



The Economic and Productivity Impact of IT Security on Healthcare

Sponsored by Imprivata

Independently conducted by Ponemon Institute LLC

Publication Date: May 2013

The Economic & Productivity Impact of IT Security on Healthcare

Ponemon Institute, May 2013

Part 1. Introduction

The transition from paper-based to electronic medical records has created a dichotomy for the healthcare industry that remains difficult to reconcile. While the implementation of new technologies is designed to improve efficiency and enhance patient care, it also has the potential to introduce risk, so IT departments must ensure that these new systems meet security and regulatory compliance requirements to keep private information protected.

As organizations struggle to strike this balance, the use of pagers and other outdated communications technologies continues as the status quo. Communications in healthcare continues to lag behind other industries, in large part because of the perceived security and compliance risks associated with the use of smartphones and other modern technologies.

The purpose of this study is to determine the industry-wide economic and productivity impact of this paradigm. The Ponemon Institute surveyed 577 healthcare professionals in organizations that ranged from fewer than 100 beds to more than 500 beds. Overwhelmingly, respondents agreed that the deficient communications tools currently in use decrease productivity and limit the time doctors have to spend with patients. They also recognized the value of implementing smartphones, text messaging and other modern forms of communications, but cited overly restrictive security policies as a primary reason why these technologies are not in use.

The key findings of this research, summarized below, can be categorized into three key focus areas: the economic and productivity impact of outdated communications technology; the effects of regulations on the delivery of patient care and technology adoption; and the pervasiveness of data breaches and their impact on healthcare organizations.

Economic and Productivity Impact of Outdated Communications Technology

- According to the study, clinicians waste an average of more than 45 minutes each day due to the use of outdated communications technologies. The primary reason is the inefficiency of pagers (as cited by 52 percent of survey respondents), followed by the lack of Wi-Fi availability (39 percent), the inadequacy of email (38 percent) and the inability to use text messaging (36 percent).
- The Ponemon Institute estimates that this waste of clinicians' time costs each U.S. hospital nearly \$1 million per year, and based on the number of registered hospitals in the U.S., this translates to a loss of more than \$5.1 billion annually across the healthcare industry.
- Similar deficiencies in communications lengthen patient discharge time, which currently averages about 101 minutes. Sixty-five percent of survey respondents believe that secure text messaging can cut discharge time by about 50 minutes, which the Ponemon Institute estimates could generate more than \$3.1 billion in revenue per year across the healthcare industry.

Effects of Regulations on the Delivery of Patient Care and Technology Adoption

- Fifty-one percent of survey respondents say HIPAA compliance requirements can be a barrier to providing effective patient care. Specifically, HIPAA reduces time available for patient care (according to 85 percent of respondents), makes access to electronic patient information difficult (79 percent) and restricts the use of electronic communications (56 percent).

- In accordance with the Patient Protection and Affordable Care Act, 62 percent of survey respondents say their organization is an Accountable Care Organization (ACO) or expects to become an ACO within the next 12 months.
- Forty-four percent of respondents say their organization supports Electronic Prescriptions for Controlled Substances (EPCS) today or expects to add support for EPCS within the next 12 months

Pervasiveness and Impact of Data Breaches

- Sixty-three percent of survey respondents say their organization experienced a data breach that required notification in the past 24 months. In a previous Ponemon Institute study, it was calculated that the average economic impact of a data breach over the past two years for the healthcare organizations was \$2.4 million¹.
- The majority of respondents do not see the problem improving, as 45 percent say their organizations have not experienced a change in the effectiveness in protecting patient information while 30 percent say they are less effective.
- According to the survey, the most significant result of a data breach or cyber attack is the theft of information assets (according to 56 percent of respondents), followed by productivity decline (51 percent) and system downtime (44 percent).

The findings of this research illustrate the challenges healthcare organizations face in their efforts to balance the demand for more modern and efficient communications technologies with the need to maintain security and comply with regulatory requirements. The prevalence of outdated communication technologies results in decreased clinician productivity and lengthier patient discharge times, which can cost the U.S. healthcare industry more than \$8.3 billion annually.

Despite the substantial economic and productivity impact, the use of pagers and other inefficient communications technologies remains the status quo in healthcare, in large part because security policies and compliance regulations are perceived as barriers to adopting more efficient communications systems.

Based on their responses, the IT practitioners and clinicians are aware of the difficult problems they must deal with. However, the inability to identify and implement solutions to these problems is likely to be costly.

¹ Third Annual Benchmark Study on Patient Privacy & Data Security, conducted by Ponemon Institute and sponsored by ID Experts, December 2012

Part 2. Key Findings

In this report we have organized the findings according to the following topics:

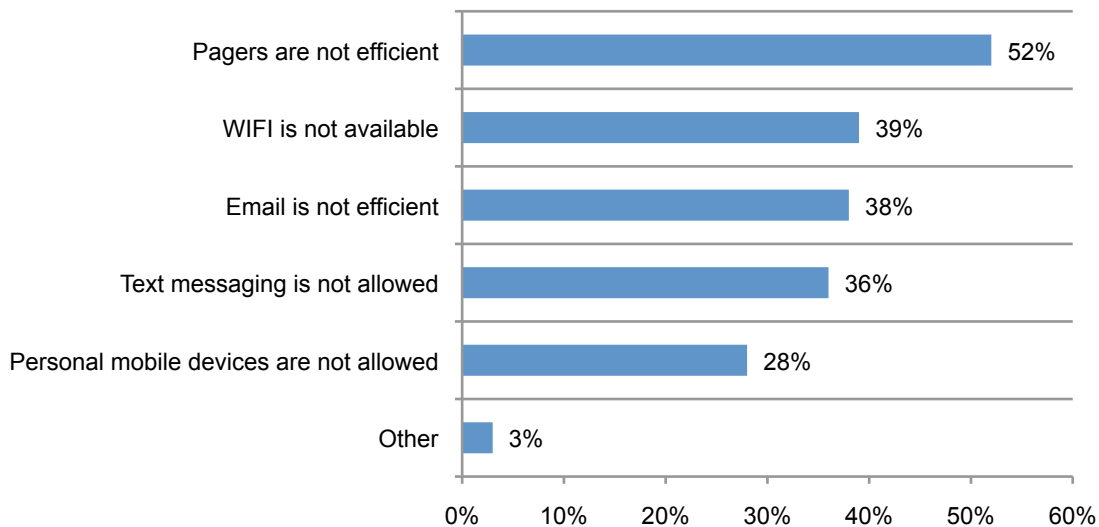
- The economic and productivity impact of outdated communications technology in healthcare
- The effects of regulations on the delivery of patient care and technology adoption
- The pervasiveness of data breaches and their impact on healthcare organizations

Economic and Productivity Impact of Outdated Communications Technology in Healthcare

Outdated communication technologies and overly restrictive security policies waste clinicians' time. According to the study, clinicians waste an average of 46 minutes each day waiting for patient information as a result of inefficient communication technologies. As shown in Figure 1, the main culprit is the inefficiency of pagers, according to 52 percent of respondents, followed by the inadequacy of email, according to 38 percent of respondents. However other barriers to efficiency, according to respondents, include not being able to use Wi-Fi, text messaging and personal mobile devices.

Figure 1. The main reason time is wasted waiting for patient information

More than one response permitted



Clinicians' time wasted due to outdated communications technologies can cost the healthcare industry more than \$5.1 billion annually. The findings of this study and secondary research enabled us to estimate the value of the clinicians' idle time per hospital and for the entire healthcare industry. Table 1 shows the calculation that looks at the average clinician wage per hour (\$36.40), the average wasted time per hour as self-reported by the respondents (46.2 minutes) and the average number of clinicians per hospital (88).

Based on the findings of this research, previous Ponemon Institute research and published data about the healthcare industry, we were able to calculate that security policies and outdated communication technologies can cost the average U.S. hospital \$900,259 per year in the value of wasted clinicians' time. Based on the number of all registered hospitals in the U.S., the industry-wide impact could be approximately \$5 billion².

Table 1. Economic impact of communication inefficiencies

	Description	Calculus	Estimate
A	Average clinician wage per hour	Secondary research ³	\$36.40
B	As a result of current methods of communication, how much time is wasted waiting for patient information each day per clinician (minutes)?	Extrapolated survey value	46.2
C	Wasted time per hour	$C = B / 60 \text{ minutes}$	0.77
D	Value of wasted time per clinician each day	$D = A \times C$	\$28.03
E	Average FTE clinician headcount per registered hospital (medical staff only)	Secondary research ⁴	88.0
F	Value of wasted time per hospital each day	$F = D \times E$	\$2,466
G	Value of wasted time per hospital each year	$G = F \times 365 \text{ days}$	\$900,259

We estimate that the value of wasted time per hospital each year averages \$900,259. Based on the number of registered hospitals (5,724) the value of this is more than \$5.1 billion.

Table 2. Estimated cost impact for the hospital industry

Annual cost impact per hospital industry	\$900,259
Number of registered hospitals ⁵	5,724
Estimated incremental value of cost savings for U.S. hospitals each year	\$5,153,084,577

² Number of all U.S. registered US hospitals is 5,754, American Hospital Association Resource Center, Chicago, IL. www.aha.org/research/re/stat-studies/fast-fact.shtml

³ U.S. Department of Labor, Bureau of Labor Statistics. Occupational Employment Statistics. Health, United States, 2011 web updates

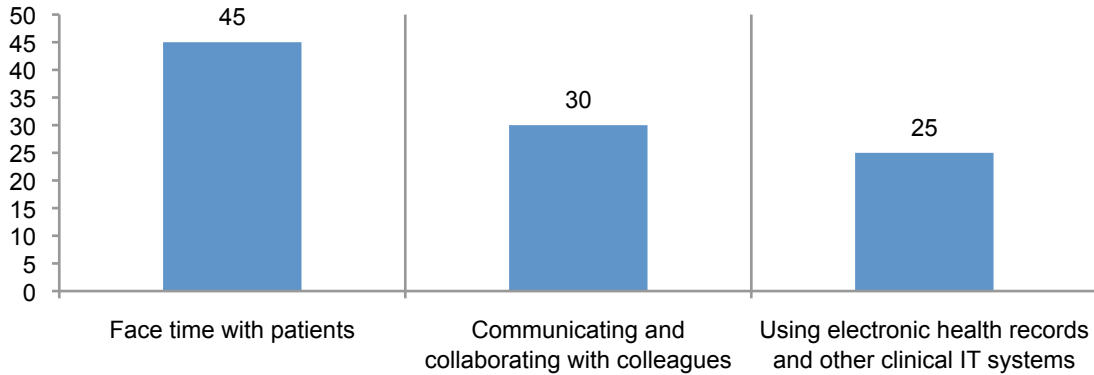
⁴ Third Annual Benchmark Study on Patient Privacy & Data Security, conducted by Ponemon Institute and sponsored by ID Experts, December 2012

⁵ Ibid 1

Clinicians' time is more often spent on activities away from the patient. In this study, we asked clinicians to allocate 100 points to three categories of tasks performed each day. They allocated 45 points—which translate to just 27 minutes of every hour—to time spent with patients followed by 30 points to communicating and collaborating with colleagues and another 25 points to using electronic health records and other clinical IT systems, according to Figure 2.

Figure 2. Clinicians allocation of time spent on daily tasks

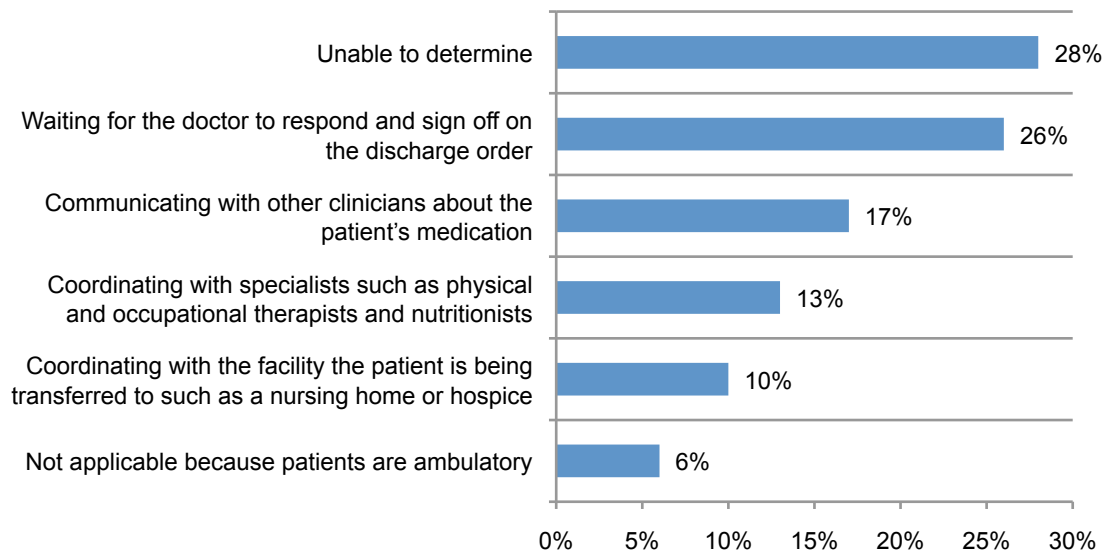
A total of 100 points were allocated to all three tasks



Outdated communication technologies also contribute to lengthy patient discharge times.

On average, it can take 101 minutes to complete the discharge of a patient and about 37 minutes of that time is due to waiting for the doctor, specialist or others to respond with information necessary for the patient's release. While 28 percent of respondents cannot pinpoint the single biggest communication challenge, 26 percent say it is waiting for the doctor to respond to a communication about signing off on the discharge order (as shown in Figure 3).

Figure 3. Communication challenges during patient discharge



The majority of both IT and clinicians (65 percent) believe the answer is to use secure text messaging to communicate with care teams during the discharge process. In fact, they believe the total discharge time could be reduced on average about 50 minutes by using secure texting.

Lengthy discharge times can cost the healthcare industry more than \$3.1 billion in lost revenue annually. The revenue impact of reducing discharge time through IT improvements and other measures could be enormous. Again, the findings from this study and secondary research enable us to calculate the average revenue loss per hospital and for the healthcare industry each year. Table 3 shows the calculation that includes the number of beds per hospital (161.48), the occupancy rate (67.8 percent), average length of stay (2.2 days), average number of patients served per year (18,165), idle patient time waiting for discharge per year (633 days) and estimated revenue per bed per day (\$880).

Table 3. Economic impact of lengthy discharge time

	Description	Calculus	Estimate
A	Number of beds on average	Secondary research ⁶	161.48
B	Number of bed days per year	$B = A \times 365 \text{ days}$	58,942
C	Occupancy rate	Secondary research ⁷	67.8%
D	Adjusted number of bed days per year	$D = B \times C$	39,962
E	Average length of stay in hospital per admitted patient (days)	Secondary research ⁸	2.2
F	Average number of patients served per year	$F = D / E$	18,165
G	Idle time per patient waiting for discharge (minutes)	Extrapolated survey value	50.2
H	Idle time waiting for discharge (minutes) for all patients per year	$H = F \times G$	911,869
I	Idle time waiting for discharge (hours) for all patients per year	$I = H / 60 \text{ minutes}$	15,198
J	Idle time waiting for discharge (days) for all patients per year	$J = I / 24 \text{ hours}$	633
K	Estimated revenue per bed per day	Secondary research ⁹	\$880
L	Revenue loss per hospital each year	$L = J \times K$	\$557,253

We conclude that the average revenue loss per hospital each year is \$557,253. Based on the number of registered hospitals in the U.S., the loss for the entire industry is more than \$3.1 billion.

Table 4. Estimated revenue impact for the hospital industry

Annual revenue impact per hospital industry	\$557,253
Number of registered hospitals ¹⁰	5,724
Estimated incremental value (revenue) gains for U.S. hospitals each year	\$3,189,717,587

⁶ National Center for Health Statistics. Health, United States, 2011: With Special Feature on Socioeconomic Status and Health. Hyattsville, MD. 2012.

⁷ Ibid 3

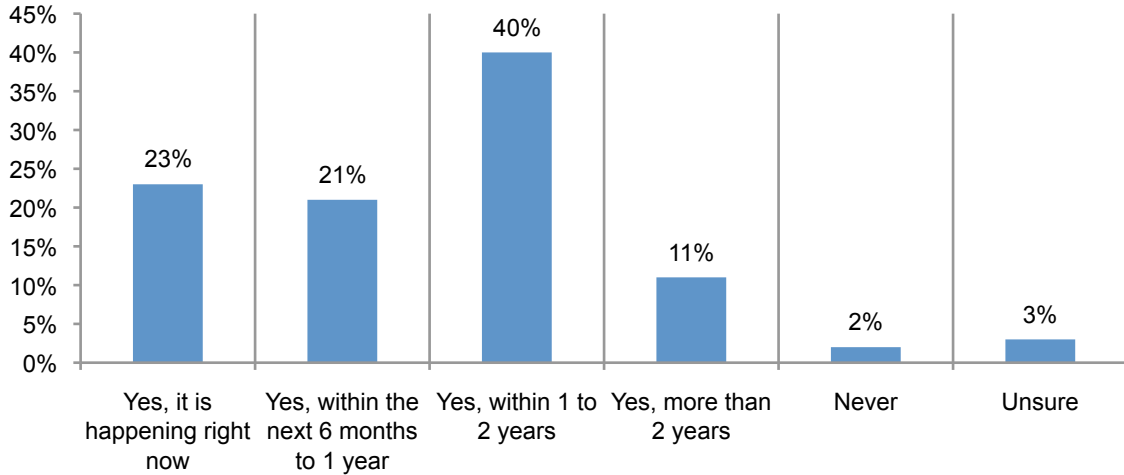
⁸ Ibid 3

⁹ Ibid 3

¹⁰ Ibid 1

Secure text messaging will replace pagers. As shown in Figure 4, 74 percent of respondents say secure text messaging either has replaced pagers or will replace pagers within the next two years.

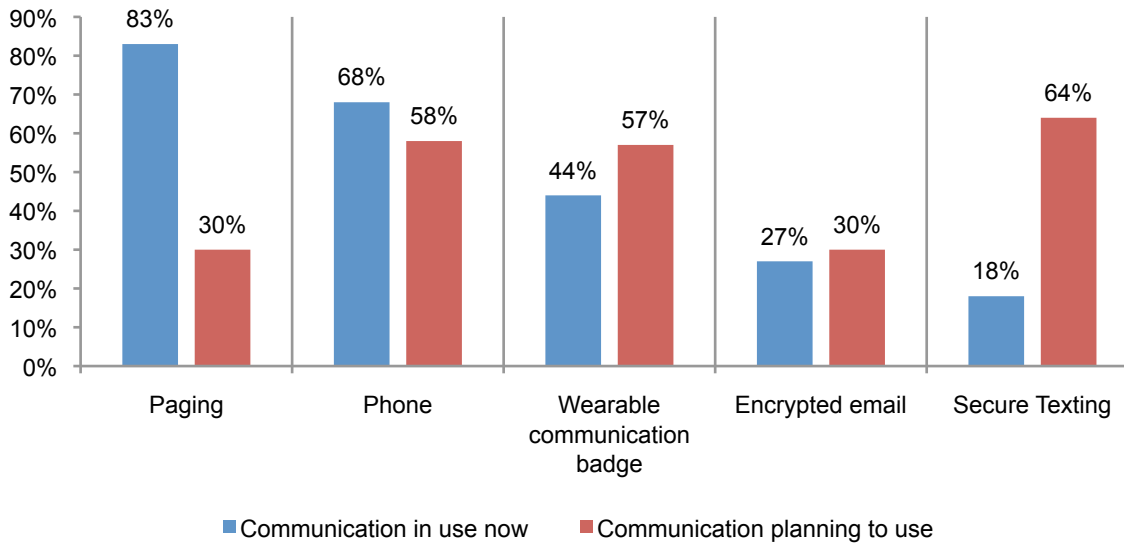
Figure 4. Secure text messaging will replace pagers in the organization



As shown in Figure 5, the use of pagers and phone for communications between clinicians and other hospital personnel will decline significantly, while the use of wearable communication badges and secure texting will increase.

Figure 5. Secure communication between clinicians and other hospital personnel

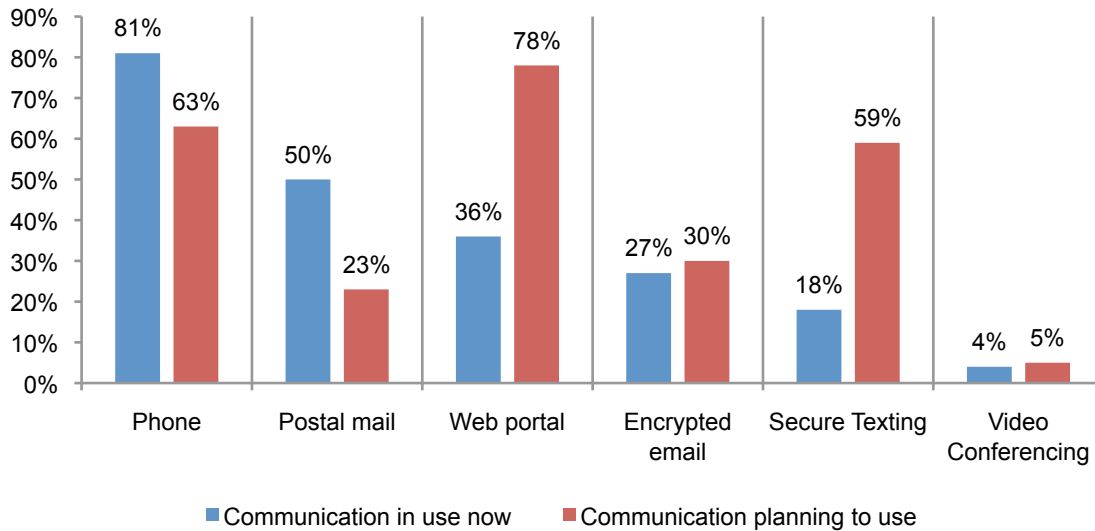
More than one response permitted



Patient communications will change. Today the primary method of secure communications between clinicians and patients is phone (according to 81 percent of respondents) followed by postal mail (50 percent). Figure 6 reveals the significant changes in store. While phone and postal mail are expected to decline, web portal and secure texting will be increasingly used to communicate with patients.

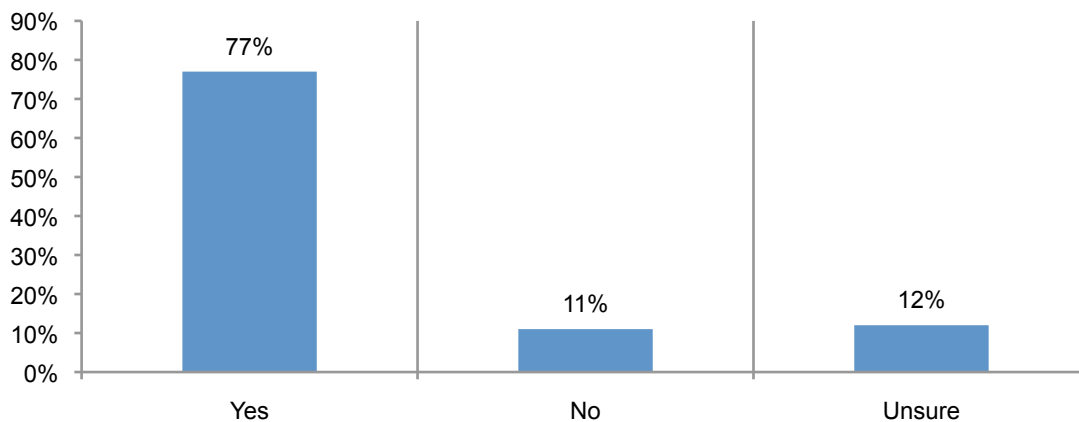
Figure 6. Secure communication between clinicians and patients

More than one response permitted



Web portals are already available to most patients. As shown in Figure 6, the use of web portals to communicate with patients will increase significantly. However, according to Figure 7, 77 percent of respondents say their organization is already using web portals so that patients can view their medical records, schedule appointments and complete other administrative tasks.

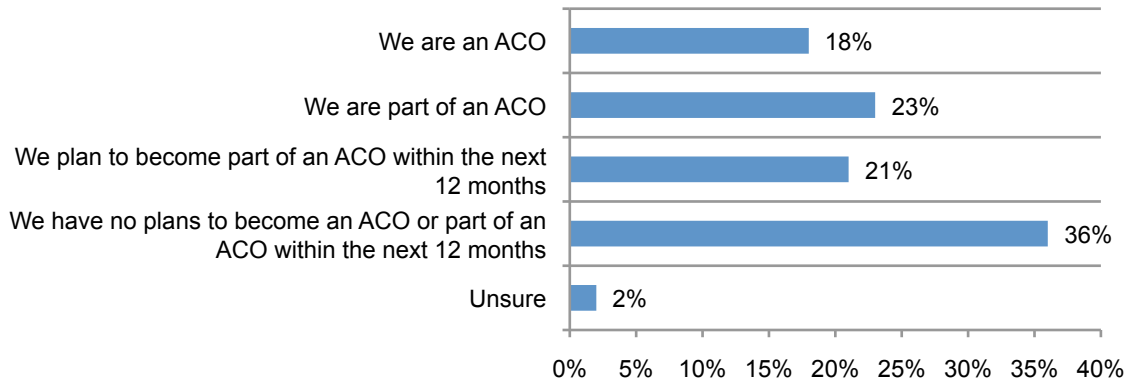
Figure 7. Patients are provided with access to a web portal



Effects of Regulations on the Delivery of Patient Care and Technology Adoption

The majority of respondents say their organization is or will become an ACO. As part of the Patient Protection and Affordable Care Act, ACOs are being created to reduce the cost of care as baby boomers enter retirement age. An ACO is a healthcare organization characterized by a payment and care delivery model that ties provider reimbursements to quality metrics and reductions in the total cost of care for an assigned population of patients. According to Figure 8, the majority of respondents (62 percent) say their organizations are an ACO or plan to move to this model within the next 12 months.

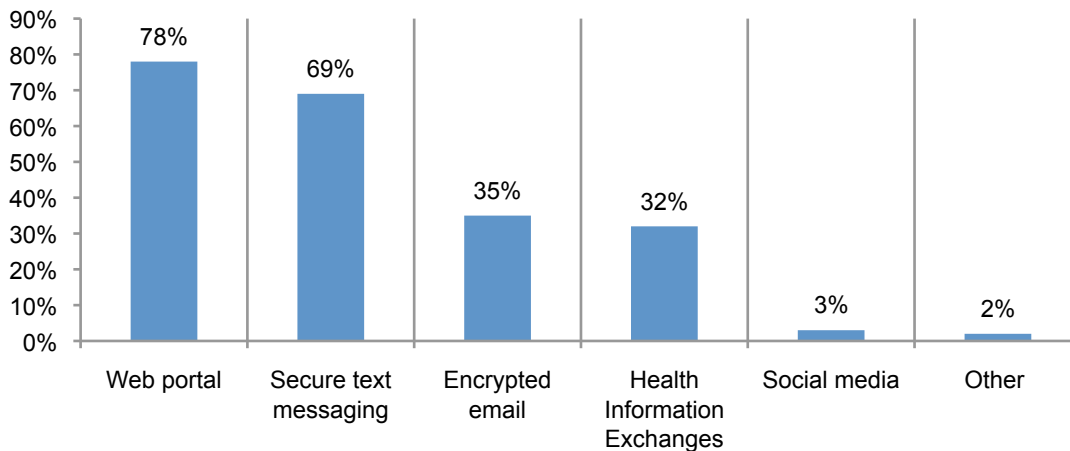
Figure 8. Transitioning to ACOs



As part of the transition, healthcare organizations will need to ensure that communication and collaboration among healthcare providers is optimized. The efficient and secure sharing of patient records is critical in the ACO model, and as a result, there is expected to be an increase in the number of care providers accessing a patient's records and thus a broader range of locations/endpoints from which a patient's records may be accessed. Fewer tests and procedures mean more care providers will need access to fewer results, which will likely test the ability of electronic communications to meet the needs of clinicians. In order to communicate with patients, these ACOs will use a web portal or secure text messaging, as shown in Figure 9.

Figure 9. ACO communication with patients on an ongoing basis

More than one response permitted



Compliance regulations are the primary barrier to achieving a strong IT security posture. As highlighted in Figure 10, 59 percent of respondents say that complexity of compliance and regulatory requirements is the primary barrier to their organization achieving a strong IT security posture while 54 percent cite the lack of senior leadership’s commitment to achieving a strong security posture.

Figure 10. Barriers to achieving a strong IT security posture

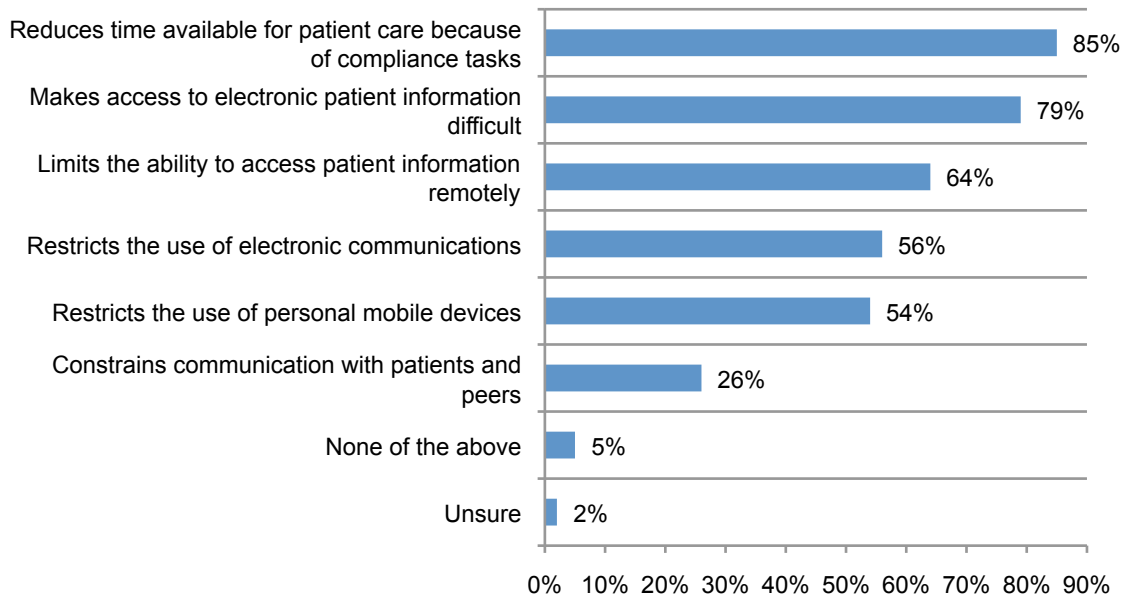
Three choices permitted



HIPAA regulations impact patient care. Slightly more than half (51 percent) of respondents say HIPAA security and privacy regulations make it more difficult to deliver quality patient care. Specifically, as shown in Figure 11, HIPAA reduces time available for patient care (according to 85 percent of respondents), makes access to electronic patient information difficult (79 percent) and restricts the use of electronic communications (56 percent).

Figure 11. How HIPAA regulations diminish the delivery of quality patient care

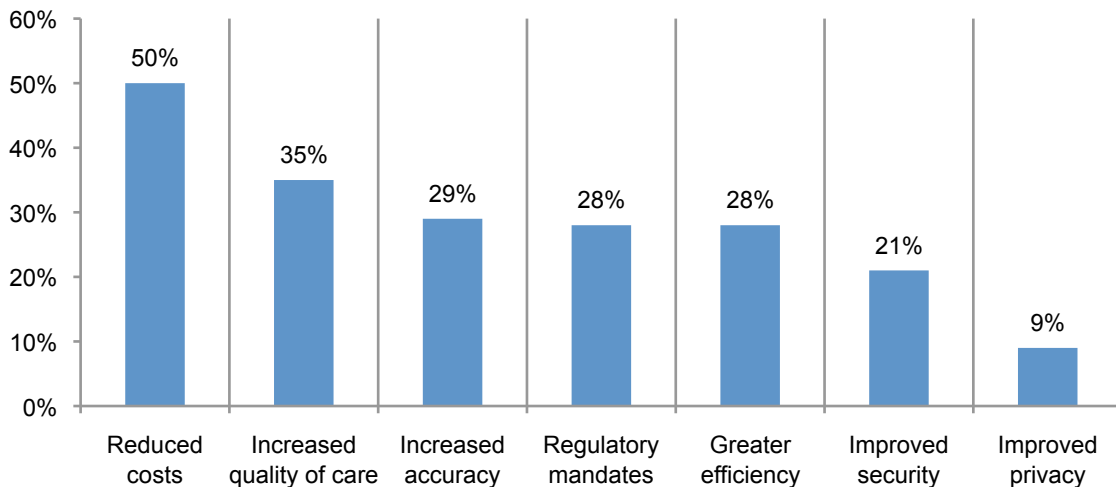
More than one response permitted



Electronic Prescriptions for Controlled Substances (EPCS) not widely adopted. Only 18 percent of respondents say their organizations support EPCS and another 26 percent say their organizations plan to adopt EPCS within 12 months. According to Figure 12, if they do plan to adopt, the primary reason is to reduce costs (according to 50 percent of respondents) followed by increased quality of care (35 percent).

Figure 12. Reasons to adopt EPCS

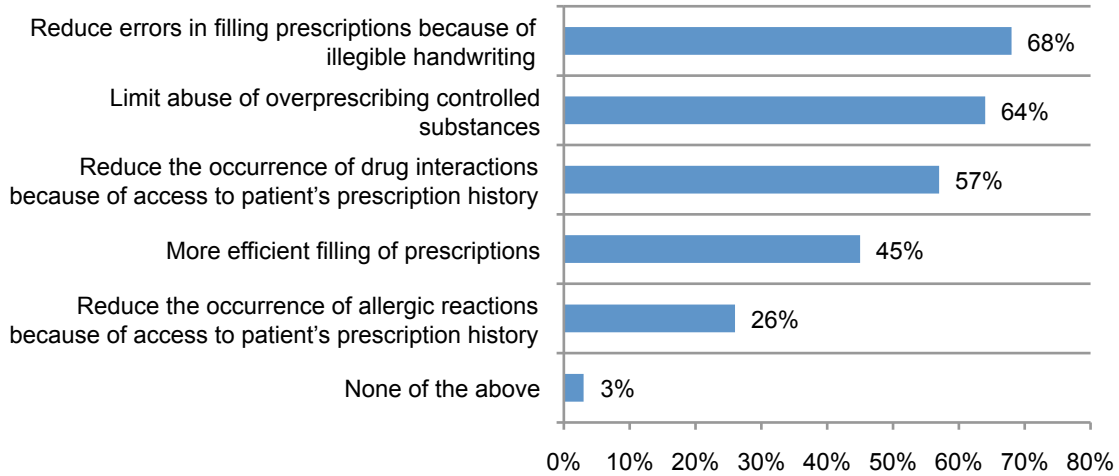
Two choices permitted



Fifty-four percent of survey respondents say EPCS will improve patient safety. According to Figure 13, safety will be improved by reducing errors in filling prescriptions because of illegible handwriting and limiting abuse of overprescribing controlled substances.

Figure 13. How patient safety will be improved

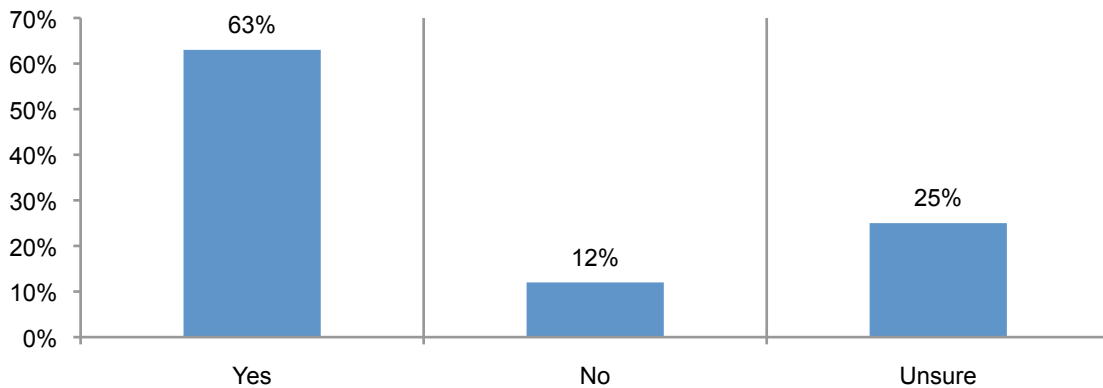
More than one response permitted



Pervasiveness of Data Breaches and their Impact on Healthcare Organizations

Data breach incidents are frequent and can be costly. As shown in Figure 14, 63 percent of survey respondents say their organization experienced a data breach that required notification in the past 24 months. In a previous Ponemon Institute study, it was calculated that the average economic impact of a data breach over the past two years for the healthcare organizations was \$2.4 million¹¹.

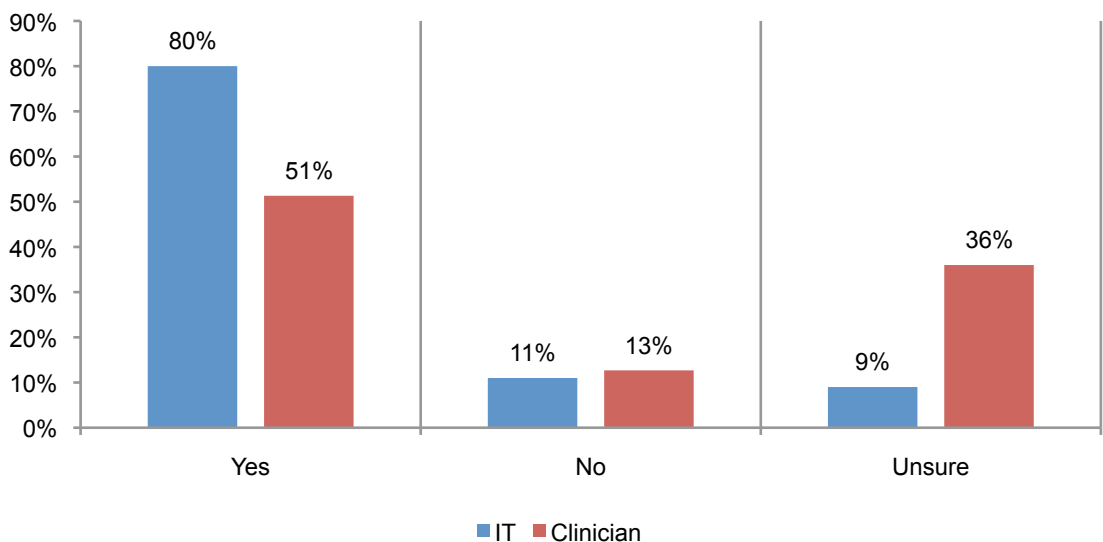
Figure 14. A data breach has occurred that required notification in the past 24 months



Clinicians are more detached from cyber attacks and data breaches in their organizations.

The IT healthcare practitioners surveyed are more aware about data breaches occurring in their organizations. Eighty percent of IT practitioners say their organization had a data breach in the past 24 months, as shown in Figure 15. In contrast, slightly more than half (51 percent) say their organization had such an incident, a more than 29 percent difference. The uncertainty over whether there was a data breach is also higher among clinicians (36 percent vs. 9 percent of IT practitioners).

Figure 15. IT practitioners vs. clinicians' awareness of data breaches

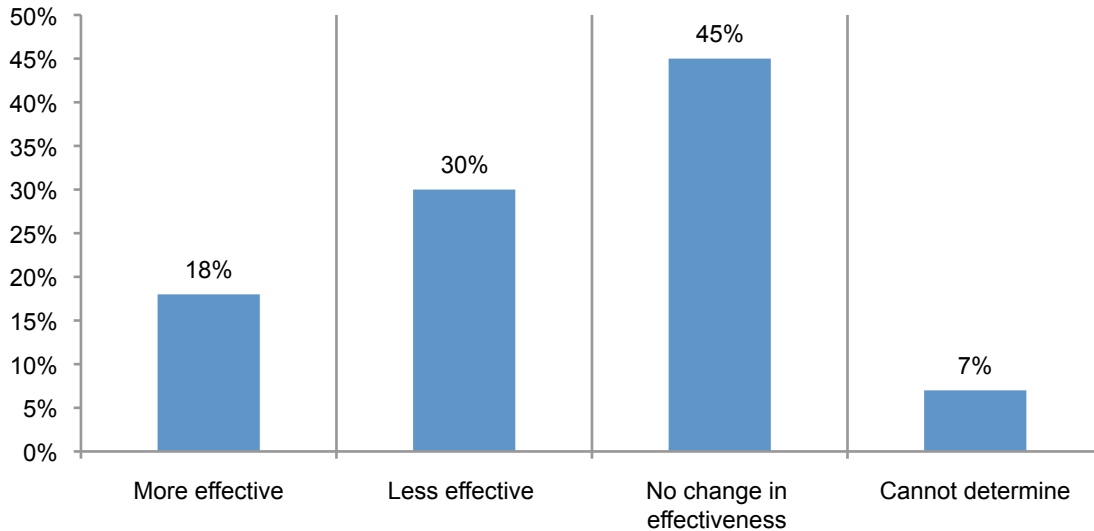


¹¹ Third Annual Benchmark Study on Patient Privacy & Data Security, conducted by Ponemon Institute and sponsored by ID Experts, December 2012

IT practitioners have a different view of the severity of data breaches. On average, IT practitioners say more than 9,000 records were lost or stolen per data breach while clinicians estimate slightly more than 3,000 records were lost or stolen.

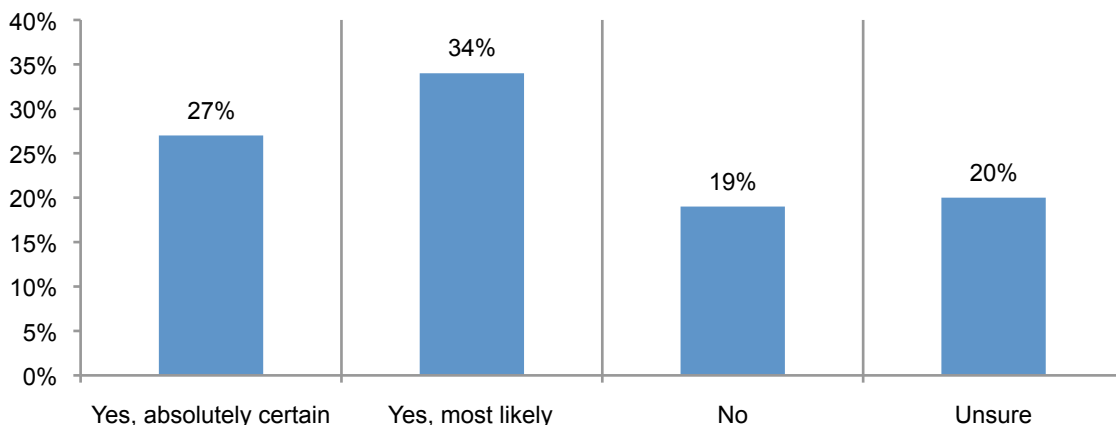
Effectiveness in protecting patient information has not improved in many organizations. Despite the frequency of data breaches, 45 percent of respondents say their organizations have not experienced a change in the effectiveness in protecting patient information and 30 percent say they are less effective, as shown in Figure 16.

Figure 16. Ability to protect patient information



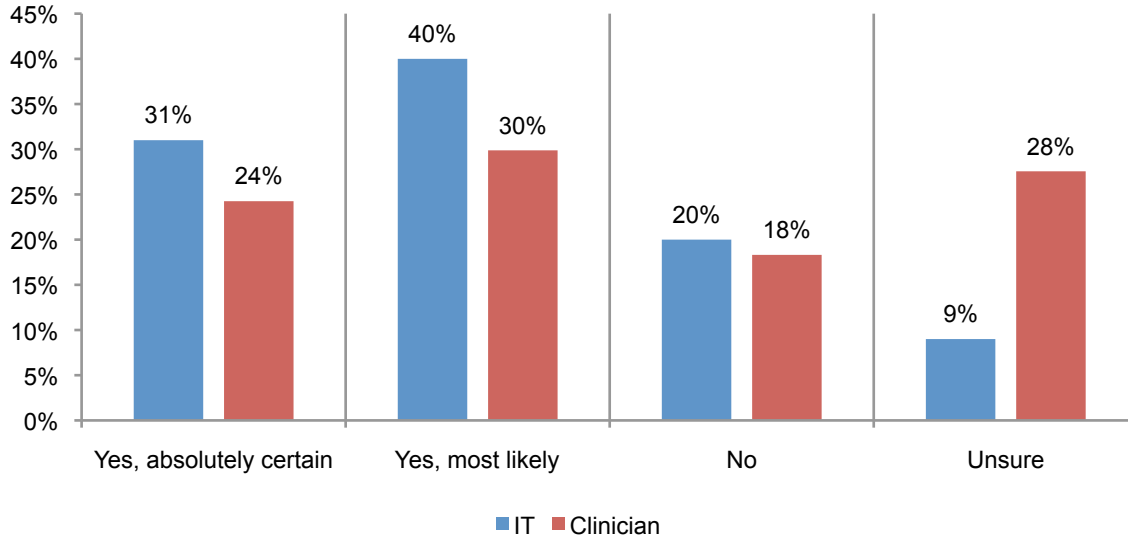
The majority of organizations experienced a cyber attack or intrusion of their IT infrastructure in the past 24 months. As shown in Figure 17, 27 percent of survey respondents are absolutely certain such an incident occurred, 34 percent say it was most likely to have occurred and 20 percent are uncertain.

Figure 17. Occurrence of a cyber attack



Once again, IT practitioners are more aware of security incidents. As shown in Figure 18, 31 percent of IT practitioners are aware of a cyber attack while only 24 percent are certain that such an incident occurred.

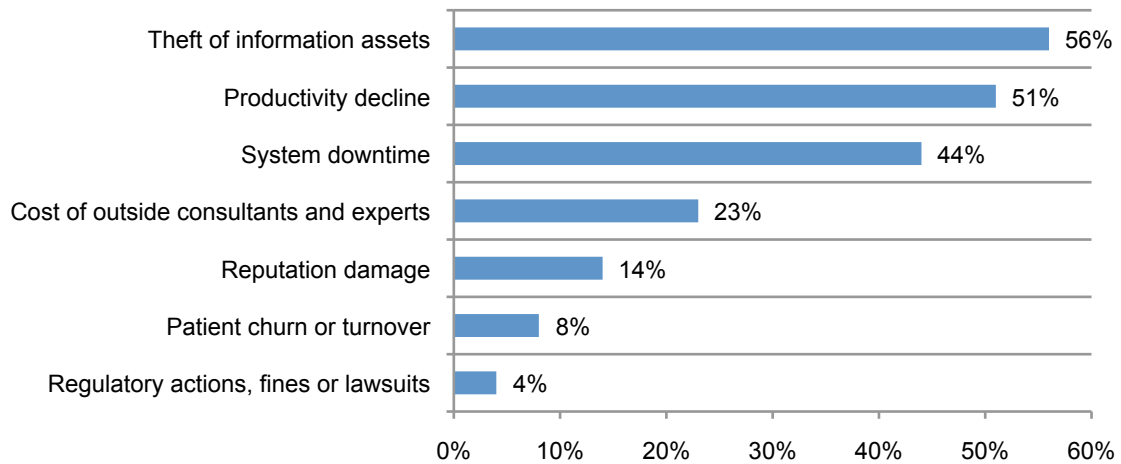
Figure 18. IT practitioners vs. clinicians' awareness of cyber attacks



The most negative consequences of a cyber attack are theft of information assets (according to 56 percent of survey respondents), productivity decline (51 percent) and system downtime (44 percent). The least negative are patient churn or turnover (8 percent) and regulatory actions, fines or lawsuits (4 percent), as shown in Figure 19.

Figure 19. Most negative consequences of a cyber attack or intrusion

More than one response permitted



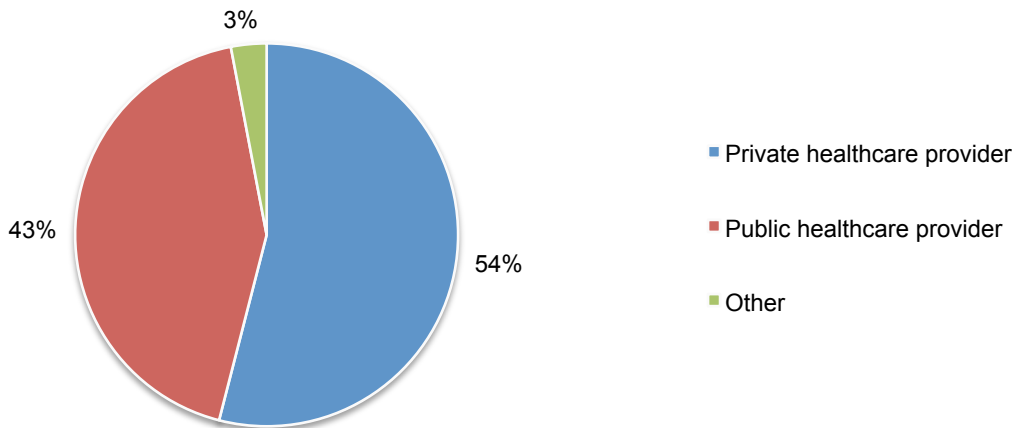
Part 3. Methods

A sampling frame of 13,560 healthcare professionals located in all regions of the United States was selected as participants to this survey. As shown in Table 5, 636 respondents completed the survey. Screening and reliability checks removed 59 surveys. The final sample was 577 surveys (or a 4.3 percent response rate).

Table 5: Survey response	Freq	Pct
Combined sampling frame	13,560	100%
Total returns	636	4.7%
Rejected and screened surveys	59	0.4%
Final sample	577	4.3%

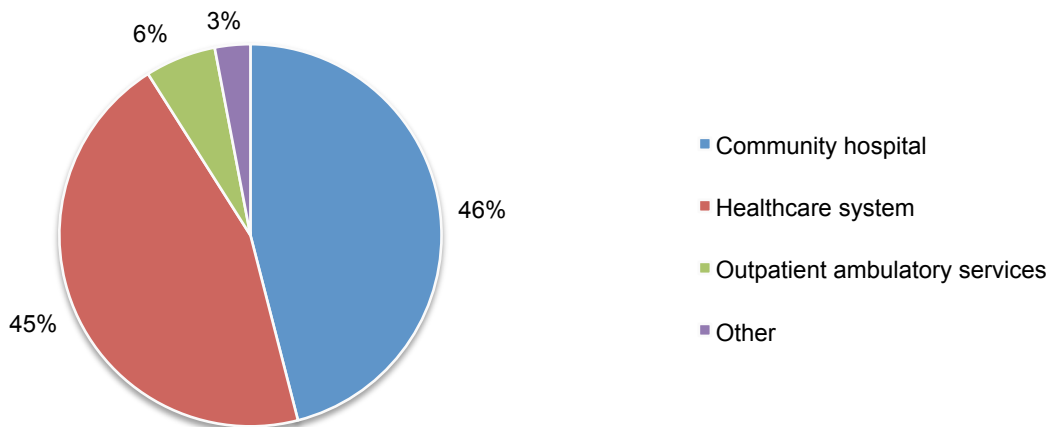
Pie Chart 1 reports the respondents' organization type. This chart identifies private healthcare provider (54 percent) as the largest segment, followed by public healthcare provider (43 percent).

Pie Chart 1. Respondents' organization



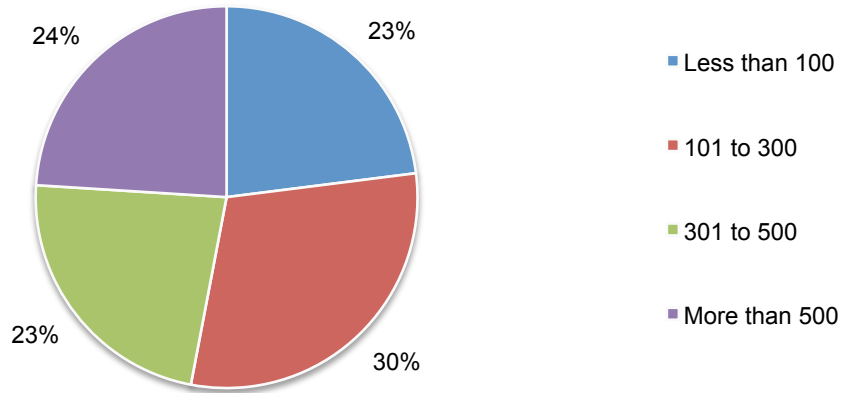
According to Pie Chart 2, slightly less than half of respondents (46 percent) are from community hospitals, 45 percent reported they are from a healthcare system and six percent are from outpatient ambulatory services.

Pie Chart 2. Organization's operating structure



As shown in Pie Chart 3, 77 percent of respondents reported from facilities with a patient bed count greater than 100 beds.

Pie Chart 3. Patient beds (capacity) in the healthcare facility or organization



Part 4: Caveats

There are inherent limitations to survey research that need to be carefully considered before drawing inferences from findings. The following items are specific limitations that are germane to most web-based surveys.

Non-response bias: The current findings are based on a sample of survey returns. We sent surveys to a representative sample of individuals, resulting in a large number of usable returned responses. Despite non-response tests, it is always possible that individuals who did not participate are substantially different in terms of underlying beliefs from those who completed the instrument.

Sampling-frame bias: The accuracy is based on contact information and the degree to which the list is representative of individuals who are healthcare professionals. We also acknowledge that the results may be biased by external events such as media coverage. We also acknowledge bias caused by compensating subjects to complete this research within a holdout period.

Self-reported results: The quality of survey research is based on the integrity of confidential responses received from subjects. While certain checks and balances can be incorporated into the survey process, there is always the possibility that a subject did not provide a truthful response.

Appendix: Detailed Survey Results

The following tables provide the frequency or percentage frequency of responses to all survey questions contained in this study.

Survey response	Freq	Pct
Combined sampling frame	13,560	100%
Total returns	636	4.7%
Rejected and screened surveys	59	0.4%
Final sample	577	4.3%

Screening question

S1. What best describes your role?	Overall	IT	Clinician
IT director	88	88	0
IT manager	123	123	0
Chief information officer (CIO)	24	24	0
Chief medical information officer (CMIO)	37	0	37
Chief medical officer (CMO)	31	0	31
Clinician, department head	83	0	83
Clinician, staff	122	0	122
Hospital administration	69	0	69
None of the above (Stop)	0	0	0
Total	577	235	342
Subsample weights	100%	41%	59%

Part 1. Questions about IT security and patient data protection

Q1. In your role, how much responsibility do you have to protect sensitive and confidential patient information?	Overall	IT	Clinician
Full responsibility	15%	21%	11%
Some responsibility	73%	70%	75%
Minimal or no responsibility	12%	9%	14%
Total	100%	100%	100%

Q2a. Has your organization experienced a data breach that required notification in the past 24 months?	Overall	IT	Clinician
Yes	63%	80%	51%
No	12%	11%	13%
Unsure	25%	9%	36%
Total	100%	100%	100%

Q2b. If yes, please estimate the following:	Overall	IT	Clinician
Q2b-1. The number of patient records lost or stolen in the past 24 months.			
1 to 500	14%	23%	8%
501 to 1,000	23%	25%	22%
1,001 to 5,000	17%	20%	15%
5,001 to 10,000	3%	5%	2%
10,001 to 50,000	2%	5%	0%
50,001 to 100,000	2%	4%	1%
More than 100,000	1%	2%	0%
Unable to determine	38%	16%	53%
Total	100%	100%	100%
Extrapolated values	6,544	9,310	3,140

Q2b-2. The number of separate data breach incidents under 500 records lost or stolen in the past 24 months.	Overall	IT	Clinician
Zero	5%	4%	6%
1	11%	12%	10%
2	13%	23%	6%
3	14%	21%	9%
4	11%	18%	6%
5	5%	7%	4%
More than 5	4%	6%	3%
Unable to determine	37%	9%	56%
Total	100%	100%	100%
Extrapolated values	3.0	3.2	2.7

Q3a. Did your organization experience a cyber attack or intrusion of your IT infrastructure in the past 24 months?	Overall	IT	Clinician
Yes, absolutely certain	27%	31%	24%
Yes, most likely	34%	40%	30%
No	19%	20%	18%
Unsure	20%	9%	28%
Total	100%	100%	100%

Q3b. If yes, what were the two most negative consequences to your organization?	Overall	IT	Clinician
Theft of information assets	56%	63%	51%
Productivity decline	51%	37%	63%
System downtime	44%	62%	32%
Regulatory actions, fines or lawsuits	4%	5%	3%
Reputation damage	14%	16%	13%
Patient churn or turnover	8%	5%	10%
Cost of outside consultants and experts	23%	12%	28%
Total	200%	200%	200%

Q4. What statement best describes changes to your organization's ability to protect patient information over the past 24 months?	Overall	IT	Clinician
More effective in protecting patient information	18%	20%	17%
Less effective in protecting patient information	30%	33%	28%
No change in effectiveness in protecting patient information	45%	43%	46%
Cannot determine	7%	4%	9%
Total	100%	100%	100%

Q5. What do you see as the most significant barriers to achieving a strong IT security posture within your organization today? Please select your top three choices.	Overall	IT	Clinician
Security resources and/or budget are inadequate	31%	32%	30%
Security technology solutions are ineffective in reducing risks	19%	23%	16%
Lack of skilled or expert personnel	50%	65%	40%
Lack of ongoing security education and training	10%	8%	11%
Leadership lacks commitment to achieving a strong security posture	54%	49%	57%
Lack of oversight or governance	33%	23%	40%
Poor visibility of people and operations	26%	23%	28%
Security risk assessments are not conducted as often as they should be	16%	12%	19%
Complexity of compliance and regulatory requirements	59%	64%	56%
Other (please specify)	2%	1%	3%
Total	300%	300%	300%

Q6. In your organization, how do health care providers (clinicians) authenticate their access to desktops, and laptops? Please select all that apply.	Overall	IT	Clinician
Username and password	88%	86%	89%
Proximity badge/card	25%	30%	22%
Finger biometric	14%	12%	15%
Other	3%	5%	2%
Total	130%	133%	128%

Q7. Does your organization use single sign-on to access applications?	Overall	IT	Clinician
Yes	26%	31%	23%
No	56%	60%	53%
Unsure	18%	9%	24%
Total	100%	100%	100%

Q8a. What dollar range best describes your organization's IT budget in the present fiscal year? When choosing the range, please exclude non-recurring capital investments.	Overall	IT	Clinician
Less than \$2 million	0%	0%	0%
\$2 to \$4 million	1%	1%	1%
\$4 to \$6 million	1%	2%	0%
\$6 to \$8 million	0%	0%	0%
\$8 to \$10 million	1%	1%	1%
\$10 to \$12 million	3%	4%	2%
\$12 to \$14 million	1%	1%	1%
\$14 to \$16 million	3%	5%	2%
\$16 to \$18 million	10%	13%	8%
\$18 to \$20 million	12%	18%	8%
\$20 to \$25 million	18%	21%	16%
More than \$25 million	13%	16%	11%
Unable to determine	37%	18%	50%
Total	100%	100%	100%
Extrapolated values in US\$ millions	24.8	24.3	25.4

Q8b. What percentage best describes the proportion of IT security spending relative to the total IT budget in the present fiscal year?	Overall	IT	Clinician
Zero	0%	0%	0%
Less than 5%	10%	12%	9%
6% to 10%	23%	32%	17%
11% to 15%	12%	15%	10%
16% to 20%	9%	11%	8%
21% to 30%	6%	8%	5%
31% to 40%	3%	5%	2%
41% to 50%	0%	0%	0%
More than 50%	0%	0%	0%
Unable to determine	37%	17%	51%
Total	100%	100%	100%
Extrapolated values	13%	13%	12%

Part 2. Communication technologies for clinicians and patients

Q9. When will your organization adopt EPCS for patient services?	Overall	IT	Clinician
In use today	18%	20%	17%
Within 12 months	26%	22%	29%
12 to 24 months	32%	29%	34%
No plans to adopt	21%	23%	20%
Do not know	3%	6%	1%
Total	100%	100%	100%

Q10. What are the top two reasons to adopt EPCS?	Overall	IT	Clinician
Regulatory mandates	28%	42%	18%
Increased accuracy	29%	25%	32%
Increased quality of care	35%	29%	39%
Improved security	21%	19%	22%
Improved privacy	9%	13%	6%
Reduced costs	50%	49%	51%
Greater efficiency	28%	23%	31%
Other	0%	0%	0%
Total	200%	200%	200%

Q11a. Will EPCS improve patient safety?	Overall	IT	Clinician
Yes	54%	43%	62%
No	33%	34%	32%
Unsure	13%	23%	6%
Total	100%	100%	100%

Q11b. If yes, how will patient safety be improved?	Overall	IT	Clinician
Limit abuse of overprescribing controlled substances	64%	51%	73%
Reduce the occurrence of drug interactions because of access to patient's prescription history	57%	56%	58%
Reduce the occurrence of allergic reactions because of access to patient's prescription history	26%	28%	25%
More efficient filling of prescriptions	45%	41%	48%
Reduce errors in filling prescriptions because of illegible handwriting	68%	65%	70%
None of the above	3%	2%	4%
Total	263%	243%	277%

Q12. Will EPCS limit the abuse of controlled substances?	Overall	IT	Clinician
Yes	63%	54%	69%
No	23%	24%	22%
Unsure	14%	22%	9%
Total	100%	100%	100%

Q13. In a typical day, how is your time allocated for the following tasks? Please allocate a total of 100 points to all three tasks in the table below.	Allocated points	Allocated points	Allocated points
Face time with patients	45		45
Using electronic health records and other clinical IT systems	25		25
Communicating and collaborating with colleagues	30		30
Total	100		100

Q14a. As a result of current methods of communication, how much time is wasted waiting for patient information (each day per clinician)?	Overall	IT	Clinician
Zero	5%	4%	6%
Less than 15 minutes	18%	21%	16%
15 to 30 minutes	33%	28%	36%
31 to 60 minutes	16%	18%	15%
1 to 2 hours	13%	8%	16%
2 to 3 hours	8%	9%	7%
3 to 4 hours	0%	0%	0%
More than 4 hours	1%	1%	1%
Unsure	6%	11%	3%
Total	100%	100%	100%
Extrapolated values	46.2	45.7	46.5

Q14b. If time is wasted, what are the main reasons?	Overall	IT	Clinician
Pagers are not efficient	52%	48%	55%
Email is not efficient	38%	41%	36%
WIFI is not available	39%	36%	41%
Text messaging is not allowed	36%	38%	35%
Personal mobile devices are not allowed	28%	24%	31%
Other	3%	2%	4%
Total	196%	189%	201%

Q15. Please select the tools your organization will use to achieve the 5 percent patient engagement requirement for "Meaningful Use Stage 2".	Overall	IT	Clinician
Secure texting	63%	68%	60%
Encrypted email	48%	51%	46%
Phone	31%	35%	28%
Video conferencing	42%	40%	43%
Patient portal	65%	65%	65%
Health information exchange (HIE)	34%	36%	33%
Population management tools	21%	15%	25%
Unable to determine	30%	28%	31%
Total	334%	338%	331%

Q16. What percentage best describes the proportion of IT spending dedicated to patient engagement requirements to the total IT budget in the present fiscal year?	Overall	IT	Clinician
Zero	3%	5%	2%
Less than 5%	5%	7%	4%
6% to 10%	12%	13%	11%
11% to 15%	26%	31%	23%
16% to 20%	16%	15%	17%
21% to 30%	5%	7%	4%
31% to 40%	3%	5%	2%
41% to 50%	2%	3%	1%
More than 50%	1%	0%	2%
Unable to determine	27%	14%	36%
Total	100%	100%	100%
Extrapolated values	15%	15%	16%

Q17. Following the decision to release a patient, what is the average length of time it takes to complete the discharge?	Overall	IT	Clinician
Zero	0%	0%	0%
Less than 15 minutes	2%	3%	1%
15 to 30 minutes	6%	5%	7%
31 to 60 minutes	15%	13%	16%
1 to 2 hours	20%	18%	21%
2 to 3 hours	11%	11%	11%
3 to 4 hours	6%	5%	7%
More than 4 hours	4%	5%	3%
Not applicable because patients are ambulatory (i.e. a clinic)	6%	4%	7%
Unable to determine	30%	36%	26%
Total	100%	100%	100%
Extrapolated values	101.7	104.4	100.1

Q18. On average, what percentage of discharge time is due to waiting for the doctor, specialist or others to respond with information necessary to the patient's release?	Overall	IT	Clinician
No time is spent waiting for a response	2%	1%	3%
About 10% of the discharge time	4%	5%	3%
About 20% of the discharge time	5%	4%	6%
About 30% of the discharge time	16%	14%	17%
About 40% of the discharge time	18%	17%	19%
About 50% of the discharge time	12%	11%	13%
More than 50% of the discharge time	8%	9%	7%
Not applicable because patients are ambulatory (i.e. a clinic)	6%	4%	7%
Unable to determine	29%	35%	25%
Total	100%	100%	100%
Extrapolated values	37%	37%	36%

Q19. During discharge, what is the single biggest communication challenge?	Overall	IT	Clinician
Communicating with other clinicians about the patient's medication	17%	14%	19%
Waiting for the doctor to respond and sign off on the discharge order	26%	21%	29%
Coordinating with specialists such as physical and occupational therapists and nutritionists	13%	11%	14%
Coordinating with the facility the patient is being transferred to such as a nursing home or hospice	10%	8%	11%
Not applicable because patients are ambulatory (i.e. a clinic)	6%	7%	5%
Unable to determine	28%	39%	20%
Total	100%	100%	100%

Q20a. Would the use of secure text messaging to communicate with care teams during the discharge process reduce the total discharge time?	Overall	IT	Clinician
Yes	65%	61%	68%
No	18%	17%	19%
Unsure	11%	16%	8%
Not applicable because patients are ambulatory (i.e. a clinic)	6%	6%	6%
Total	100%	100%	100%

Q20b. If yes, on average how much time do you believe would be saved during each discharge event?	Overall	IT	Clinician
Zero	3%	2%	4%
Less than 15 minutes	4%	5%	3%
15 to 30 minutes	27%	23%	30%
31 to 60 minutes	19%	16%	21%
1 to 2 hours	12%	12%	12%
2 to 3 hours	5%	4%	6%
3 to 4 hours	1%	0%	2%
More than 4 hours	0%	0%	0%
Unable to determine	29%	38%	23%
Total	100%	100%	100%
Extrapolated values	50.2	48.3	51.2

Q21. Will secure text messaging replace pagers in your organization?	Overall	IT	Clinician
Yes, it is happening right now	23%	22%	24%
Yes, within the next 6 months to 1 year	21%	23%	20%
Yes, with 1 to 2 years	30%	26%	33%
Yes, more than 2 years	11%	13%	10%
Never	2%	2%	2%
Unsure	13%	14%	12%
Total	100%	100%	100%

Q22. What does your organization now use for secure communication between clinicians and other hospital personnel? Please select all that apply.	Overall	IT	Clinician
Paging (including two-way paging and alpha paging)	83%	85%	82%
Secure Texting	18%	19%	17%
Encrypted email	27%	25%	28%
Phone	68%	67%	69%
Wearable communication badge	44%	43%	45%
Total	240%	239%	241%

Q23. What does your organization plan to use for secure communication between clinicians and other hospital personnel? Please select all that apply	Overall	IT	Clinician
Paging (including two-way paging and alpha paging)	30%	29%	31%
Secure Texting	64%	62%	65%
Encrypted email	30%	28%	31%
Phone	58%	56%	59%
Wearable communications badge	57%	54%	59%
Total	239%	229%	246%

Q24. What does your organization now use for secure communication between clinicians and patients? Please select all that apply.	Overall	IT	Clinician
Postal mail	50%	51%	49%
Web portal	36%	38%	35%
Secure Texting	18%	16%	19%
Encrypted email	27%	24%	29%
Phone	81%	79%	82%
Video Conferencing	4%	2%	5%
Total	216%	210%	220%

Q25. What does your organization plan to use for secure communication between clinicians and patients? Please select all that apply.	Overall	IT	Clinician
Postal mail	23%	21%	24%
Web portal	78%	76%	79%
Secure Texting	59%	60%	58%
Encrypted email	30%	27%	32%
Phone	63%	60%	65%
Video Conferencing	5%	3%	6%
Total	258%	247%	266%

Q26. Does your organization use or plan to use text-messaging services for the purpose of communicating directly with patients?	Overall	IT	Clinician
Already using	18%	16%	19%
Yes, within 12 months	25%	24%	26%
Yes, within 24 months	26%	23%	28%
No	24%	23%	25%
Unsure	7%	14%	2%
Total	100%	100%	100%

Q27. What best describes your organization today?	Overall	IT	Clinician
We are an ACO	18%	18%	18%
We are part of an ACO	23%	21%	24%
We plan to become part of an ACO within the next 12 months	21%	16%	24%
We have no plans to become an ACO or part of an ACO within the next 12 months	36%	40%	33%
Unsure	2%	5%	0%
Total	100%	100%	100%

Q28. If your organization is or plans to be a part of an ACO, how will it communicate with patients on an ongoing basis? Please select all that apply.	Overall	IT	Clinician
Web portal	78%	76%	79%
Encrypted email	35%	34%	36%
Secure text messaging	69%	64%	72%
Health Information Exchanges (HIE)	32%	30%	33%
Social media	3%	2%	4%
Other (please specify)	2%	0%	3%
Total	219%	206%	228%

Q29. Does your organization provide patients with access to a web portal that allows them to see their medical records, scheduled appointments and other administrative information?	Overall	IT	Clinician
Yes	77%	79%	76%
No	11%	13%	10%
Unsure	12%	8%	15%
Total	100%	100%	100%

Q30. Are you aware of patients requesting a way to access their health information electronically online or through a mobile device?	Overall	IT	Clinician
Yes, only online	14%	12%	15%
Yes, only mobile	19%	17%	20%
Yes, both online and mobile	26%	28%	25%
No	38%	36%	39%
Unsure	3%	7%	0%
Total	100%	100%	100%

Q31a. Do you believe the HIPAA security and privacy regulations make it more difficult for your organization to deliver quality patient care?	Overall	IT	Clinician
Yes	51%	48%	53%
No	43%	42%	44%
Unsure	6%	10%	3%
Total	100%	100%	100%

Q31b. If yes, how do these regulations diminish the delivery of quality patient care? Please select all that apply.	Overall	IT	Clinician
Makes access to electronic patient information difficult	79%	76%	81%
Restricts the use of electronic communications	56%	52%	59%
Restricts the use of personal mobile devices	54%	53%	55%
Limits the ability to access patient information remotely	64%	62%	65%
Constrains communication with patients and peers	26%	28%	25%
Reduces time available for patient care because of compliance tasks	85%	82%	87%
None of the above	5%	4%	6%
Unsure	2%	4%	1%
Total	371%	361%	378%

Q32a. Do you work at more than one healthcare facility?	Overall	IT	Clinician
Yes	46%		46%
No	54%		54%
Total	100%		100%

Q32b. If yes, how many facilities?	Overall	IT	Clinician
2	44%		44%
3	32%		32%
4	11%		11%
5	5%		5%
More than 5	8%		8%
Total	100%		100%

Part 4. Demographics and organizational characteristics

D1. What best describes your organization?	Overall	IT	Clinician
Public healthcare provider	43%	41%	44%
Private healthcare provider	54%	55%	53%
Other	3%	4%	2%
Total	100%	100%	100%

D2. What best describes your organization's operating structure?	Overall	IT	Clinician
Healthcare system	45%	46%	44%
Community hospital (standalone)	46%	47%	45%
Outpatient ambulatory services	6%	6%	6%
Other	3%	1%	4%
Total	100%	100%	100%

D3. How many patient beds (capacity) does your healthcare facility or organization have?	Overall	IT	Clinician
Less than 100	23%	18%	26%
101 to 300	30%	23%	35%
301 to 500	23%	30%	18%
More than 500	24%	29%	21%
Total	100%	100%	100%

D4. Regional location of the healthcare provider	Overall	IT	Clinician
Northeast	20%	19%	21%
Mid-Atlantic	18%	18%	17%
Midwest	18%	18%	18%
Southeast	13%	14%	12%
Southwest	12%	12%	12%
Pacific-West	20%	19%	20%
Total	100%	100%	100%

For more information about this study, please contact Ponemon Institute by sending an email to research@ponemon.org or calling our toll free line at 1.800.887.3118.

Ponemon Institute
Advancing Responsible Information Management

Ponemon Institute is dedicated to independent research and education that advances responsible information and privacy management practices within business and government. Our mission is to conduct high quality, empirical studies on critical issues affecting the management and security of sensitive information about people and organizations.

As a member of the **Council of American Survey Research Organizations (CASRO)**, we uphold strict data confidentiality, privacy and ethical research standards. We do not collect any personally identifiable information from individuals (or company identifiable information in our business research). Furthermore, we have strict quality standards to ensure that subjects are not asked extraneous, irrelevant or improper questions.