The Use of Health Information Technology in Ambulatory Surgery Centers

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Abstract

Many of the more than 1.2 billion ambulatory care visits in the United States in 2011 resulted in a patient being handed-off from one outpatient provider to another. As patients transition from one outpatient provider to another, information gaps present a challenge to safe, continuous, and efficient patient care [1]. Among the most common outpatient transitions are those between referring physicians and ambulatory surgery centers (ASC). The use of Health Information Technology (HIT) is imperative to timely and excellent patient care. Despite the projected benefits of HIT and the frequency of physician hand-offs to ASCs, it has not been at all clear how, or even if, HIT is used internally by ASCs, or if it is used during patient transitions to and from ASCs. We conclude that ASCs in this study have low usage of HIT, both within their Centers and between outpatient settings.

1. Introduction

For physician group practices and ambulatory care centers, Electronic Health Record (EHR) and HIT adoption is a matter of not if, but when. The American Recovery and Reinvestment Act (ARRA) provides incentive monies, up to $44,000 over the 5 year period of 2010-2014, to practices adopting EHR. Practices that do not adopt EHR by 2015 will face a penalty in the form of a 1% reduction in their Medicare fee schedule in 2015, 2% in 2016, and 3% in all the years that follow.

Despite the financial repercussions of failing to implement EHR by 2014, data from the National Ambulatory Medical Care Survey 2008-2010 (conducted by the Centers for Disease Control and Prevention’s National Center for Health Statistics) report that for the year of 2010, only 24.9% of physicians reported the adoption of a basic EHR system in their office-based practices; the adoption of a fully functional system was even lower at 10.1% [34].

1.1. Barriers to EHR and HIT adoption

There is a rich and extensive literature examining why physician practices have been so slow to use HIT. Kellerman and Jones [25] suggest that the “disappointing performance of health IT [in physician practices] to date can be largely attributed to several factors: sluggish adoption of Health IT systems overall, systems that are neither interoperable nor easy to use, and the failure of healthcare providers to reengineer care processes” (p63). Hammons and Kralewski [17], in the final report of the AHRQ Task Order Number 5 “Assessing the Adoption of Information Technology by Medical Group Practices” found that of the 22,396 practices surveyed “fewer than 15% have fully implemented electronic medical records,” (p 40). They attributed this low rate to the cost of EHR, the lack of information about the Return On Investment (ROI) in EHRs, and “what can translate into a 10% reduction in take home pay each year for most primary care practice physicians” due to the cost of the system and lost productivity during start-up (p42).

Yarbrough and Smith [49] found that EHR interrupted traditional practice patterns and lacked evidence regarding its benefits; Gans et al. [14] and Hsiao et al. [21] note the lack of empirical evidence documenting consistent cost or quality improvements. A study of 55 British physicians by Horsley and Forster [19] found both time and cost as barriers. Karsh et al., [24] found HIT system non-fit with practice patterns, organizational issues of confidentiality, error reporting, and physician time and costs as barriers. Wiggins et al. [46] found that even the use of EHR in medical education and specific hands-on training in the use of EHR had no impact on physicians’ intent to join or to avoid practices using EHR.

Many authors start their work noting low EHR adoption rates [3] and the literature, both popular and academic, is rife with cautionary tales of HIT implementation failures attributed to the high costs of migrating from paper to electronic records [8], information access and ownership [12], patient privacy and information security issues [40,16] and
negative impacts on physician-patient relationships [37]. Ilie, et al. [22] found that the complexities of using EHR and the perception that their EHR system was not compatible with their workflow were barriers to physicians’ use. Weingart et al. [45] report that providers were ambivalent about whether e-prescribing improved their own or overall office efficiency. Many authors report compromised short-term office performance, lost revenues, and significant lower productivity during implementation [23, 38, 32].

Kralewski et al. [28] found that even in physician groups that do adopt EHR, one-third reported that two years after adoption, not all of their physicians were using the technology. “When even a few of the clinicians are reluctant to shift to the electronic systems, the practices must maintain duplicate electronic and paper-based systems … which may increase patient care hand-off errors” (p362) [28].

1.2. Characteristics of Practices with EHR

Characteristics of physician practices that predict the adoption and use of EHR include: primary care physicians; those practicing in large groups, hospitals, or medical centers; and practices in the western United States [9]. In the same vein, Torres [41] found little incentive for small practices to purchase and adopt EHR noting that “upgrading to EHR could cost $124,000 for a single doctor or small practice, easily outweighing the $44,000 ARRA incentives, as well as the $5100 yearly penalty for non-adopters” (p251). The Center for Studying Health System Change reported that practice setting (western US) and larger size are the strongest predictors of physicians’ use of HIT; among the specialties surveyed, primary care physicians had the most access, the medical specialties of cardiology, emergency medicine, oncology, psychiatry, and other had mid-level ranking access, and surgeons lagged other medical specialties in access and use of EHR [18]. The CDC’s Advanced Data Report number 393 [5] reported that EHR use did not vary by physician gender but declined with physician age, increased with the size of the practice, and that physicians in the West were most likely to use EHR. The report goes on to state that HIT adoption and use in rural primary care offices does not appear to be lower than in urban offices [39].

1.3. Patient Hand-Offs

The loss of information that can occur during patient hand-offs is indicative of our fragmented health care system [27, 35, 30]. There is strong evidence of information gaps as patients transition within inpatient settings and from inpatient to outpatient sites. Arora [1] reports that information loss and communication failures pose a risk to patients during hand-offs between providers in hospitals. Gillespie, et al. [15] found that most caregivers in her study “felt that important information was lost during patient transfers between Nursing Homes and Emergency Departments.” Van Walraven, et al. [42] found that six months after discharge from a hospital, information from patients’ previous physician visits was available only 22% of the time. Gandhi [13] suggests that 80% of malpractice cases can be traced to miscommunication during patient handoffs.

Despite approximately 76% of healthcare establishments being outpatient in nature [4], there is little literature specific to transitions and hand-offs between outpatient settings. However, studies such as those cited above may plausibly be used to infer the existence of comparable risks to patients’ safety and to the efficiency and quality of care during ambulatory transitions. In addition to the cautionary evidence above, transitions between free-standing health organizations carry the burden of non-interoperable HIT systems and data security/patient confidentiality concerns.

1.4. ASCs, EHR, HIT, and Culture

Congress’ 2009 ARRA and The Centers for Medicare and Medicaid Services’ 2009 definitions of meaningful use of EHR narrowly focused their attention on the use of EHR within health organizations [2, 26, 44, 36] Ambulatory transitions are extra-organizational by definition. In the ambulatory setting, the use of both EHR and non-EHR facets of HIT - applications for scheduling, billing, assessment, patient communications, and reporting – are perhaps, particularly important to patients’ safety, and to the efficiency and quality of care as patients move from referring physicians to ASCs and back again. HIT does not exist in a vacuum; it exists within organizations whose characteristics, culture, leadership, and personnel have an influence on its use and effectiveness.

There is little empirical research on the relationship between the internal culture of physician practices and the adoption and use of EHR or HIT. Kralewski et al. [28] found 5 cultural dimensions that had an impact on practice physicians’ use of HIT: organizational trust, adaptive orientation, and business orientation had a positive influence. Surprisingly, practices that place a higher value on
group activities (cohesiveness) and cultures that place a high value on quality of care have lower rates of usage. Later work by Kralewski et al [29] found these 3 cultural traits to be key to EHR use: 1) a close collegial relationship among the physicians, 2) physicians considering the practice organization to be central to their medical practice and seeing administration as being part of the patient care team, and 3) a balance between professional and business motivation for adopting the EHR (p 31).

An extensive search of the academic refereed literature found no empirical studies that collected and analyzed data specific to ambulatory surgery center EHR and HIT adoption and use. As the movement of patients between referring physicians and ASCs is among the most common of patient transitions and hand-offs, our objective is to provide a baseline assessment of EHR and HIT adoption and use in ASCs as patients move between these settings. This study is innovative in its inclusive, integrated analysis of organizational factors that can serve as barriers or facilitators to EHR/HIT adoption, in addition to EHR and HIT use in ASCs.

2. Methodology: Research Procedures and System of Inquiry

ASCs are often owned by physicians who either serve as the Center’s CEO themselves, or they employ non-physician administrators to serve as CEO of their organizations. Decisions, culture, and organization characteristics flow from, and are dependent upon, organization’s leadership. This study surveyed ASC CEOs regarding their organization’s current use of HIT and EHR, opinions of and expectations for HIT and EHR, and current organization characteristics. This was accomplished by launching a pilot study in the Spring of 2012 to a convenience sample of 10 healthcare professionals to test and validate survey questions. Once questions had been piloted and validated, the entire population of Wisconsin’s 63 ASC CEOs was surveyed. Survey research is as much an art as a science. Well-crafted questions presented in tandem with a highly reliable survey process are imperative. This study implemented Dilman’s survey design and implementation methods. Dilman’s Internet, Mail, and Mixed-Mode Surveys [10] provides clear protocols for on-line and mixed methods survey research and calls for the personalization of all contacts, the careful and strategic timing of all contacts, the use of multiple contacts with variation in message for each contact, the provision of clear and easy to follow instructions to participants for accessing the on-line survey, the establishment of procedure to deal with bounced emails, and the implementation of a system for monitoring progress [10].

The Wisconsin Department of Health Services’ Wisconsin Provider Healthcare Directory [48] lists 63 ASCs in the state of Wisconsin, providing email addresses (when available), names and titles of the Center’s CEO and Board members, number of physicians practicing at that site, and Center addresses. The principal phase of this research involved surveying the entire population of Wisconsin’s sixty-three ASCs in June and July of 2012, administering the validated survey electronically to each Wisconsin ASC CEO and implementing the complete Dilman electronic survey protocol. Those ASCs with available email addresses were contacted electronically and invited to participate in the survey by clicking on a link, which opened to the survey’s description and informed consent page. Those ASCs for which we had no email address were contacted via US Mail with a letter inviting them to participate and providing a link for participants to type into their browser to access the survey’s description and informed consent. Thus, contacts with ASCs were made either electronically or via US Mail, but all survey information was collected electronically using Qualtrics survey software.

2.1. Data Analysis and Results

The survey process resulted in 45 completed surveys, which results in a pure response rate of 45/63 or 71.4%. However, 13 ASC CEOs have leadership and management responsibilities for more than one ASC; these CEOs were asked to choose one of their ASC sites and complete the survey for only that one location. Thus the number of possible completed surveys was decreased from 63 to 50. This resulted in a practical response rate of 45/50 or 90%. We attribute this unusually high response rate to the use of Dilman’s highly personalized survey protocols and to the ASC CEO’s keen interest in the survey and its findings. This survey is likely the first and only time they had been asked questions specific to ASCs in general, and to their Center specifically.

3. Findings

Twenty-four of the forty-five Centers in this study (53.3%) reported using some form of EHR and 21 Centers (46.7%) reported using no form of EHR.
Of those who reported using some form of EHR, 3 (12.5%) reported using EHR for less than one year, another 8 (33%) reported using EHR for between 1 and 3 years, and more than half (54%) reported using EHR for 4 or more years. The median use time for those 24 Centers that reported using EHR is more than 4 years. The literature provides a number of definitions and descriptions of a fully functioning EHR [11, 20, 9, 6, 33, 31, 47]. In this research, we defined a fully functioning EHR as one in which users had access to, and regularly used, the following 4 core functions: 1) patient records and care notes; 2) electronic prescribing; 3) computerized order entry; and 4) ability to receive and review lab and imaging results electronically. Seventeen of our 45 Centers (37.8%) reported no access or use of any of these core functions; 10 Centers (22.2%) reported the use of one function; 5 (11.1%) reported the use of two functions, 4 (8.9%) reported the use of three functions; and 9 Centers (20.0%) reported the use of all four core functions.

When asked what percent of prescriptions in their Center were sent to pharmacies electronically (not by fax) 55.6% reported none; when asked what percent of lab and/or imaging orders were entered electronically (not by fax) 57.8% reported none.

77.8% of Centers reported that their Center uses electronic billing, yet only 44.4% reported that their electronic billing is linked to an EHR system in their Center. Finally, when asked how treatment information was recorded as patients received their procedures in the Center, 62.2% reported the information was recorded on paper, 11.1% reported it was recorded on a computer without an EHR, and 33.3% reported it was recorded in an EHR. When asked in a slightly different way, “as patients move through their procedures in your Center, how are their care/nursing notes recorded” the answers were similar: 64.4% on paper, 6.7% on computer, and 31.1% in an EHR.

Table 1 reports Centers’ reported use of all queried EHR functions by percent and frequency.

Despite the vast literature describing caregivers’ hesitation and sometimes outright refusal to adopt and use EHR, 14 (58.3%) of the Centers in this study characterized their implementation of EHR as neither difficult nor easy, with 6 reporting difficult implementations (25%) and 4 reporting easy implementation (16.7%). In a similar vein, 14 (58.3%) Centers characterized their physicians’ acceptance of EHR as either accepting or very accepting; 15 (62.5%) of their Nurse Practitioners and Physician Assistants acceptance as accepting or very accepting; and 18 (75%) of their RNs and LPNs acceptance of accepting or very accepting.

All Center CEOs were asked a series of questions about their personal beliefs about EHR specific to the ASC setting. Using factor analysis with a principal components extraction and varimax rotation, the CEO beliefs about EHR specific to ASC resulted in 2 interpretable factors. The first factor estimated the respondents’ beliefs concerning ease of use of the EHR (Ease of Use); the second factor estimated the respondents’ beliefs concerning the resultant accuracy and quality of care when a patient is moved from one provider to another (Beliefs Between Settings). The internal consistency reliability of the Ease of Use factor as measured by Cronbach’s alpha was .91. For the Beliefs Between Settings factor, alpha was .93.

Of the 12 statements CEOs responded to concerning their personal beliefs about EHR specific to the Ambulatory Surgery Centers, one statement (Help prevent medication errors) cross-loaded on both factors, so it was not included in either factor. Together, the Ease of Use and Belief Between Settings factors accounted for 73% of the total variance. Table 2, below, lists the statements by factor, as well as the overall mean and standard deviation for the factors; an asterisk indicates a response that was reverse coded.

The responses were reported using a 5 point Likert scale, where 1 is “strongly disagree” and 5 is “strongly agree.” On both factors the mean response is in the realm of agreement with the statements. An independent samples t-test resulted in no significant differences in the average response on these two factors between those who did and did not currently use an EHR (Ease of Use: t = -0.52, df=42, p=.605; Beliefs Between Settings: t = 7.46, df=43, p=.458). Although there was no significant difference in the average responses on the Beliefs Between Settings factors between male and female respondents (t = -1.15, df=40, p=.258), there was a difference between male and female respondents (t = -2.05, df=40, p=.053).

Table 1. Use of EHR functions

<table>
<thead>
<tr>
<th>EHR Function</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to patient notes</td>
<td>21</td>
<td>46.7</td>
</tr>
<tr>
<td>Access to pt records</td>
<td>20</td>
<td>44.4</td>
</tr>
<tr>
<td>Electronic prescribing</td>
<td>14</td>
<td>31.1</td>
</tr>
<tr>
<td>Decision support</td>
<td>10</td>
<td>22.2</td>
</tr>
<tr>
<td>Care prompts</td>
<td>9</td>
<td>20.0</td>
</tr>
<tr>
<td>Reminders/alerts</td>
<td>12</td>
<td>26.7</td>
</tr>
<tr>
<td>Order entry</td>
<td>16</td>
<td>35.6</td>
</tr>
<tr>
<td>Internet connectivity</td>
<td>14</td>
<td>31.1</td>
</tr>
<tr>
<td>Email</td>
<td>16</td>
<td>35.6</td>
</tr>
<tr>
<td>Posting to patient bills</td>
<td>11</td>
<td>24.4</td>
</tr>
<tr>
<td>Inventory control</td>
<td>7</td>
<td>15.6</td>
</tr>
</tbody>
</table>
p=.047) on the average Ease of Use factor. Females scored a higher Ease of Use average (M=3.9, SD=0.8) than did males (M=3.3, SD=0.8).

Table 2. Statements by Factor

<table>
<thead>
<tr>
<th>Factors and Statements</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of Use</td>
<td>4.0</td>
<td>0.9</td>
</tr>
<tr>
<td>Be as easy to use as paper medical records.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be a faster way to access specific information about patients.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make it easier to use patients’ health information.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Really save time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make it easier to document patient care plans.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Always be awkward.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Make it slower to document the care provided to patients.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beliefs Between Settings</td>
<td>3.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Improve the accuracy of patient information as patients move between one provider setting to another.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide better patient information as patients move between one provider setting to another.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help surgery centers to provide safe patient care as patients move between one provider setting to another.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help surgery centers to provide a higher quality of care as patients move between one provider setting to another.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.1. Health Information Technology

Few studies have investigated the outpatient setting’s use of non-EHR technology, which we refer to in this study as HIT. Technically, EHR is a subset of HIT, but in this study HIT refers to office and business functions that are often not included in EHR studies, such as scheduling of surgery appointments, and the gathering and sharing of patient information prior to treatment. Clearly, these functions might be included under the umbrella of EHR, but we chose to investigate them as separate business and office functions.

When asked what percent of patients set up their own surgery appointments (as opposed to the referring physician’s office setting them up), 62.2% reported no patients set up their own appointment. When the referring physician’s office sets up the appointment for the patient, 26 (57.8%) report the initial contact being done by phone and 11 (24.4%) report initial contact being accomplished via fax; 86.7% of Centers report that they keep their appointment/scheduling book electronically.

The most common way surgery centers reported sharing patient information before the surgery was by Fax (mean rank = 2.3); 51% chose this as their most common way of sharing information and 78% put this as either the most common or second most common method. The most common way surgery centers reported sharing patient information after the surgery was by Fax (mean rank = 2.4); 51% chose this as their most common way of sharing information and 78% put this as either the most common or second most common. Finally, the two primary ways surgery centers collect patients’ demographic, health and insurance information are (1) provided by the referring physician (64%) and (2) pre-admission phone interviews (60%). All other means of collecting this information was selected by 40% or less of the respondents.

3.2. ASC Setting and Culture

Eighty percent of the Centers in our study are free-standing and not part of a hospital system and 80% of all Centers are located in an urban setting. After recoding 4 responses to the midpoint of the specified interval, the reported number of surgical procedures provided on an average day ranged from 2 to 60, with a mean of 18.5, a median of 15, and a standard deviation of 13.7.

There is no relationship between having an EHR and whether the ASC is free-standing or part of a hospital system (Fisher’s exact p-value = 1). There is also no relationship between having an EHR and whether the ASC is in an urban or rural setting (Fisher’s exact p-value = 1). When CEO education is recoded into 3 levels (less than a bachelor’s degree, a bachelor’s degree, a graduate degree), there is no relationship between having an EHR and CEO education ($\chi^2 = 1.61$ df=2, p=.448). There is, however, a significant difference (t=2.29, df=39, p=.027) in the average number of surgical procedures on an average day between ASCs with an EHR (M=23.3, SD=16.0) and those without an EHR (M=13.9, SD=9.4).

Number of providers at each ASC is an indication of the size of the ASC. The mean number of providers is 28 (SD=42) with a median of 12.5. This is an indication of strong right skewness in the data. Therefore in order to compare ASC size between centers that do and do not have EMR, a Mann-Whitney U test was performed. Unlike in the literature, there was no significant difference in size between centers that do or do not use EMR (p=.231) nor HIT (p=.426).
Comparing the culture questions between Centers with and without EMR, there were no significant differences. Overall, CEOs reported very positive cultures in their Centers, with most answering “agree” (A) or “strongly agree” (SA) to all of the cultural questions in the survey. However, it is important to remember that these questions were answered by the Center CEO, not by physicians, nurses, other caregivers, or Center office workers, and so these highly positive responses may be biased. Table 3, below reports the percent of “strongly agree” and “agree” responses to the survey questions addressing Center culture.

Table 3. Center Culture

<table>
<thead>
<tr>
<th>Question</th>
<th>%SA</th>
<th>% A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jobs in this surgery center are secure</td>
<td>34.9</td>
<td>60.5</td>
</tr>
<tr>
<td>There is a procedure for reporting problems</td>
<td>58.1</td>
<td>37.2</td>
</tr>
<tr>
<td>I feel safe at work</td>
<td>65.9</td>
<td>34.1</td>
</tr>
<tr>
<td>Problems are solved quickly and with a minimum of anxiety</td>
<td>42.9</td>
<td>54.8</td>
</tr>
<tr>
<td>I am able to pursue my performance potential</td>
<td>45.2</td>
<td>50.0</td>
</tr>
<tr>
<td>Management seeks employee participation in decision making</td>
<td>55.8</td>
<td>44.2</td>
</tr>
<tr>
<td>Management works effectively as a team</td>
<td>41.9</td>
<td>55.8</td>
</tr>
<tr>
<td>Quality standards have been established for all of our services</td>
<td>60.5</td>
<td>37.2</td>
</tr>
<tr>
<td>We are continuously seeking ways to improve our services</td>
<td>68.9</td>
<td>22.2</td>
</tr>
<tr>
<td>I am paid fairly compared to others in the same field who do the same work</td>
<td>35.9</td>
<td>51.3</td>
</tr>
<tr>
<td>Employees are consistently recognized for good work</td>
<td>33.3</td>
<td>59.5</td>
</tr>
<tr>
<td>My job makes good use of my skills and abilities</td>
<td>46.3</td>
<td>51.2</td>
</tr>
<tr>
<td>There are good opportunities to learn new skills in this organization</td>
<td>33.3</td>
<td>57.1</td>
</tr>
</tbody>
</table>

4. Discussion

This work is unique in that it examines the use of both EHR and HIT in Ambulatory Surgery Centers; there is no work that we know of that addresses these topics specific to this setting. Another unique factor in this work is the examination of the use of HIT as patients move from their referring physicians and are handed-off to the ASC. Finally, this study provides a baseline for, and begins the investigation of, the role of organizational culture on EHR and HIT. The findings in this study are intriguing less because of what it does find, than because of what it doesn’t find.

Much of the existing literature finds that multi-specialty physician practices are more likely to have EHR than single specialty practices and our data supports this. In addition, studies have found that surgical practices have low adoption rates, and again this is upheld in our study where only slightly over half of the ASCs in Wisconsin (53.3%) report having or using any EHR at all. Among those 24 Centers that do report using EHR, only 9 use the four core functions as defined in this study. From the broader perspective, this translates into only 9 of the possible 50 Centers in this study (18%) having and using a full EHR. In light of the looming 2015 financial penalty this is surprising and perhaps a cause for concern.

Equally surprising, and perhaps distressing, is the finding that 55.6% of the Centers send no prescriptions to pharmacies electronically (not by fax), and that 57.8% of the Centers enter none of their lab or imaging orders electronically. While 77.8% of Centers reported using electronic billing, only 44.4% reported that their electronic billing is linked into an EHR system at their Center. As patients move through their procedures, 62.2% of the Centers reported that patient information and nursing care notes are recorded on paper, not in an EHR.

One would expect that the CEO’s beliefs about the effectiveness of EHR might have an influence on that Center’s use of EHR, but in this study the CEO’s beliefs had no bearing on the Center’s use of EHR. The CEOs in this study overwhelmingly report positive and supportive cultures in their Centers. However, as this information was collected solely from the CEOs and not from the physicians, nurses, caregivers, or office personnel, these findings may be biased.

In today’s high tech world of email and instant messaging, and with 86.7% of Centers reporting they keep their appointment books electronically, 82.2% of initial contacts to set up an appointment are still conducted by phone or fax. Similarly, 78% of Centers report that fax is among the top two ways they receive patient information from the referring physician prior to surgery and among the top two ways they send patient information back to the referring physician post-surgery.

Finally, the only significant descriptive finding is that those Centers that have EHR also provide a significantly higher number of procedures on an average day, compared to those without EHR. As there is no significant difference between the number of physicians between Centers that do or do not use EHR, this higher number of procedures each day may
be due to EHR; further inquiry into this interesting finding is needed before conclusive statements can be made.

5. Conclusions and limitations

This paper presents descriptive information and is the first step in our inquiry into the use of EHR and HIT among ASCs. Because of our very strong response rate, we feel comfortable in concluding that ASCs in Wisconsin have quite low usage of HIT and EHR, both within their Centers, and between outpatient providers. As the literature consistently reports on-going problems and concerns about interoperability between health organizations, finding that ASCs still rely heavily on fax transmissions to share information to and from referring physicians is disappointing, but perhaps, not surprising. We expect more information to be exchanged electronically as the 2015 penalties come nearer.

This study is limited in that it describes ASCs in only one state. In addition, this research is in its early stages and as of now reports only descriptive data; as reported here it does not claim to be able to predict HIT use or to propose a model for, or best practices for, EHR and HIT use.

Further analysis of the baseline data collected in this study may allow the construction of a predictive model in the future. In addition, the study should be repeated, either in other states or nationally. Lastly, as the data was collected in 2012, it would be interesting to follow up and track the changes in the ASCs as we approach the year 2015.

6. References


