.9% of all respondents).

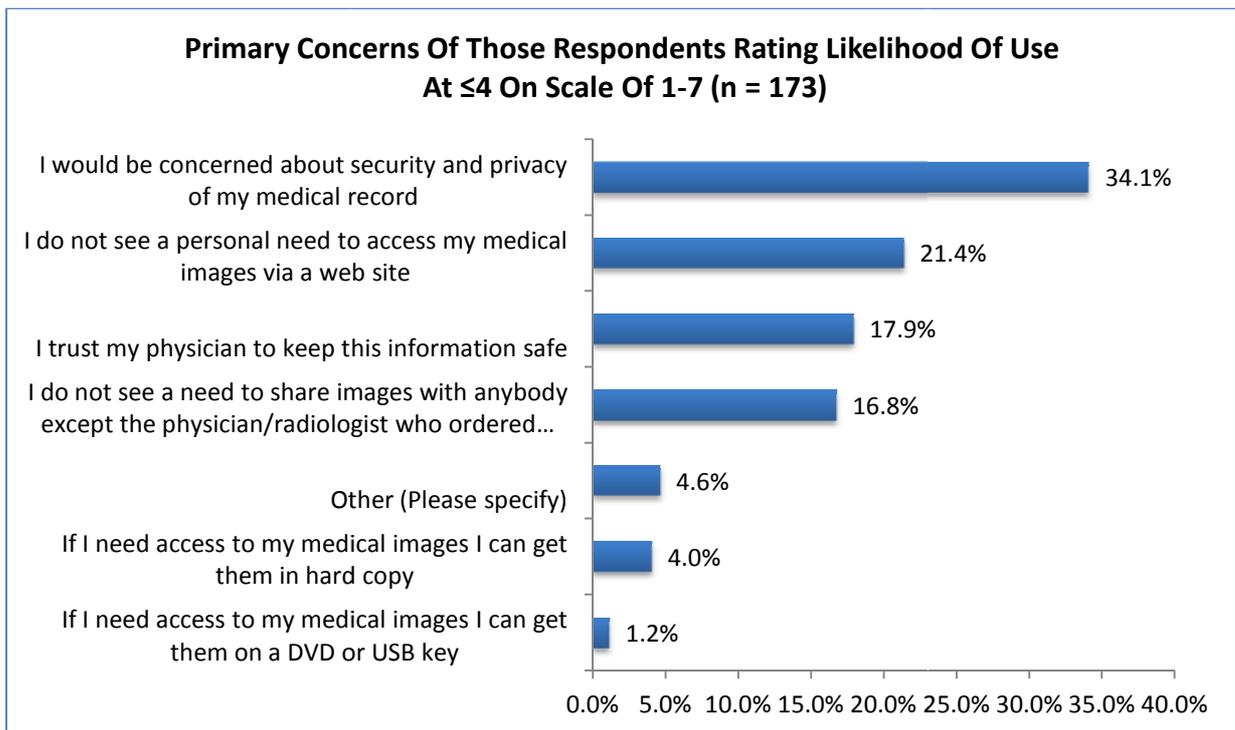
Figure 8. Patient Confidence In Physicians



- Hypothesis 8 - Security will be the primary obstacle preventing patients from using a portal.

Only 17% of survey respondents indicated reservations about the use of a patient portal. For these respondents, the dominant concern was about security and privacy of personal medical records. Security/privacy concerns outdistanced the next factor (no perceived need to access records via a web site) by one-third and the factor previous to that by one-half (Figure 9).

Figure 9. Primary Concerns For Those Less Likely to Use



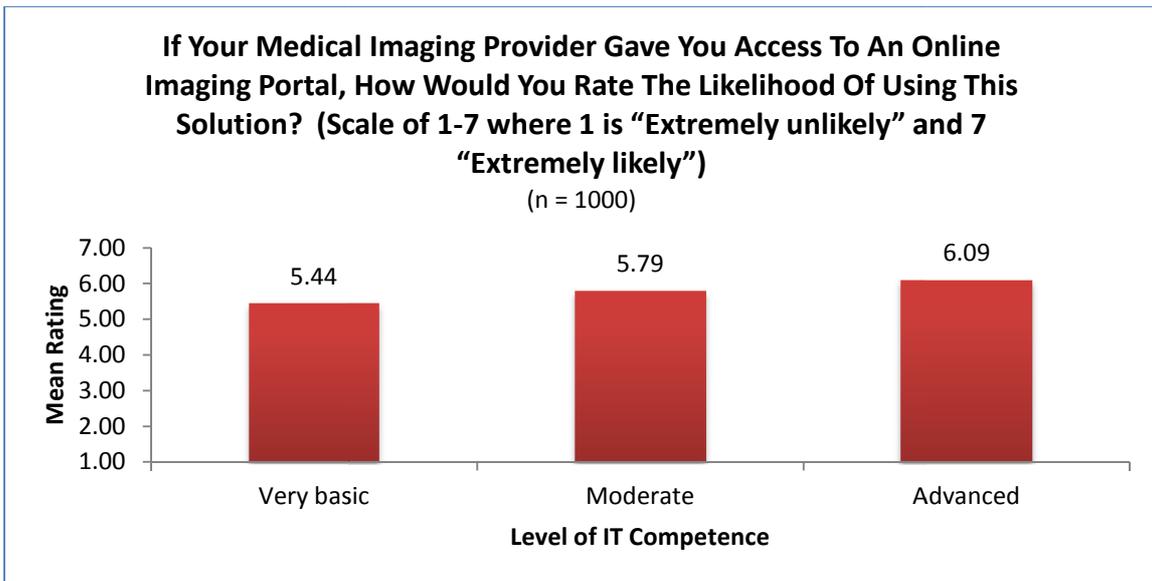
Discussion

While 36% of respondents report use of some form of web-based technology to access healthcare information, the survey reveals a high level of perceived value by 86.6% of respondents in a portal that specifically provides access to medical images and associated reports. The ability to share images with other physicians and maintain a personal record of imaging history are cited as the two most compelling reasons for use of a portal and reveal, perhaps, patient attitudes toward more active participation in their healthcare management.

There is negligible variability in the use of an imaging portal based on age. Respondents from 18-60 years of age were consistently high in their ranking of the likelihood of use while results showed that respondents 60+ years of age might be slightly less inclined to use a portal. However, as younger generations mature and continue to incorporate new technologies into their daily lives, it should be expected that likelihood of use of a patient portal will increase across all age groups. Medical providers should take note of this.

Allied with the foregoing observation is use of an online patient portal based on respondents' self-evaluated level of IT competence (Figure 10). Although statistical analysis reflects meaningful differences in the mean rating, data affirms that even those respondents with just very basic IT competence would use an online portal.

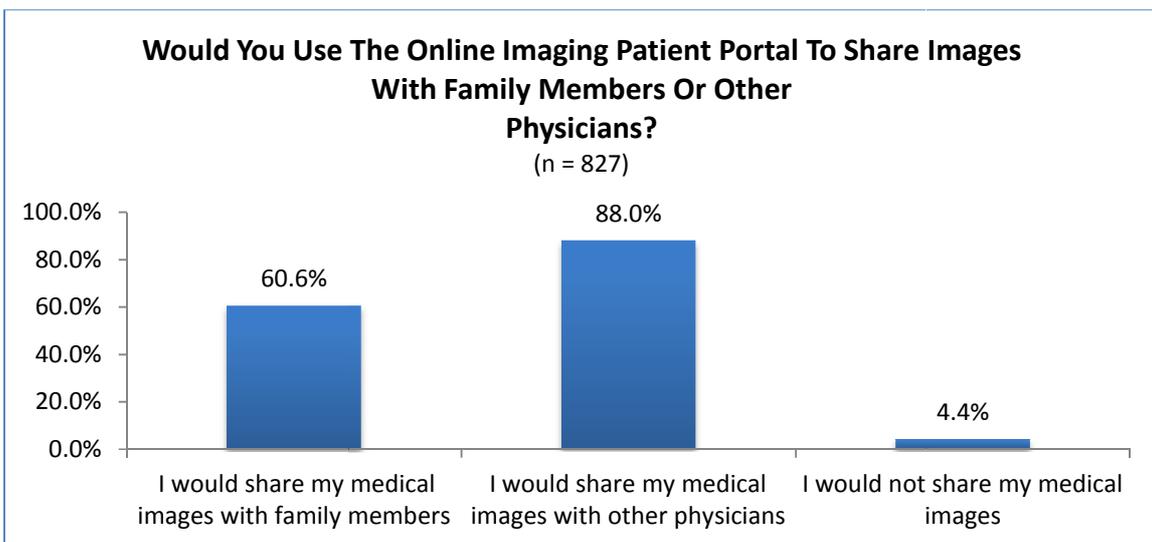
Figure 10. Portal Use Based On Level Of IT Competence



Although the MyVue imaging portal maintains the integrity of personal information through a variety of secure protocols, 17% of respondents that reported a low likelihood of portal use cited security as among their primary concerns. Medical providers and institutions offering an online imaging portal must attend to and mitigate these patient concerns by developing more comprehensive data-security measures in combination with patient education initiatives.

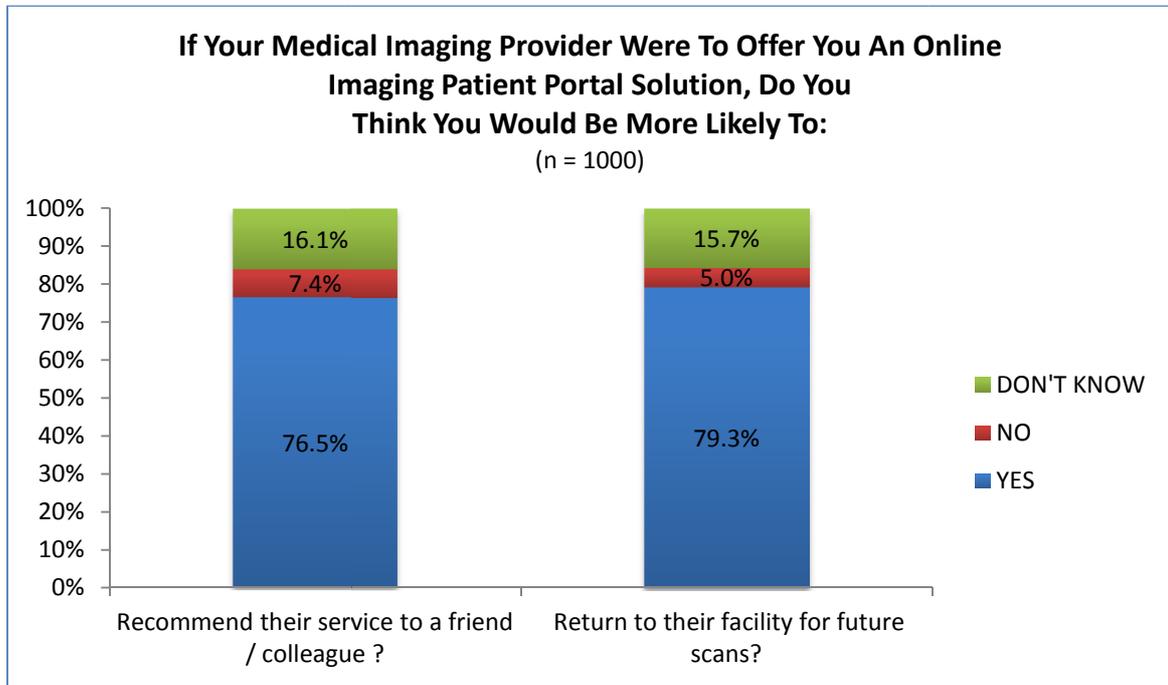
Notwithstanding these security concerns from a minority of the respondent population, Figure 11 reflects apparent respondent acceptance of current security measures that would allow them to use an online patient portal to share images with physicians (88%) and family members (60.6%).

Figure 11. Use Of Online Imaging Patient Portal



Patient use of an online medical imaging portal also bodes well for healthcare providers. It will not only enhance and facilitate greater ease of communication between physicians and their patients but, as evidenced in Figure 12, it will likely enhance patient referral patterns and continuity of care with imaging providers offering an online portal to their patients.

Figure 12. Future Patient Behavior Based On Imaging Portal Use



Conclusion

With trends in today's healthcare environment, such as increasing price transparency and expanding consumer orientation toward choices, combining with the continued infiltration of IT into the daily activities of patients and healthcare providers, a service-oriented online imaging portal can deliver significant value to those patients and their providers.

About IDR

IDR Medical is an international healthcare marketing consultancy and trusted advisor to the world's leading medical device and pharmaceutical companies. The company offers distinct capabilities that integrate market research, business analysis and strategic problem solving. IDR Medical's global team of consultants and researchers help clients succeed with new product development initiatives across the product lifecycle, from idea generation and concept development to market testing, pricing and commercialization. Its wealth of knowledge covers a broad spectrum of medical technology and pharmaceutical markets and the most critical business issues. IDR principals think creatively and partner with clients to solve their toughest challenges.

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