Health Care Personnel Perception of the Privacy of Electronic Health Records

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Health care facilities are increasingly converting paper medical records to electronic health records. This study investigates the perception of privacy health care personnel have of electronic health records. **Methods:** A pilot tested, anonymous survey was administered to a convenience sample of health care personnel. Standard summary statistics and Chi-square analysis were used to assess differences in perception. **Results:** Of the 93% (96/103) who responded, 65% were female and 43% white. The mean age was 44.3 years. Most (94%) felt that Medical Record privacy was important and one-third reported they would not seek care at their workplace if Electronic Health Records were used. **Conclusion:** Efforts to assure and communicate the integrity of electronic health records are essential toward reducing deterrents for health care personnel to access geographically convenient and timely health care.

A s medical records (MRs) become digitized, the traditional notion of keeping charts under lock and key is passé.[1] Electronic health records systems (EHRs) are becoming mainstream, especially with the Meaningful Use mandate, the goal of which is to improve quality, safety, efficiency, care coordination, population, and public health, while maintaining privacy and security of patient health information, and providing more robust research data.[2,3] The Federal Government $27 billion incentive program, a part of the 2009 Health Information Technology for Economic and Clinical Health (HITECH) Act, encourages health care facilities (HFs) to adopt EHR. Billions of dollars allocated to training health information technology and assisting in establishing EHRs toward achieving "meaningful use" have been further incentivized, with an estimated $44.7 if objectives are met.[4–6]

The concept of privacy and confidentiality has not been uniformly emphasized, and requires a new paradigm in the digital age, as the digital warehouse of patient information adds to the trove of "Big Data."[7] This is particularly concerning when in 2015, of the 720 data breaches that occurred, the top seven cyberattacks alone have left more than 193 million personal records open to fraud and identity theft—of the seven, the health care industry has the dubious honor of three top spots.[8] Patients' ability to choose their primary care provider (PCP) is associated with increased patient satisfaction, trust in the doctor, improved continuity of care, and quality health care. Proximity to home or workplace is an important factor in choosing a doctor.[9] With continuity of care established, distance becomes less important.[10] Although proximity is important,[11] privacy concerns of patients, of which health care personnel (HCP) are a subset, may affect this choice. In general, HCP have geographic proximity to providers in their HF. In the interest of reducing health care costs, HCP are increasingly disincentivized to seek care outside of their HF.[12] HCP concern about EHR privacy may affect their decision to seek care within their HF, potentially affecting their access to timely care and potentially disallowing optimal health outcomes,[13] as well as working against the goals of Health People 2020.[14] This study characterizes HCP privacy concerns by examining the perceptions of EHR privacy and the HCP's willingness to seek medical care at their workplace.

METHODS

Design and Procedures

In this observational, descriptive study, a survey was conducted at a Veteran's Administration Hospital in the Northeastern United States. After informed consent, an anonymous, pilot-tested questionnaire was administered to a convenience sample of HCP working on the in-patient service during the month of March 2014. In an effort to capture a majority of the HCP on shift, the paper questionnaire was distributed during either the morning or night shift, at the start of the shift. The manager of each shift was alerted that the survey would be taking place and each employee was given the opportunity to participate. All HCP who consented to taking the questionnaire were included. No HCP were turned away and all were eligible. Completed questionnaires were placed in a manila envelope.

Study Population

The study population was all HCP, including nurses, resident physicians, nurse practitioners, administrative assistants, transporters, technicians, respiratory therapists, and environmental service workers.

Survey Instrument

The survey included demographics (age, sex, race, education) and five questions regarding privacy: 1) Do you believe the privacy of your MR is important, 2) Do you believe EHR is equally private as PMR, 3) How likely are you to seek care from a provider at your workplace: 4) if your workplace has EHR, how likely are you to seek care from a PCP there, and 5) how likely are you to seek care from a specialist there. Each question was scored on a 4-point Likert scale: strongly disagree, disagree, agree, strongly agree (q1 and q2); and likely, somewhat unlikely, somewhat likely, and likely (q3, q4 q5).

Statistical Analysis

Standard summary statistics (percentages and means) were used to describe the study sample and Chi-square tests to assess differences in demographics with regard to privacy perception. Analyses were performed using SAS statistical software (version 9.4; SAS Institute, Cary, NC). IRB approval was granted by the VA.

RESULTS

Of 103 employees approached, 96 (93%) completed the survey. Most respondents were female (65%), 43 were white, and 73% had a college degree or beyond. Fifty-four percent were nurses/nurse practicioners/physician assistants, 25% physicians, and the other 22% were administrative assistants, transporters, technicians, respiratory therapists, and environmental service workers. Fifty-two percent had worked in their profession for over 15 years (Table 1). Overall, 94% believed that MR privacy was important (83% strongly) and 76% believed that EHR and PMR were equally private (Table 2A). One-third would not seek care from a PCP (33%) and one half would not seek care from a specialist (47%, Table 2B) at their workplace if the workplace has EHRs.

As summarized in Table 3, there was no significant difference among respondent physicians, nurses, technicians, or administrators with regard to believing privacy of employee MRs; 90% or greater in each group strongly agreed or agreed. However, nurses were significantly more like to strongly agree or agree that EHRs are equally private as paper MR (61%), than physicians (18%) and other HCP (21%, $P = 0.01$). Most respondents strongly agreed or agreed that employee MR privacy is important with whites significantly more likely to do so than African–Americans (98% vs 83% vs 100% for whites, African–Americans, and other race/ethnicity, respectively, $P = 0.02$). Indeed, African–Americans were significantly less likely to strongly agree or agree that EHRs are equally private as paper MRs (68%) compared with whites (71%) or other race/ethnicity (96%, $P = 0.04$). Respondents with less than 4 years of college were less likely to agree or strongly agree that MR privacy is important compared with those with a college degree and beyond (81% vs 100% and 94%, respectively, $P = 0.01$). Most respondents with a College/Master's degree strongly agreed or agreed that EMRs are as private as paper MRs (96% vs 89%, $P = 0.004$), significantly more so than respondents with less than 4 years of college or those with a doctoral degree. There was no association found between perception of EHR privacy with gender, age, or number of years worked ($P > 0.1$ for all). Approximately one-third of the respondents reported they were likely or somewhat likely to see a PCP (66%) or a specialist (62%) if the workplace has an EHR, with no differences in demographics ($P > 0.10$ for all, Table 2B).

DISCUSSION

These data suggest that most HCP respondents are concerned about the privacy of their EHR. One-third demonstrated distrust of EHR privacy. Anecdotal evidence suggests that HCP may be concerned about their EHR privacy if they seek care within the HF in which they work. Coworkers may be a part of the care team leading to HCP discomfort if the EHR holds sensitive information. There is also concern about unauthorized access by coworkers especially given recent high profile cases where employees without authorization have viewed EHR.[15] Hospitals have instituted strict rules against such action, including termination and prosecution yet fines are rare, health data breaches multiply,[16] and adverse action is deployed only if the breach is uncovered. HCP privacy fears may not be diminished. Given that the number of health information privacy complaints submitted to the Office for Civil Rights within the U.S. Department of Health and Human Services has almost doubled since 2007,[17] stricter measures may be in our future. Concerns for autonomy and privacy when participating in employer sponsored preventive health checks have been noted.[18–20] Some consider the

TABLE 1. Demographic Characteristics

Participant Characteristic		
	44.3 (21–82)	
Age in Years Mean (Range)	***N**[*]*	**%**
Gender		
Female	62	64.6
Race		
White	41	43.2
African–American/Black	31	32.6
Asian/Pacific Islander	15	15.8
Other race	8	8.3
Education		
HS diploma or (GED)	5	5.2
Some college	6	6.3
Technical/vocational training	4	4.2
Associate degree	11	11.5
College degree	26	27.1
Master's degree	18	18.8
Professional or doctoral degree	26	27.1
Hospital role		
Physicians (MD/DO)	23	24.7
RN/LPN	46	49.5
NP/PA	4	4.3
Technician	3	3.2
Administrative support	3	3.2
Other	14	15.1
Years worked		
1–5	12	12.9
6–10	23	24.7
11–15	10	10.8
>15	48	51.6

[*]Frequencies may not total to 96 due to missing values.

workplace unsuitable for health promotion perceiving these offerings as intrusive and a violation of privacy, due to potential conflicting loyalties between HCP and providers hired by employers. Employees may perceive threats to their autonomy due to potential peer pressure from colleagues and superiors to participate.[21]

Not seeking care at one's workplace has implications as health care plans increasingly incentivize employees to receive care at the employer HF.[13,22] The HCP may delay care, causing a simple condition to worsen, thus becoming more costly to treat.[23] EHR is the apparent future. Given privacy concerns, the public health and indeed the bottom line could be at stake.

As HFs integrate EHR across clinics and throughout geographic regions creating a growing platform over which patients' private health information can be shared, initiatives to instill confidence in EHR privacy, targeting special populations, should be prioritized. HCP concerns are unique given their dual role as patients and employees. This should be considered during advisory and planning stages of the EHR mandate and integration toward ensuring all HCP access to high-quality, timely care, which is more likely with assurance of EHR privacy. For optimal solutions, further elucidation of reasons for these perceptions is in order.

The VA is the largest integrated health care system in the US[24] and currently utilizes both EHRs and paper MRs. Thirty percent of VA employees are veterans[25] and as such have the option of seeking care within the VA health care system in which they work. Alternately, they also have the option of seeking care at other VA hospitals or without the VA health care system. Fifty percent of these respondents are veterans who are also employed at this VA. This subset of HCP has the option of seeking primary and specialty medical care, in-patient or our-patient, at the VA where they work. In addition, VA employees,

TABLE 2. Healthcare Personnel Perception or Privacy of Electronic and Paper Medical Records

A	Do You Believe That Privacy of Your Employee MRs is Important? (N = 95)		Do You Believe That EHRs are Equally Private as Paper MRs? (N = 96)	
	N	Percent	*N*	Percent
Strongly agree	79	83.2	51	53.1
Agree	10	10.5	22	22.9
Disagree	1	1.1	19	19.8
Strongly Disagree	5	5.3	4	4.2

B	If Your Workplace has an EHR, How Likely are you to see a *Primary Care Provider* at Your Workplace? (N = 95)		If Your Workplace has an EHR, How Likely are you to see a *Specialist* Provider at Your Workplace? (N = 94)	
	N	Percent	*N*	Percent
Likely	33	34.7	29	30.9
Somewhat likely	31	32.6	31	33.0
Somewhat unlikely	8	8.4	12	23.8
Not likely	23	24.2	22	23.4

EHRs, electronic health records systems; MRs, medical records.

whether veterans or not, have the option of seeking care for work-related injuries and exposures, and infection control related conditions at the VA hospital employee health clinic where they work.

Annual employee satisfaction surveys administered to all veteran health administration employees do not cover questions on employee satisfaction with clinical care offered by the VA.

TABLE 3. Health Care Personnel Perception or Privacy of Electronic and Paper Medical Records by Demographic

Demographic	Do you Believe that Privacy of Your Employee MRs is Important? (Strongly Agree/Agree)		Do you Believe that EHRs are Equally Private as Paper MRs? (Strongly Agree/Agree)	
	N[*] (%)	*P*	*N*[*] (%)	*P*
Hospital role		0.3		0.01
Physician	22 (95.7)		13 (18.1)	
Nurse	49 (98.0)		44 (61.1)	
Other HCP	17 (89.5)		15 (20.8)	
Race/Ethnicity		0.02		0.04
White	40 (97.6)		29 (70.7)	
African–American	25 (83.3)		21 (67.7)	
Other Race/Ethnicity	23 (100.0)		22 (95.7)	
Age, years		0.30		0.60
21–33	22 (100.0)		18 (78.3)	
34–46	22 (95.7)		15 (65.2)	
47–55	19 (86.4)		16 (72.7)	
56–82	20 (90.9)		18 (81.8)	
Sex		0.66		0.80
Female	57 (91.9)		48 (77.4)	
Male	32 (97.0)		25 (73.5)	
Years worked		0.42		0.81
1–5	11 (100.0)		9 (75.0)	
6–10	22 (95.7)		16 (69.6)	
11–15	10 (100.0)		7 (70.0)	
>15	43 (89.6)		38 (79.2)	
Education		0.01		0.004
Less than college	21 (80.8)		16 (61.5)	
College degree	26 (100.0)		25 (96.2)	
Master's degree	18 (100.0)		16 (88.9)	
Professional/doctoral	24 (96.0)		16 (61.5)	

EHRs, electronic health records systems; HCP, health care personnel; MRs, medical records.
[*]Frequencies may not total to 96 due to missing values.

This study has a number of limitations. First, it employed a convenience sample of HCP and there was not random selection of respondents. However, 95% of those approached agreed to complete the survey and this high response rate limits selection bias within the population that was actually approached. In addition, only half of the respondents are veterans and as such have the option of seeking primary and specialty care at the VA. Veterans were not differentiated from non-veterans in this pilot study and whether there was a significant difference in responses between the two groups could not be determined. However, all respondents are employees with the option of seeking medical care after a workplace injury or exposure or infection control related condition. Inasmuch as these results may be generalizable to other VA hospitals, they are less likely to be generalizable to non-VA HCP populations. Another limitation is that HCPs may wish to report more socially acceptable responses to the question, but the questionnaire being confidential would likely reduce this reporting bias. Annual employee satisfaction surveys administered to all veteran health administration employees do not cover questions on employee satisfaction with clinical care offered by the VA.

However, even with these limitations, there is a strong suggestion that HCP may have concerns about the privacy of their paper HFs to such a degree that they choose not to access medical care at a facility for which they work, even if this care is more geographically convenient and time efficient.

CONCLUSIONS

The importance of protecting the privacy of health information has been heavily debated.[26] Informational privacy laws from the legal and medical perspective are being implemented in an effort to improve the system. As more HFs launch health insurance plans,[27] potentially limiting HCP care delivery options with the unintended consequence of reducing access to care, the issues of health care worker autonomy and privacy will increasingly rise to the center of this privacy debate.

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