



# How Single Sign-On Is Changing Healthcare

A Study of IT Practitioners in Acute Care Hospitals in the United States

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## Sponsored by Imprivata

Independently conducted by Ponemon Institute<sup>LLC</sup>

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Ponemon Institute, June 2011

## Executive Summary

Ponemon Institute is pleased to present the results of *How Single Sign-On Is Changing Healthcare*, sponsored by Imprivata. The purpose of this research is to better understand the influence single sign-on (SSO) is having on clinician satisfaction, efficiency, security, and operating costs. This survey highlights the benefits that SSO can deliver to healthcare organizations, including:

- Time savings for clinicians and IT personnel
- Cost savings for hospitals as measured by employee productivity gains
- Overall increased security – reducing the potential for data loss or theft
- Increased adoption of electronic medical record applications
- Demonstration of meaningful use

Based on the research, we believe that SSO can provide substantial economic benefits for healthcare organizations that deploy these technologies successfully across the enterprise. We further believe that the need for SSO will increase as more healthcare providers reap the full benefits of electronic medical records.

Beyond cost issues, security is a major objective for healthcare organizations because of the sensitive and confidential patient data they collect and retain. In studies conducted by Ponemon Institute, insider negligence, such as sharing of passwords or leaving passwords in plain sight, puts patient data at risk. By having a strong authentication and access management, organizations can mitigate or reduce the incidence of a data loss. In addition, strong password authentication solution can reduce or eliminate the burdens helpdesk departments face when employees forget complex passwords.

In this study we extrapolate an economic value of more than \$2 million for the average healthcare provider that deploys SSO across the enterprise. Cost savings are based on minutes of time clinicians save, on average, every day through simplified access to mission critical applications and patient files. We then extrapolate a cost savings per clinician of \$2,675 per year.

Further, recent studies published by our Institute show data breaches are hitting the healthcare industry particularly hard. Specifically, the costs of a data breach for healthcare organizations are substantially higher than other industries studied.

### 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.

# How Single Sign-On Is Changing Healthcare

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## Part 1. Introduction

The US healthcare industry is undergoing a period of sweeping reforms designed to improve patient care and reduce costs through the adoption of electronic health records that is driven by the Health Information Technology for Economic and Clinical Health (HITECH) Act. In response, healthcare organizations are looking at how they can make their clinicians more efficient, reduce costs and provide greater security over the applications and data that contain sensitive and confidential patient information. One such solution that promises to enable these goals is single sign-on (SSO) technology.

Sponsored by Imprivata, Ponemon Institute is pleased to present the results of *How Single Sign-On is Changing Healthcare*. The purpose of this research is to better understand the influence (SSO) is having on clinician satisfaction, efficiency, security, and operating costs.

SSO automates the login process, enabling clinicians to login only once to their desktop in order to gain fast access to all their applications – removing clicks, keystrokes, and complex passwords. In light of rigorous data security requirements in the healthcare industry, SSO and authentication management are almost always deployed together. This combination is growing in popularity because, as shown in our study, it increases clinician productivity, reduces IT helpdesk calls, and strengthens security. As evidence of its acceptance, 80 percent of users would recommend SSO to others.

In terms of the ability of this technology to increase employee productivity, we posit that SSO used by medical staff and IT practitioners can result in major cost savings – for instance, an extrapolated value of more than \$2 million for the average healthcare provider that deploys SSO across the enterprise. Cost savings are based on 9.51 minutes of time clinicians save, on average, every day through simplified access to mission critical applications and patient files. We then extrapolate a cost savings per clinician of \$2,675 per year.

Finally, security is a major issue for healthcare organizations because of the sensitive and confidential data they collect and retain. In fact, data breaches are hitting the healthcare industry particularly hard. In the 2010 annual study on data breach cost for US organizations, we determined that the average cost of one lost or stolen record is \$214.<sup>1</sup> In the healthcare industry, the average cost is estimated to be \$294 per compromised record. In a recent benchmark study, we estimated that healthcare providers were incurring, on average, more than \$2 million every two years as a direct result of data loss or theft.<sup>2</sup>

In studies conducted by Ponemon Institute, employee negligence such as sharing of passwords or leaving passwords in plain sight puts an organization at risk of having a data breach. By having a strong authentication and access management, organizations can mitigate or reduce the incidence of a data loss. In addition, a strong password authentication solution can reduce or eliminate the burdens helpdesk departments face when employees forget complex passwords.

In this study, we surveyed a total of 404 individuals who work for healthcare organizations and who use SSO sign-on technology. All individuals were pre-screened and determined to hold bona fide credentials. No personally or company-identifiable information was collected by the researchers.

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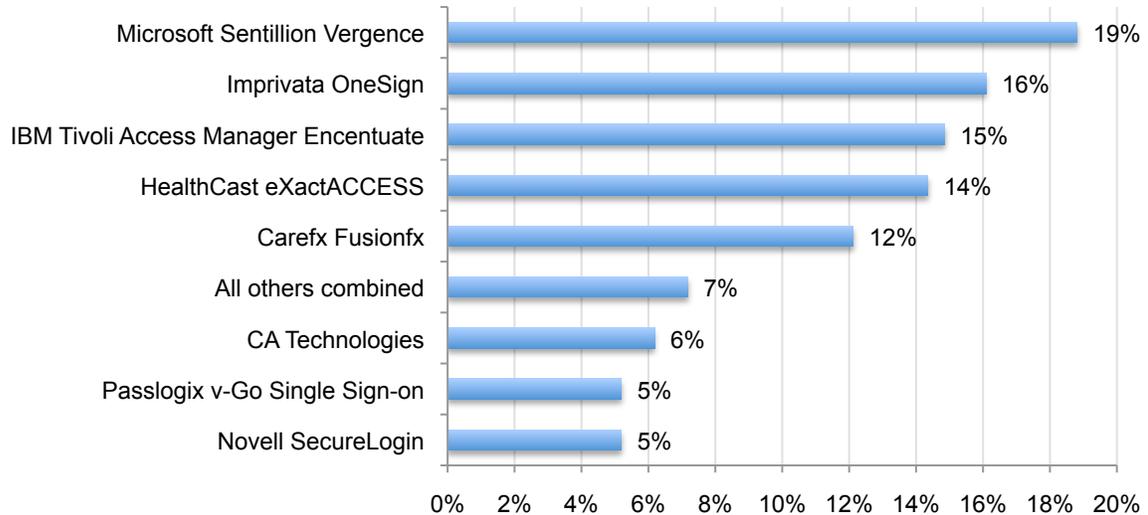
<sup>1</sup> See: [2010 US Cost of Data Breach](#) Ponemon Institute, January 2011

<sup>2</sup> See: [Benchmark Study on Patient Privacy & Data Security](#) Ponemon Institute, November 2010

All respondents are located in healthcare organizations such as private and public hospitals or integrated delivery healthcare systems. Most of the respondents work in IT functions such as IT operations, data security, compliance, quality assurance, network management, helpdesk operations and other core MIS functions.

The following bar chart shows eight (8) different providers of SSO solutions in the healthcare industry included in our analysis. The “other” category includes products or brands that have a smaller marketshare.

**Bar Chart 1: Percentage frequency of SSO solutions in healthcare organizations**



The next section provides survey details on the following issues:

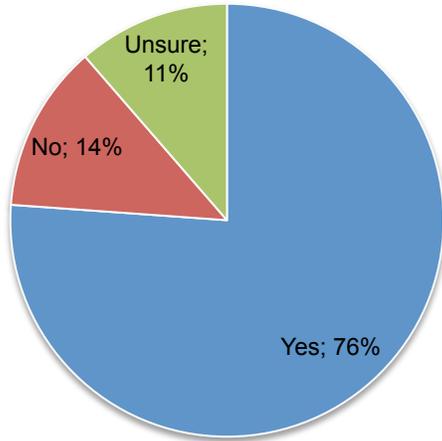
- The impact of SSO on clinician’s efficiency and satisfaction.
- The economic savings and value of SSO due to increased efficiencies.
- The impact of SSO on the security of user access to the healthcare provider’s critical applications and confidential data.

## Part 2. Key Findings

### Clinician Satisfaction & Efficiency

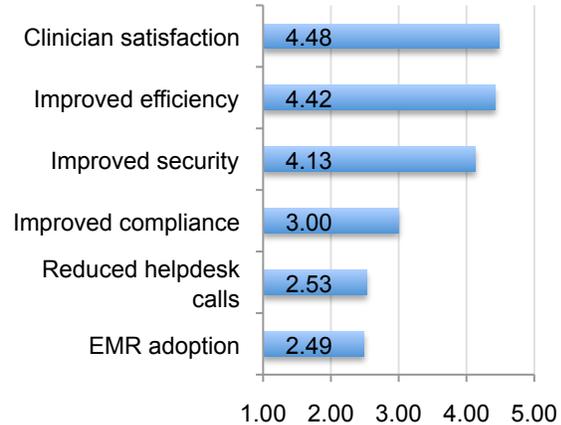
We believe SSO is shown to increase clinician satisfaction because, in part, it makes clinicians more efficient. We define efficiency as the total time and related cost savings experienced through the use of SSO versus other access methods or not using SSO at all.

**Pie Chart 1: Is SSO important to increasing clinician satisfaction?**



**Bar Chart 2: What are the primary reasons for using SSO within your organization?**

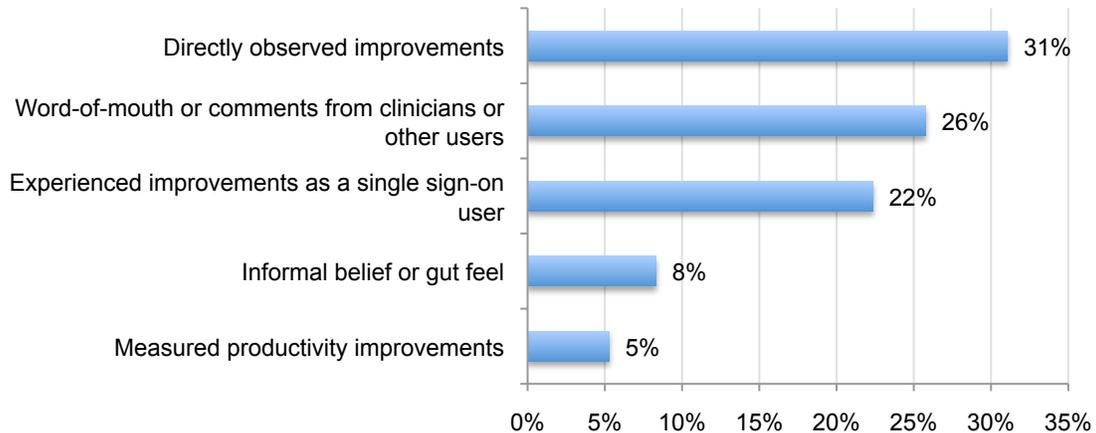
Rank from 6 = most to 1 = least important.



### **Clinician satisfaction can lead to improved performance, which also lowers costs.**

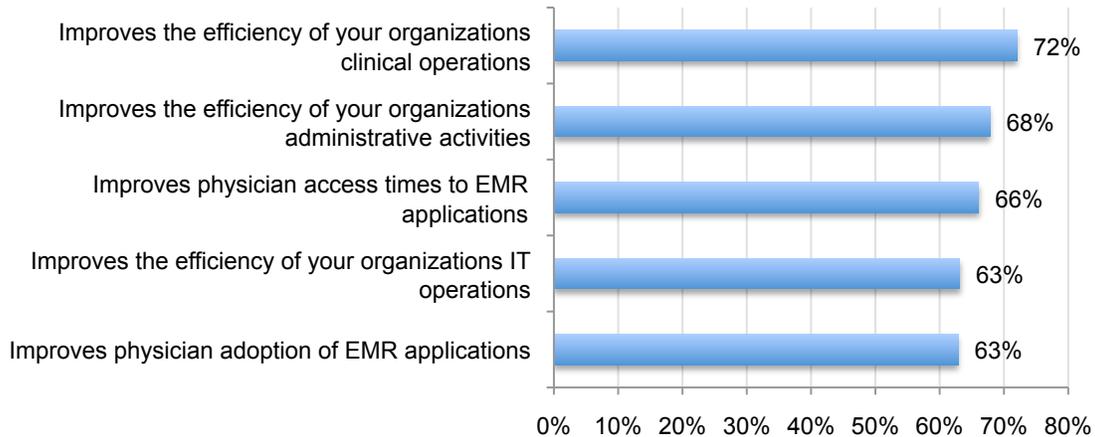
According to Pie Chart 1, SSO is important to achieving clinician satisfaction according to 76 percent of respondents. Bar Chart 2 shows clinician satisfaction and improved efficiency are the top two motivators for deploying SSO solutions in the healthcare environment.

**Bar Chart 3: Why single sign-on is believed to improve the efficiency of users**



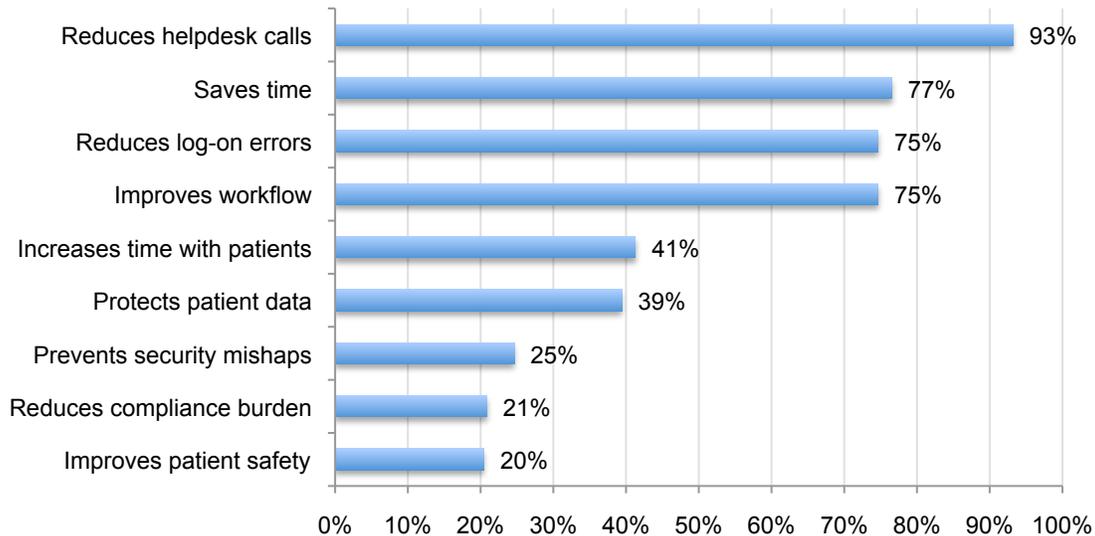
**Respondents believe it makes them and their organizations more efficient.** Eighty-three percent of respondents believe single sign-on simplifies access to applications and data (not shown in chart). Bar Chart 3 reports that 31 percent say they have directly observed or personally experienced efficiency gains using SSO, followed by word-of-mouth.

**Bar Chart 4: Does SSO improve healthcare operations?**



**Clinical, IT and administrative operations all realize improvements in efficiency as a result of SSO deployment.** Seventy-two percent of respondents believe clinical operations become more efficient with SSO (see Bar Chart 4). Similarly, 68 percent believe SSO increases the efficiency of administrative activities. Given the perceived improvements in clinical operations and access time to EMR applications, it is understandable why 63 percent of respondents state SSO improves the overall physician adoption of EMR applications.

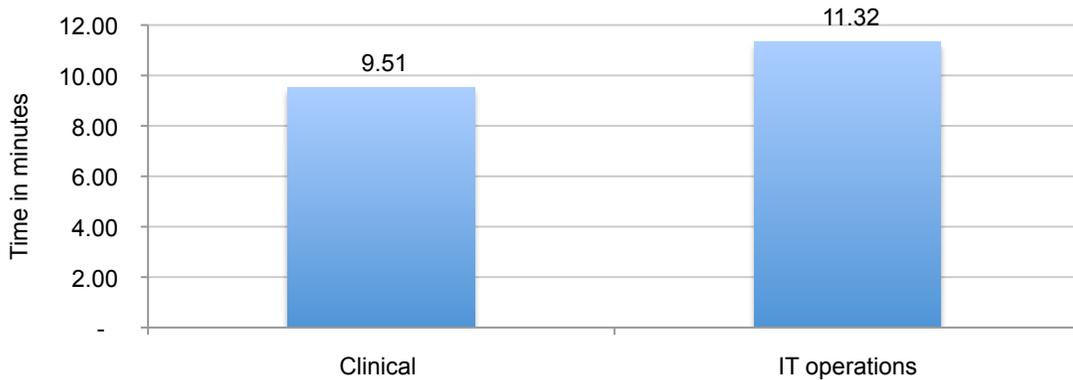
**Bar Chart 5: How does SSO improve efficiency?**



**Productivity is improved with SSO, enabling more time for patient care.** Bar Chart 5 shows reducing helpdesk calls (93 percent), saving time (77 percent), reducing log-on errors (75 percent) and improving workflow (75 percent) are the main benefits realized from SSO. Forty-one percent state that increasing clinician time with patients is another substantial benefit. While not shown in a chart, our study determined that before using SSO the average medical staff member had to remember between 6 to 7 separate passwords (points of authentication) in order to access mission critical applications and patient files on a daily basis.<sup>3</sup>

<sup>3</sup>We estimated that prior to SSO, clinicians had an average of 6.4 separate passwords to gain access to mission critical applications or patient files every day. The move from six separate authenticating tasks to one is the source of cost savings for healthcare organizations.

**Bar Chart 6: How much time in minutes does single sign-on save a typical member of your organization’s clinical staff or IT operations?**



Bar Chart 6 shows the extrapolated value in minutes of time saving as a result of using an SSO solution deployed in the healthcare environment. The extrapolated average time saving for clinicians who use SSO is 9.51 minutes per day. We then determine that the cost savings per clinician is \$11 per day or \$2,675 per year. The time saving for IT practitioners who use SSO is 11.32 minutes.

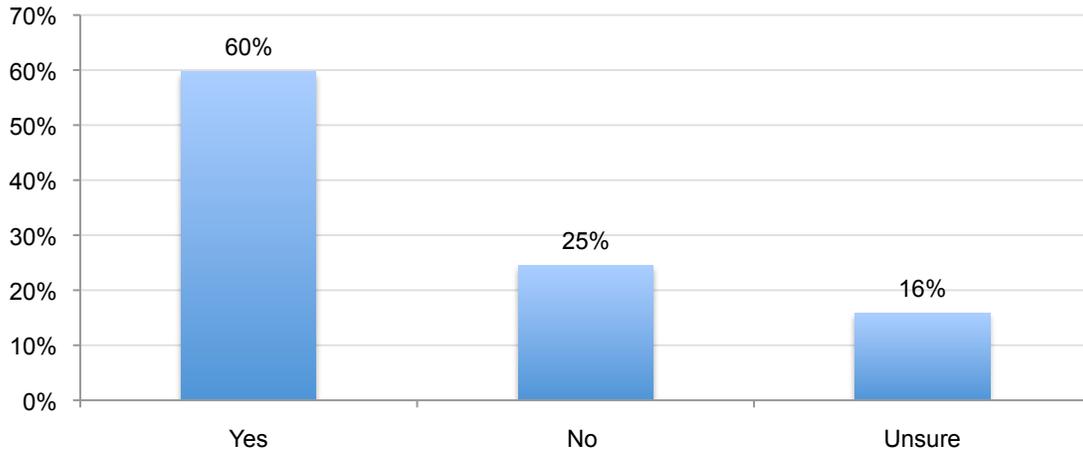
**Economic Savings & Value of SSO**

**Healthcare organizations reduce costs when using SSO.** We determined the cost savings as a result of SSO deployment. Using an extrapolation method, we calculated this economic impact to be significant. This analysis is summarized in Table 1.

<b>Table 1 Assumptions about cost savings for clinicians</b>	<b>Calculus</b>	<b>Total</b>
Average time saving for clinical staff every day (in minutes)	A = Survey	9.51
Average number of clinicians using single sign-on per study	B = Survey	767
Time savings for all clinicians per day in minutes	C = (A x B)	7,294
Extrapolated time savings for all clinicians per day in hours	D = (C / 60)	122
Cost of average clinical staff member per year	E = Estimate	\$135,000
Cost of average clinical staff member per day	F = (E / 250 days)	540
Cost of average clinical staff member per hour	G = (F / 8 hrs)	68
Cost savings for clinicians each day	H =(G x D)	\$8,206
Cost savings for clinicians each year	I = (H x 250 days)	\$2,051,485
Cost savings per clinician each year	J = (I / B)	\$2,675

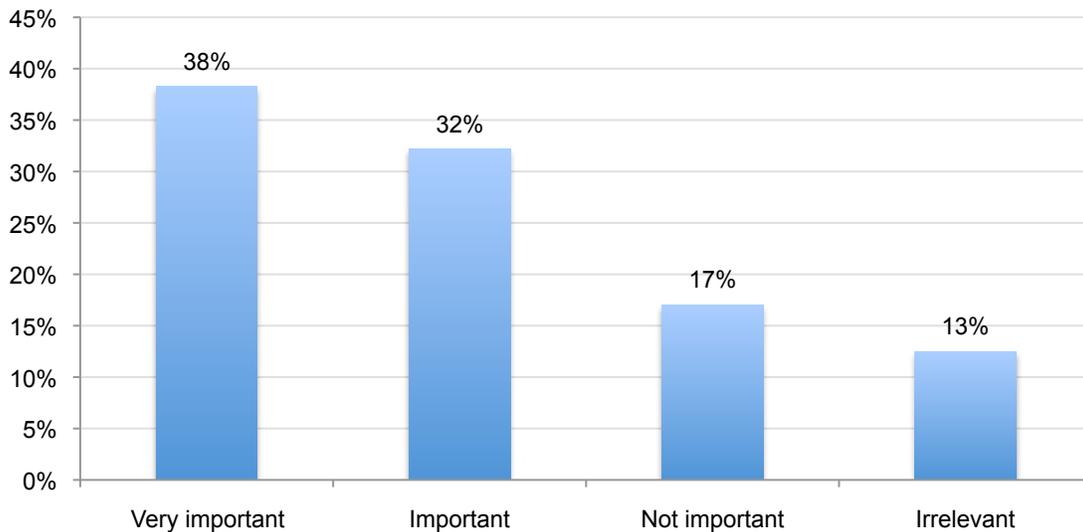
These extrapolated cost savings are based on how much time clinicians save by having simplified access to critical applications and data in the course of performing professional responsibilities or patient care. Our calculation of cost savings is based on the assumption that the user moved from a non-SSO environment to a fully integrated SSO environment (see footnote 3). *As such, we estimate cost savings of \$2,675 per clinician each year or a total annual savings of over \$2.0 million.*

**Bar Chart 7: Does SSO support your organization’s effort to demonstrate “meaningful use” of electronic medical records (EMR)?**



Bar Chart 7 provides evidence of another value that SSO provides healthcare organizations. Accordingly, 60 percent of all respondents believe SSO solutions support their organization’s effort to demonstrate “meaningful use” of electronic medical records and related information systems.<sup>4</sup>

**Bar Chart 8. How important is SSO to the adoption of electronic medical records and related systems within your organization?**



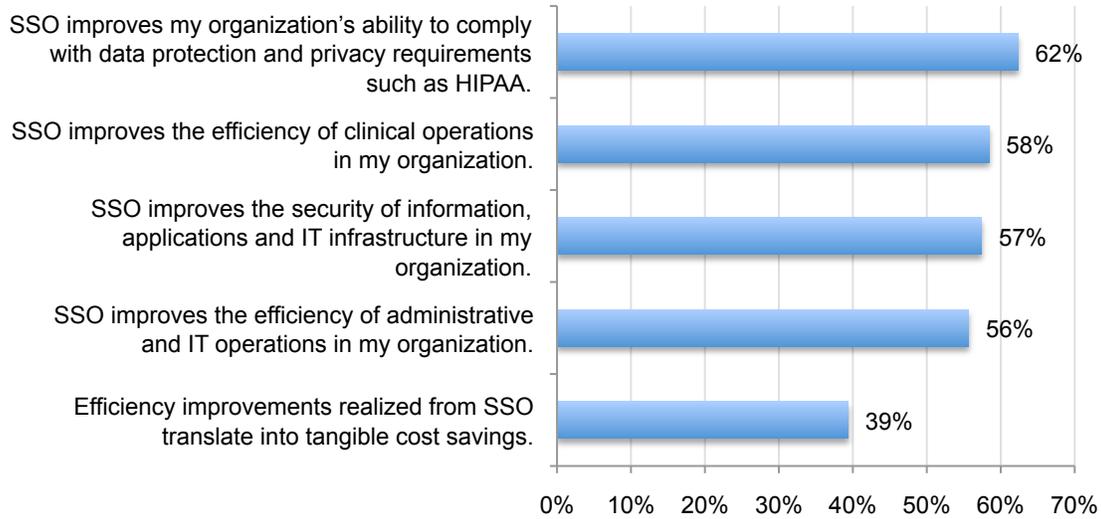
As noted in Bar Chart 8, 70 (38+32) percent believe SSO is either important or very important to the adoption of electronic medical records and related systems within their healthcare organizations.

<sup>4</sup>The Health Information Technology for Economic and Clinical Health (HITECH) Act (enacted as part of the American Recovery and Reinvestment Act of 2009) defines what healthcare providers need to show in order to qualify for Medicare and Medicaid electronic medical record (EMR) incentives for the meaningful use of certified EMR technology. By putting into action and meaningfully using EMR systems, healthcare providers receive financial incentives.

**Security of User Access**

**Bar Chart 9: Perceptions about SSO and its impact on healthcare organizations**

Strongly agree and agree response combined



**Enhanced password security can reduce costly data breaches.** Bar Chart 9 shows 57 percent of respondents believe SSO improves the security of information, applications and IT infrastructure within their organization. Sixty-two percent of respondents believe SSO improves their organization's ability to comply with difficult data protection and privacy requirements such as those espoused under HIPAA. Fifty-eight percent believe SSO improves the efficiency of clinical operations.

### Part 3. Methods

Table 2 summarizes the web-based sample response from IT practitioners located in U.S. healthcare organizations. Our sampling frame of 7,715 pre-screened individuals (all with bona fide credentials and all SSO users) resulted in 457 returned surveys. Fifty-three surveys were rejected based on reliability criteria, thus yielding a final sample of 404 respondents.

<b>Table 2 Sample response</b>	<b>Freq</b>	<b>Pct%</b>
Sampling frame	7,715	100.0%
Bounce-back	982	8.4%
Total returns	457	9.2%
Total rejections	53	1.1%
Final sample	404	8.1%

Table 3 reports the type of healthcare organization participating in this research. As shown, 46 percent of respondents work for private and 40 percent work for public healthcare providers.

<b>Table 3 Healthcare organization</b>	<b>Pct%</b>
Public healthcare provider	40%
Private healthcare provider	46%
Other	14%
Total	100%

Table 4 reports the operating structure of healthcare organizations. As can be seen, 39 percent of providers are standalone hospitals or clinics and 38 percent are part of a healthcare network.

<b>Table 4 Operating structure</b>	<b>Pct%</b>
Integrated delivery system	13%
Hospital or clinic that is part of a healthcare network	38%
Standalone hospital or clinic	39%
Assisted living facilities	5%
Other	5%
Total	100%

Table 5 shows the size of participating respondents' organizations based on the number of beds. Forty percent of respondents work for organizations with more than 500 beds.

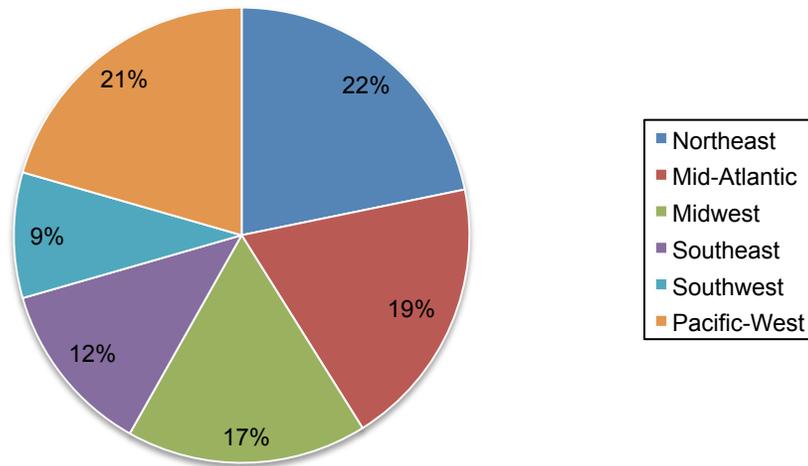
<b>Table 5 Number of beds (size)</b>	<b>Pct%</b>
1 to 200 beds	33%
201 to 500 beds	27%
501 to 1,000 beds	21%
More than 1,000 beds	19%
Total	100%

Table 6 reports the respondents' location within participating healthcare organizations. Fifty-seven percent of respondents work in IT operations. The remaining 43 percent work in other IT or administrative functions

<b>Table 6 Respondents' role or function</b>	<b>Pct%</b>
IT operations	57%
Other	13%
IT compliance	9%
CIO	5%
CISO/security	5%
Clinical IT	5%
IT director	3%
CMIO	1%
Nurse	1%
Physician	1%
Total	100%

Pie Chart 2 reports the distribution of respondents according to six U.S. regions. As can be seen, the largest regional segment is the Northeast (22 percent), followed by the Pacific-West (21 percent) and Mid-Atlantic (19 percent).

**Pie Chart 2: Distribution of respondents' organizations by U.S. region**



## Part 4. Conclusion

### 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 IT practitioners in healthcare organizations, resulting in a large number of usable returned responses. Despite non-response tests, it is always possible that auditors who did not participate are substantially different in terms of underlying beliefs from those who completed the survey.
- Sampling-frame bias: The accuracy is based on contact information and the degree to which the list is representative of individuals who use single sign-on technology. We also acknowledge that responses from paper, interviews or by telephone might result in a different pattern of findings.
- Self-reported results: The quality of survey research is based on the integrity of confidential responses received from respondents. While certain checks and balances were incorporated into our survey evaluation process, there is always the possibility that certain respondents did not provide responses that reflect their true opinions.

### Concluding Thoughts

In general, our independent research provides strong support for the proposition that SSO improves the efficiency of clinical, IT and administrative operations in healthcare organizations. Our findings also support the proposition that the proper use of SSO solutions across complex organizational workflows in healthcare will save time, improve security and increase end-user productivity – thereby decreasing overall operating costs.

Healthcare organizations are looking for ways to improve bottom-line performance especially in the wake of the rising cost of patient care and decreasing public resources. Our ability to extrapolate cost savings of \$2,675 per clinician demonstrates that SSO can help healthcare organizations achieve greater economic efficiencies.

Beyond cost issues, security is a major objective for healthcare organizations because of the sensitive and confidential patient data they collect and retain. In studies conducted by Ponemon Institute, insider negligence, such as sharing of passwords or leaving passwords in plain sight, puts patient data at risk. By having a strong authentication and access management, organizations can mitigate or reduce the incidence of a data loss. In addition, strong password authentication solution can reduce or eliminate the burdens helpdesk departments face when employees forget complex passwords.

An important opportunity is “meaningful use” of EMR and related information systems. In fact, we learned that approximately 60 percent of all respondents believe SSO solutions support their organization’s effort to demonstrate “meaningful use.” Thus, it is our opinion that enabling SSO technologies serve a very important and practical purpose in the healthcare industry.

## Appendix: Detailed Survey Findings

The following tables provide the percentage frequency of responses to our survey instrument completed in April 2011.

Sample response	Freq	Pct%
Total invitations	7715	100.0%
Bounce-back	982	8.4%
Total returns	457	9.2%
Total rejections	53	1.1%
Final sample	404	8.1%
Please select the primary single sign-on solution your healthcare organization uses today		
	Freq.	Pct%
Imprivata OneSign	65	16%
Microsoft Sentillion Vergence	76	19%
HealthCast eXactACCESS	58	14%
Carefx Fusionfx	49	12%
Novell SecureLogin	21	5%
IBM Tivoli Access Manager Encentuate	60	15%
Passlogix v-Go Single Sign-on	21	5%
Computer Associates	25	6%
Other	29	7%
Total	404	100%

### Part 1. General questions

Q1. Do you believe that single sign-on simplifies system users' access to applications and data in your organization?	Freq	Pct%
Yes	335	83%
No	56	14%
Unsure	13	3%
Total	404	100%

Q2. Do you believe that single sign-on increases the security of user access to your organization's applications and data?	Freq	Pct%
Yes	285	71%
No	64	16%
Unsure	55	14%
Total	404	100%

The Health Information Technology for Economic and Clinical Health (HITECH) Act (enacted as part of the American Recovery and Reinvestment Act of 2009) defines what healthcare providers need to show in order to qualify for Medicare and Medicaid electronic medical record (EMR) incentives for the meaningful use of certified EMR technology. By putting into action and meaningfully using EMR systems, healthcare providers receive financial incentives.		
Q3. Do you believe that single sign-on supports your organization's effort to demonstrate the "meaningful use" of electronic medical records (EMR) and related information systems?	Freq	Pct%
Yes	241	60%
No	99	25%
Unsure	64	16%
Total	404	100%

Efficiency is defined as the total time and related cost savings experienced by your organization by using Single sign-on versus other authentication methods or not using single sign-on at all.

Q4. What best describes how single sign-on improves the efficiency of your organizations clinical operations?	Freq	Pct%
Significant improvement	147	36%
Some improvement	144	36%
No improvement	113	28%
Total	404	100%

Q7. What best describes how single sign-on improves the efficiency of your organizations IT operations?	Freq	Pct%
Significant improvement	126	31%
Some improvement	129	32%
No improvement	149	37%
Total	404	100%

Q8. What best describes how single sign-on improves the efficiency of your organizations administrative activities?	Freq	Pct%
Significant improvement	87	22%
Some improvement	187	46%
No improvement	130	32%
Total	404	100%

Q5. What best describes how single sign-on improves physician adoption of EMR applications?	Freq	Pct%
Significant improvement	119	29%
Some improvement	135	33%
No improvement	150	37%
Total	404	100%

Q6. What best describes how single sign-on improves physician access times to EMR applications?	Freq	Pct%
Significant improvement	128	32%
Some improvement	139	34%
No improvement	137	34%
Total	404	100%

**Those who said no improvement go to Part 2**

Q9. How many applications used by clinicians, administrative personnel and IT staff (combined) within your organization utilizes single sign-on?	Freq	Pct%
1 to 10	48	18%
11 to 30	94	36%
31 to 50	46	17%
51 to 75	21	8%
76 to 100	16	6%
101 to 200	24	9%
More than 200	15	6%
Total	264	100%

Q10. Why do you believe that single sign-on improves the efficiency of system users within your organization?	Freq	Pct%
Informal belief or gut feel	22	8%
Directly observed improvements	82	31%
Experienced improvements as a single sign-on user	59	22%
Word-of-mouth or comments from clinicians or other users	68	26%
Measured productivity improvements	14	5%
Other	19	7%
Total	264	100%

Q11. For the typical clinician, how many separate passwords or pins were required to access critical applications and patient data by clinicians before implementing single sign-on?	Freq	Pct%
1 to 2	27	10%
3 to 6	158	60%
7 to 10	41	16%
11 to 20	26	10%
More than 20	9	3%
Cannot determine	3	1%
Total	264	100%

Q12. How does single sign-on improve the efficiency of system users in your organization? Please check all that apply.	Freq	Pct%
Saves time	202	77%
Improves workflow	197	75%
Improves patient safety	54	20%
Increases time physicians spend with patients	109	41%
Reduces log-on errors	197	75%
Reduces helpdesk calls	246	93%
Reduces the compliance burden	55	21%
Protects patient data	104	39%
Prevents security mishaps	65	25%
Other	11	4%
Total	1240	470%

Q13. How much time does single sign-on save a typical member of your organization's clinical (medical) staff every day?	Freq	Pct%
None	10	4%
1 to 2 minutes per day	39	15%
3 to 6 minutes per day	52	20%
7 to 10 minutes per day	41	16%
11 to 15 minutes per day	29	11%
16 to 30 minutes per day	24	9%
31 to 45 minutes per day	5	2%
46 minutes to 1 hour	2	1%
More 1 hour per day	1	0%
Cannot determine	61	23%
Total	264	100%

Q14. How much time does single sign-on save a typical member of your organization's IT staff every day?	Freq	Pct%
None	54	20%
1 to 2 minutes per day	37	14%
3 to 6 minutes per day	54	20%
7 to 10 minutes per day	21	8%
11 to 15 minutes per day	17	6%
16 to 30 minutes per day	10	4%
31 to 45 minutes per day	2	1%
46 minutes to 1 hour	6	2%
More 1 hour per day	14	5%
Cannot determine	48	18%
Total	265	100%

Q15. Approximately, how many months did it take for your organization to achieve payback on its financial investment in single sign-on? Please note that payback is defined as the sum total financial benefit or savings experienced by your organization by using single sign-on.	Freq	Pct%
1 to 3 months	5	2%
4 to 6 months	28	11%
7 to 9 months	26	10%
10 to 12 months	25	9%
More than 1 year	24	9%
Cannot determine	156	59%
Total	264	100%

Q16. How important is single sign-on to the adoption of electronic medical records and related systems within your organization?	Freq	Pct%
Very important	101	38%
Important	85	32%
Not important	45	17%
Irrelevant	33	13%
Total	264	100%

Q17. Is single sign-on important to increasing clinician satisfaction?	Freq	Pct%
Yes	201	76%
No	33	13%
Unsure	30	11%
Total	264	100%

Q18. How critical is single sign-on in relation to non-EMR applications (i.e., identity control access, security and others) that your organization deploys today.	Freq	Pct%
Single sign-on is more critical	20	8%
Single sign-on is equally critical	151	57%
Single sign-on is less critical	78	30%
Cannot determine	15	6%
Total	264	100%

Q19. Would you recommend single sign-on to other healthcare organizations?	Freq	Pct%
Yes	211	80%
No	53	20%
Total	264	100%

Q20. What are the primary reasons for using single sign-on within your organization? Please rank from 6 = most important to 1 = least important.		
Rank	Average	Order
Improved efficiency	4.42	2
Improved security	4.13	3
Clinician satisfaction	4.48	1
Reduced helpdesk calls	2.53	5
EMR adoption	2.49	6
Improved compliance	3.00	4

## Part 2. Attributions

Please rate the following statements using the strongly agree to strongly disagree scale.		
Q21a. Single sign-on improves the efficiency of clinical operations in my organization.	Freq	Pct%
Strongly agree	93	23%
Agree	143	35%
Unsure	110	27%
Disagree	38	9%
Strongly disagree	20	5%
Total	404	100%

Q21b. Single sign-on improves the efficiency of administrative and IT operations in my organization.	Freq	Pct%
Strongly agree	86	21%
Agree	139	34%
Unsure	96	24%
Disagree	56	14%
Strongly disagree	27	7%
Total	404	100%

Q21c. Single sign-on improves the security of information, applications and IT infrastructure in my organization.	Freq	Pct%
Strongly agree	87	22%
Agree	145	36%
Unsure	104	26%
Disagree	50	12%
Strongly disagree	18	4%
Total	404	100%

Q21d. Single sign-on improves my organization's ability to comply with data protection and privacy requirements such as HIPAA.	Freq	Pct%
Strongly agree	106	26%
Agree	146	36%
Unsure	102	25%
Disagree	31	8%
Strongly disagree	19	5%
Total	404	100%

Q21e. Efficiency improvements realized from single sign-on translate into tangible cost savings.	Freq	Pct%
Strongly agree	62	15%
Agree	97	24%
Unsure	194	48%
Disagree	31	8%
Strongly disagree	20	5%
Total	404	100%

### Part 3. Role & organizational characteristics

D1. What best describes your organization:	Freq	Pct%
Public healthcare provider	162	40%
Private healthcare provider	186	46%
Other	56	14%
Total	404	100%

D2. What best describes its operating structure?	Freq	Pct%
Integrated delivery system	52	13%
Hospital or clinic that is part of a healthcare network	152	38%
Standalone hospital or clinic	157	39%
Assisted living facilities	22	5%
Other	21	5%
Total	404	100%

D3. How many patient beds (capacity) does your healthcare facility or organization have?	Freq	Pct%
1 to 200 beds	134	33%
201 to 500 beds	109	27%
501 to 1,000 beds	83	21%
More than 1,000 beds	78	19%
Total	404	100%

D4. Organization's US regional location	Freq	Pct%
Northeast	88	22%
Mid-Atlantic	78	19%
Midwest	69	17%
Southeast	50	12%
Southwest	36	9%
Pacific-West	83	21%
Total	404	100%

D5. What best describes your role or function?	Freq	Pct%
IT operations	230	57%
IT compliance	38	9%
CIO	22	5%
CISO/Security	20	5%
Clinical IT	20	5%
IT director	12	3%
CMIO	3	1%
Nurse	3	1%
Physician	2	0%
CMO	0	0%
Other	54	13%
Total	404	100%

D6. Please select the range that best describes the number of clinicians (medical staff) who use single sign-on within your organization.	Freq	Pct%
1 to 10	7	2%
11 to 50	42	10%
51 to 100	59	15%
101 to 500	115	28%
501 to 999	64	16%
1,000 to 2,000	51	13%
More than 2,000	66	16%
Total	404	100%

## **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.