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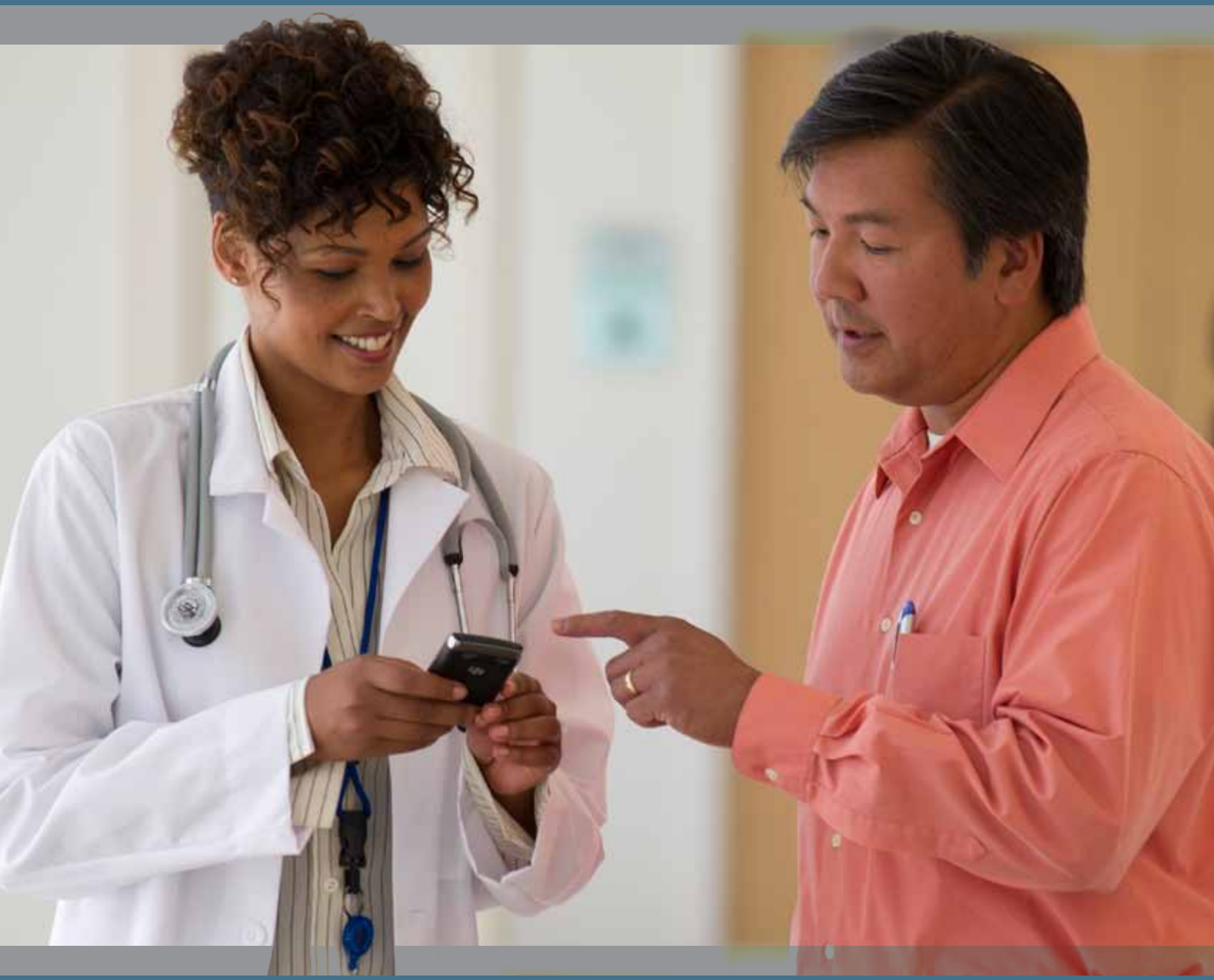
transforming healthcare

DECEMBER 5, 2011

2011 HIMSS Mobile Technology Survey



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2011 HIMSS Mobile Technology Survey

Final Report

December 5, 2011

For the first time in 2011, HIMSS explores the use of mobile technology to improve the access to the information needed on a day-to-day basis. The study was designed to collect information on a multitude of items related to mobile technology survey, including organizations' general use of mobile technology, access to patient data, means for securing information, and the benefits and barriers to the use of mobile technology.

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1. Executive Summary

A recently released study by the World Health Organization[1] indicates that the "use of mobile and wireless technologies to support the achievement of health objectives has the potential to transform the face of health service delivery across the globe", driven by a combination of factors. These include rapid advances in the development of mobile technologies and applications, growth in cellular networks and new opportunities to integrate mobile health into currently delivered services[2]. The expansion of mobile health (mHealth) technologies has expanded across a number of areas including the use of text messaging, apps and remote monitoring.

In order to facilitate mhealth adoption, the U.S. Department of Health and Human Services (HHS) has been actively involved in a number of mHealth initiatives. In addition, HHS has formed the Text4Health Task force, which was charged with providing recommendations to HHS Secretary Kathleen Sebelius, as well as to identify both ongoing mhealth initiatives and future projects that would promote mhealth[3].

Nearly all of the 164 respondents participating in the 1st Annual HIMSS Mobile Technology Survey, indicated that clinicians at their organization accessed information using a mobile device, with laptop computers and computers/workstations on wheels (COWs/WOWs) being most widely used. Additionally, a wide variety of other professionals, including executives and support staff are using mobile devices to perform their daily activities. At this time, only 38 percent of respondents noted that their organization has a mobile technology policy in place that regulates use of mobile devices and outlines the organizations mobile strategy. However, as many organizations plan to expand their use of mobile devices at their organization, so too are they going to develop policies; approximately half of survey respondents noted that their organization is in the process of developing a policy at this time and two-thirds of these respondents plan to have their new policies in place in the next six months.

Key survey results include:

Maturity of Mobile Technology Environment: Respondents characterized their environment at a middle rate of maturity, with an average score of 3.88 on a scale of one to seven, where one is not at all mature and seven is a high level of maturity.

Mobile Technology Policy: Existing mobile technology policies cover a wide variety of information, from tools needed to secure devices, use of personal devices for work purposes and the types and brands of mobile devices to be used at an organization.

Clinical Access to Data: Respondents were most likely to report that clinicians at their organizations use apps either to look up non-PHI health information (such as accessing clinical guidelines) or to view patient information. Respondents were much less likely to report that clinicians used their mobile devices to interactively record patient data.

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[1] Mhealth: New Horizons for Health Through Mobile Technologies. World Health Organization. 2011 http://www.himss.org/content/files/Code%20491%20-%20mHealth-New%20horizons%20for%20health%20through%20mobile%20technologies_WHO_2011.pdf Accessed November 22, 2011

[2] Mhealth: New Horizons for Health Through Mobile Technologies. World Health Organization. 2011 http://www.himss.org/content/files/Code%20491%20-%20mHealth-New%20horizons%20for%20health%20through%20mobile%20technologies_WHO_2011.pdf Accessed November 22, 2011

[3] HHS.gov website on mhealth. http://www.hhs.gov/open/initiatives/mhealth/ Accessed November 22, 2011

Access to Data from Off-Site Locations: Three-quarters of respondents indicated that their organizations allow clinicians to access clinical data via a mobile device using a public network with approved security, such as a VPN.

Benefits of Using Mobile Technology: Respondents were most likely to identify improved access to patient information and the ability to view data from a remote location as key benefits to the use of mobile technology at their organizations.

Barriers to Mobile Technology Use: Inadequate privacy and security was most frequently identified by survey respondents as a barrier to the use of mobile technology at their organization. When asked to identify the top concerns of reported to them by clinicians, respondents were most likely to report speed of accessing data.

Use of Personal Devices: Slightly less than half of respondents noted that their organization supports personal devices owned by the end-user but are enabled by the organization to support daily work activities.

Means for Securing Data on Mobile Devices: Most respondents offer a variety of methods for securing data on mobile devices at their organizations. Passwords are the most widespread security device in place.

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2. Profile of Survey Respondents

A total of 164 individuals completed this survey. Data was collected via a web-based survey in October and November of 2011.

In order to qualify to participate in this research, respondents were asked to answer a series of qualifying questions. Specifically, respondents were required to answer "yes" to at least one of the questions below.

- I am responsible for developing the organization's policy on mobile technology;
- I am a member of a committee that is responsible for developing the organization's policy on mobile technology; or
- I am responsible for ensuring that our mobile technology is implemented and operational.

Half of respondents indicated that they are responsible for ensuring that mobile technology is implemented and operational at their organization. Another 48 percent of respondents are part of a committee that is responsible for developing organizational policy for mobile technology. Forty-two (42) percent of respondents have direct responsibility for developing the organization's mobile technology policy. The majority of respondents (61 percent) reported that they have responsibility in only one of the areas identified above.

Respondents indicating that they played no role in the utilization of mobile technology at their organization were excluded from the data collection process. These respondents are not included in the 164 responses on which the analysis in this report is based.

Approximately half of the survey respondents (46 percent) indicated that they hold the title of Director of IT/IS at their organization. Another 27 percent of respondents reported their title to be Chief Information Officer (CIO). Three percent of respondents noted they were a Vice President of IT/IS. The remaining quarter of respondents hold a variety of other titles, including a Chief Medical Information Officer, Chief Information Security Officer, Analyst and manager-level IT positions.

Nearly half of respondents (44 percent) reported that they work at a stand-alone hospital. Another quarter (24 percent) work for a hospital that is part of a delivery system and 21 percent of respondents reported that they work at the corporate offices of their healthcare organization. Eight percent of respondents work for a medical practice/ambulatory facility. The remaining four percent of respondents work for other provider organizations such as nursing homes and military care facilities.

Among those respondents working for a hospital-based organization, two-thirds (68 percent) characterized their organization as a general medical/surgical facility. Forty-two (42) percent indicated that their organization included at least one critical access facility and one-third noted that the organization included at least one academic medical center/teaching hospital. One-quarter of respondents noted that their organization could be characterized as a specialty facility, which includes pediatric hospitals or cardiology hospitals.

All respondents were based in the United States.

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3. Mobile Technology Environment

Despite the fact that nearly all respondents reported that at least one group of professionals use mobile technology to perform their day-to-day activities, respondents characterize the maturity of their mobile technology environment as average.

Using a scale of one to seven, where one is not at all nature and seven is highly mature, respondents were asked to identify the level of maturity of their mobile technology environment. On average, respondents recorded a score of 3.88.

Nearly all of the respondents in this study (97 percent) reported that at least one group of professionals accessed information needed to perform their day-to-day activities using a mobile device. Among the five respondents that noted that mobile technology is not in place at their organization at this time, all but one reported that they expected to roll this type of technology out in the future.

At present, a majority of respondents (55 percent) noted that their organizations support only devices that are provided by and owned by the healthcare organization, while 41 percent support personal devices that are owned by the end-user but are enabled by the organization to support daily work activities.

4. Mobile Technology Policy

While about half of respondents noted that their organization taking federal policy and regulations into consideration with regard to their own policies, only one-third of respondents reported that they presently have a policy in place.

At present, slightly more than one-third of respondents in this study (38 percent) reported that they presently guide their organizations' mobile technology strategies through the use of a formal mobile technology policy. However, more than half of respondents (51 percent) reported that their organization is presently in the process of developing this type of policy. Five percent of respondents have no immediate plans to develop a mobile technology policy at their organization.

In addition, 41 percent of respondents noted that federal policies and regulations relating to mobile technologies and devices are being taken into consideration as organizations explore their own policies in this area. Another third of respondents (30 percent) indicated that their organization is in a "wait and see" mode. Ten percent indicated that their organization is being forced to develop a policy for the first time as a result of federal policies and regulations.

Respondents were asked to comment on a variety of items that were covered by their organization's mobile technology policy. In general, respondents noted that their policies were very inclusive of the types of mobile devices in place at their organization. The list below identifies the percent of respondents that indicated that a particular device type was addressed in their organizations' mobile technology policy.

- Smart Phones – 90 percent;
- Laptop Computers – 87 percent;
- Cellular Phones – 82 percent;

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- Tablet Computers NOT Designed for Healthcare – 71 percent;
- Computers/Workstations on Wheels – 69 percent;
- Tablet Computers Designed for Healthcare – 69 percent; and
- Pagers – 63 percent.

Nearly all mobile technology policies (92 percent) address how to secure devices. Respondents also widely noted (82 percent) that their organizations' policies address the use of personal devices for work purposes. Respondents were least likely to indicate that their organizations' policies included information about the brand and/or version of a device; this was selected by 39 percent of respondents.

Two-thirds of the respondents that reported that their organization is presently in the process of developing a mobile technology policy indicated that their policy would be in place within the next six months. Another quarter reported that a mobile technology policy would be in place at their organization in the next six months to one year.

As with the respondents that presently have a policy in place, those that are presently developing their policy plan to include guidelines regarding a wide variety of mobile devices. The percent of respondents that noted that their proposed policy would include a specific device type is noted below.

- Smart Phones – 94 percent;
- Laptop Computers – 89 percent;
- Tablet Computers NOT Designed for Healthcare – 88 percent;
- Tablet Computers Designed for Healthcare – 81 percent;
- Computers/Workstations on Wheels – 75 percent;
- Cellular Phones – 67 percent; and
- Pagers – 45 percent.

At least 90 percent of respondents noted that the following items will also be included in their organizations' mobile technology policies – means of security devices (94 percent); ability to access data from remote locations (94 percent) and use of personal devices for work use (90 percent). Respondents were least likely to indicate that their forthcoming policy will include guidance about brand/version of devices that are used; this option was selected by only 31 percent of respondents.

Only a handful of respondents have indicated that their organization does not presently have a mobile technology strategy and also have no plans to develop one in the future. Among the reasons given for this position include the small size of the organization, the ability to manage the mobile technology use through existing mechanisms such as the IT steering committee or the lack of a priority in this area. One respondent noted that while his organization does not presently have a plan in place for this type of technology, he realizes that it is probably only a matter of time until his organization is forced to address this issue.

5. Clinician Use of Mobile Technology

Nearly all respondents (93 percent) indicated that clinicians at their organization accessed information using a mobile device; laptop computers and computers/workstations on wheels (COWs/WOWs) are most widely used. Clinician use of tablet computers and smart phones is expected to increase in the future.

Respondents were asked to identify how interested clinicians at their facilities were in using mobile technology. The responses are shown in Table One below.

Clinician Interest	Percent
No Clinicians Express Interest	0.00%
Few Clinicians Express Interest	20.73%
Many Clinicians Express Interest	78.66%
Don't Know	0.61%
Total	100.00%

Table One. Interest of Clinicians in Using Mobile Technology

Indeed, when asked to identify the groups that are using mobile devices to perform their daily activities, 93 percent of respondents indicated that clinicians at their organization accessed information using a mobile device. More specifically, 89 percent of all respondents reported that physicians at their organization used mobile devices; 84 percent of respondents noted that non-physician clinicians used mobile devices.

Among those organizations that provide clinicians mobile devices to support their day-to-day activities, laptop computers and computers/workstations on wheels (COWs/WOWs) were used most widely (94 percent each). Other types of devices are in use as follows:

- Pagers – 77 percent
- Cellular Phones – 64 percent
- Tablet Computers Designed for Healthcare – 57 percent
- Smart Phones – 55 percent
- Table Computers NOT Designed for Healthcare – 42 percent.

Two-thirds of respondents indicated that their organization would be expanding the types of devices that they offer to their clinicians for use in their daily activities. Nearly three-quarters of respondents (71 percent) that do not presently provide tablet computers not designed for healthcare would do so in the future, as will approximately two-thirds of respondents (62 percent) that do not presently offer the use of smart phones to their clinicians. Future use of tablet computers designed for healthcare is also expected to grow, as 59 percent of respondents that do not presently offer this technology to their clinicians reported that they will do so in the future.

The majority of clinicians that use mobile technology access information using apps designed for that purpose. Among the respondents reporting that their clinicians use apps, respondents are most likely to use apps developed either by their HIT vendor or by a third party (69 percent and 68 percent respectively).

6. Access to Data on Mobile Devices

Respondents were most likely to report that they use apps on their mobile devices to access non-personal health information (PHI) such as clinical guidelines or to view patient information. Only one-quarter of respondents (28 percent) noted that their organizations permit the use of mobile devices that store patient information.

Nearly 90 percent of respondents indicate that clinicians at their organization access data using a mobile devices via an organization-approved on-site network. Three-quarters (77 percent) of respondents indicated that their organizations allow clinicians to access data using a public network with approved security, such as a VPN. Only four percent of respondents noted that their organizations do not allow clinicians to access clinical data using mobile devices.

Respondents were also asked to identify the purposes for which clinicians at their organizations used apps. The two areas in which respondents were most likely to indicate that they used apps were to look up non-PHI health information (such as accessing clinical guidelines) or viewing patient information. Respondents were much less likely to report that clinicians used their mobile devices to interactively record patient data. For instance, only 30 percent of respondents reported that mobile devices were used to collect data, such as vital signs, at the bedside. Table Two below outlines all of the areas in which respondents noted that clinicians at their organization used apps.

Use of Apps	Percent
Look up non PHI health information (i.e. access clinical guidelines)	83.54%
View patient information (i.e. view lab results or a digital image such as a CT-scan)	75.00%
Use for educational/training purposes	53.05%
Clinical notifications (i.e. laboratory personnel receiving notification of STAT labs)	50.00%
Tracking worklists (i.e. orders to be signed)	42.07%
Secure communication regarding patients (i.e. hand-off notes)	32.93%
Collect data at the bed side (i.e. vital signs)	29.88%
Analysis of patient data (i.e. EKG measures)	29.27%
Monitor data from medical devices (i.e. vital signs monitor)	26.83%
Use bar code reader on mobile device (i.e. mobile phone or iPad type device)	22.56%
Refer patients to the use of apps for health-related items	14.02%
Capture visual representation of patient data (i.e. camera or video recorder)	12.80%
Don't Know	2.44%
Other	2.44%

Table Two. Use of Apps By Clinicians.

Only 28 percent of respondents noted that the mobile devices used by the clinicians at their organizations retained patient-specific personal health information. Nearly two-thirds (62 percent) suggested that the devices used by clinicians do not retain this type of information.

7. Barriers and Concerns to Mobile Technology Use

Concerns about being able to maintain privacy/security of data and funding were most frequently identified as barriers to use of mobile technology. Clinicians are concerned about the speed of data access, privacy/security and screen resolution.

Inadequate privacy and security was most frequently identified by survey respondents as a barrier to the use of mobile technology at their organization; this was identified by 60 percent of respondents. Nearly half of respondents also identified lack of funding or

budget as a key barrier to the use of mobile technology. Respondents were least likely to note that lack of executive support was a barrier to the use of mobile technology at their organization. This was identified by ten percent of respondents. Two percent of respondents noted that there are no barriers to mobile technology use. A full list of barriers is shown in Table Three below.

Barrier	Percent
Inadequate privacy and security	59.76%
Lack of funding/budget tolls	48.17%
Lack of IT staff	39.02%
Challenges regarding wireless capabilities	35.98%
Lack of expertise on staff	27.44%
Clinician resistance to technology	19.51%
Doesn't fit into workflow	15.24%
Lack of executive support	9.76%
Don't know	2.44%
Other	9.15%
None	2.44%

Table Three. Barriers to Mobile Technology Use

Respondents also identified the areas in which the clinicians at their organization were most likely to express concern about the use of mobile technology for patient care purposes. This question used a one to seven scale, with one being no concern and seven being a high level of concern. With an average score of 4.90, speed of accessing data has the highest average score. However, the privacy and security of data (4.80) and screen resolution (4.78) had similar average scores. A full list of average scores is listed in Table Four below.

Area of Concern	Average
Speed of Accessing Data	4.90
Privacy/Security of Patient Data	4.80
Screen Resolution/Fidelity	4.78
Ability of IT to Support Device	4.31
Devices are Not Medically Durable	3.19

Table Four. Clinicians Concerns About Use of Mobile Technology

8. Benefits of Mobile Technology Use

Most frequently identified as a top benefit from the use of mobile technology were improved access to patient information and ability to view data from a remote location.

Respondents were asked to note the benefits that clinicians at their organizations shared with them about the use of mobile technology use.

Enabling clinicians to have improved access to view only patient information was most frequently identified as an area of benefit; this was identified by 80 percent of respondents. Also widely cited as an area of benefit was the ability to view data from a

remote location (71 percent). The only other option identified by more than half of respondents was improved access to reference information such as ePocrates or the Physician Desk Reference (69 percent). A full list of the benefits areas tested in this research is shown below in Table Five.

Benefits	Percent
Improved access to patient information (view only)	79.88%
Ability to view/interact with data from remote location	70.73%
Improved access to reference information (i.e. epocrates)	68.90%
Ability to enter/modify patient information using device	45.12%
Improved patient safety	37.80%
Ability to access clinical decision support tools	37.20%
Ability to streamline number of devices used by clinicians	33.54%
Don't Know	2.44%

Table Five. Benefits to Use of Mobile Technology by Clinicians

9. Securing Data on Mobile Devices

Most respondents offer a variety of methods for securing data on mobile devices at their organizations. Passwords are the most widespread security device in place.

Nearly all of the respondents (99 percent) indicated that their organization uses at least one mechanism to secure the privacy and security of data on mobile devices that are used to access clinical information. Additionally, 86 percent of respondents use multiple methods for securing the data on mobile devices throughout their organization.

Most widely used are passwords; 92 percent of respondents that use a security measure have password protected their devices. Three-quarters (73 percent) reported using data encryption measures, while more than half (52 percent) are using remote wipe capabilities. Respondents were much less likely to report using automated data disintegration and biometric authentication as a strategy to secure data on a mobile device. Each of these was used by less than 10 percent of respondents. The table below shows the data from all responses tested in this study.

Security Measure	Percent
Password protected	92.16%
Data encryption	73.20%
Remote wipe capability	52.29%
Automated data disintegration (data disappears after predetermined time)	10.46%
Biometric authentication	6.54%
Don't Know	3.27%
Other	2.61%
None	1.31%

Table Six. Measures Used to Secure Mobile Devices

10. About mHIMSS

mHIMSS is the globally-focused mobile initiative offered by HIMSS. As a cause-based, mission-driven 51-year old non-profit, HIMSS created mHIMSS as a platform for all stakeholders within the global mobile community to drive positive, transformational change in health and healthcare through the best use of IT. Our initiative is grounded in three co-equal areas of focus: technology, workflow, and data exchange as they relate to promoting health, improving the quality and safety of care, making care more accessible, and increasing the cost-effectiveness of care. mHIMSS builds on the existing HIMSS strengths of convening stakeholders, sharing knowledge, providing world-class education, public policy, research, and content - -entirely focused on mobile technologies, workflow, and data exchange.

mHIMSS is governed by the HIMSS Board of Directors, with strategic leadership provided by an advisory council and corporate roundtable. The advisory council and corporate roundtable are each comprised of stakeholders from all facets of the global mobile community. By harnessing the power, expertise, passion and commitment of volunteer members, mHIMSS provides timely and insightful content related to current issues, trends, and topics associated with mobile technologies and mHealth. To learn more about mHIMSS, please visit our website at www.mhimss.org.

12. How to Cite This Study

Individuals are encouraged to cite this report and any accompanying graphics in printed matter, publications, or any other medium, as long as the information is attributed to the 1st Annual HIMSS Mobile Technology Survey.

13. For More Information, Contact:

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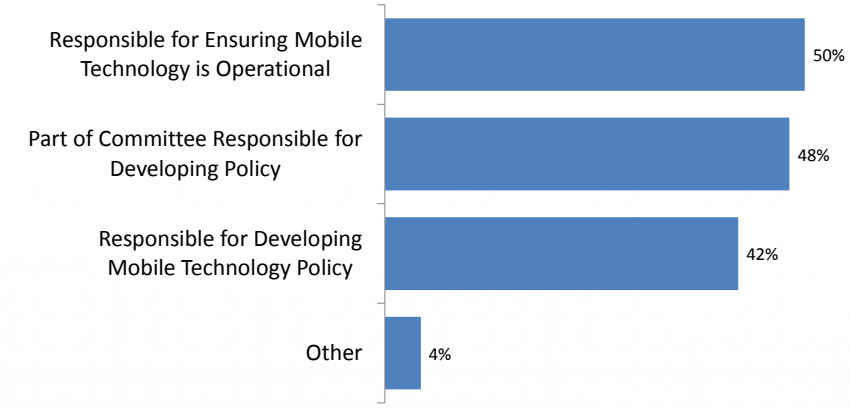
Appendix

Role in the Mobile Technology Environment



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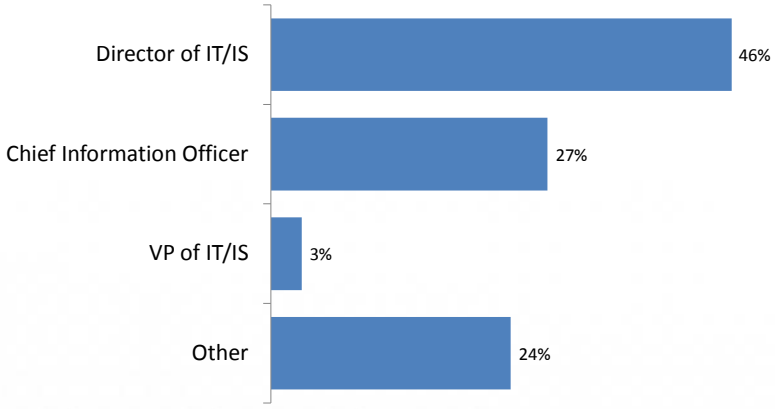
Respondent Title



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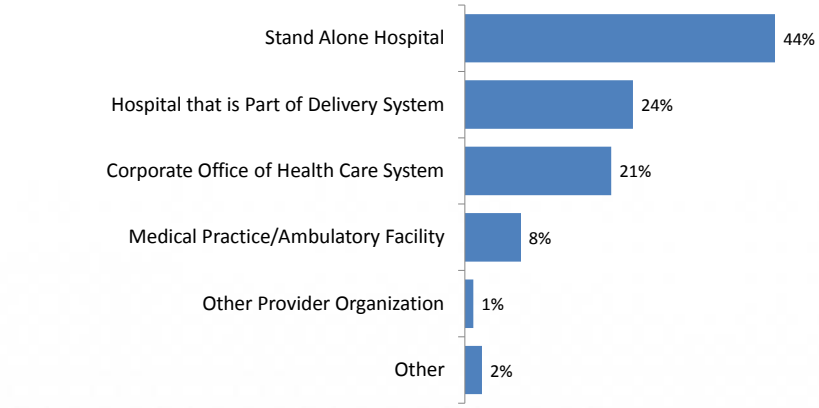
Respondent Facility



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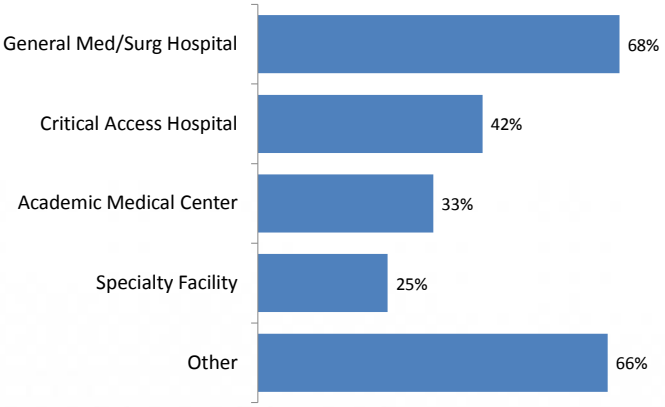

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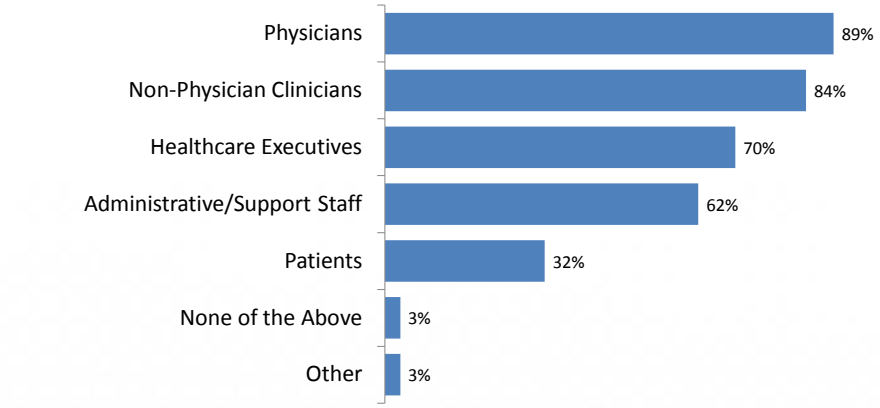
Professional Groups Using Mobile Devices



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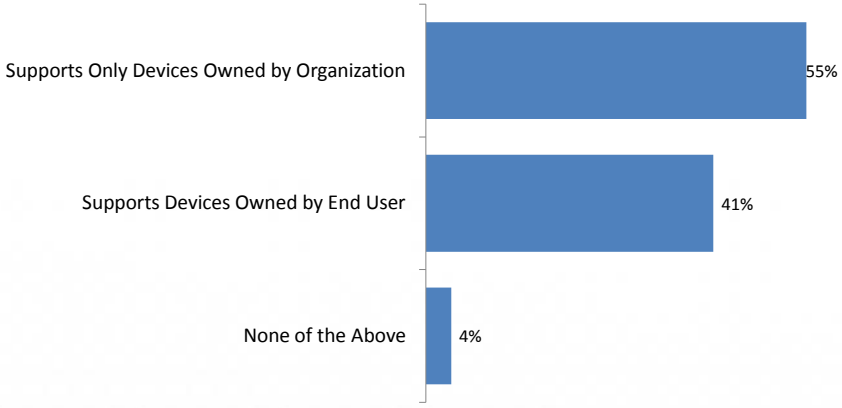
Organizational Support of Mobile Devices



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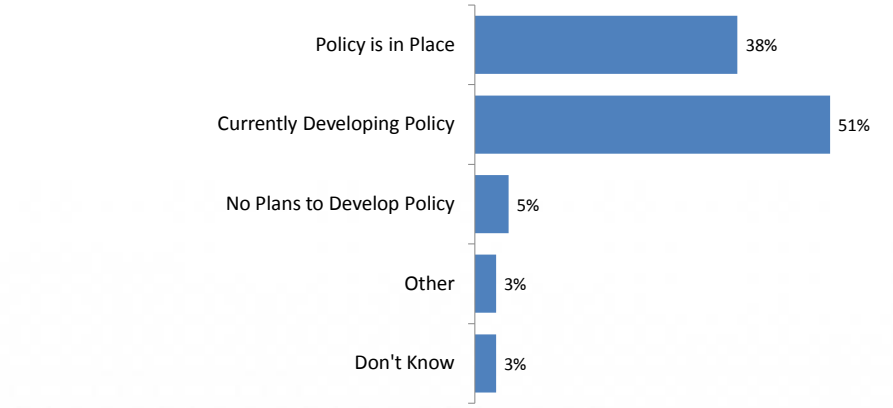
Mobile Technology Policy



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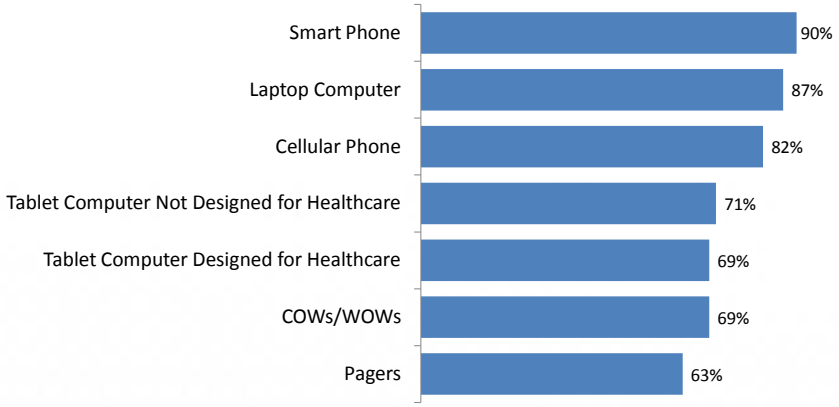
Devices Covered by Mobile Technology Policy



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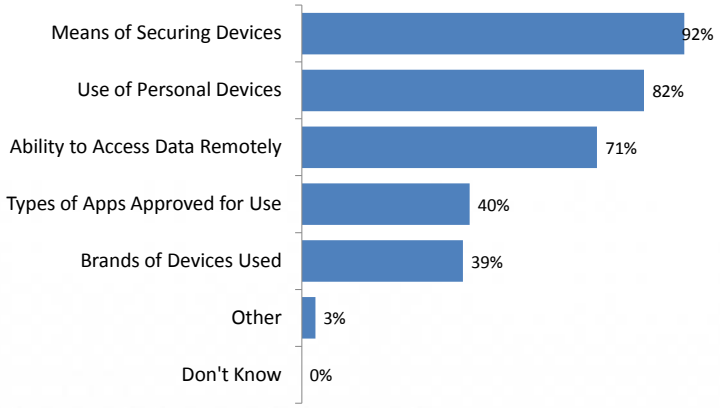
Areas Addressed by Mobile Technology Policy



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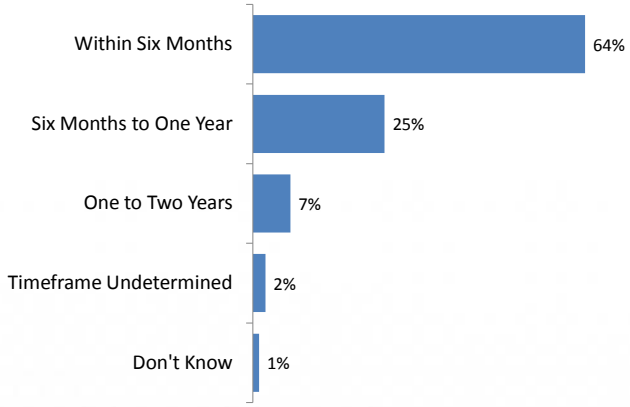
Timeframe for Implementing Policy



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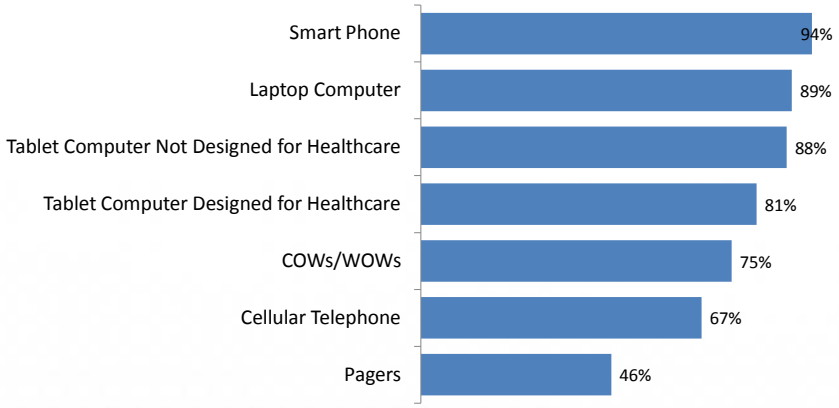
Devices Covered by Mobile Technology in Proposed Policy



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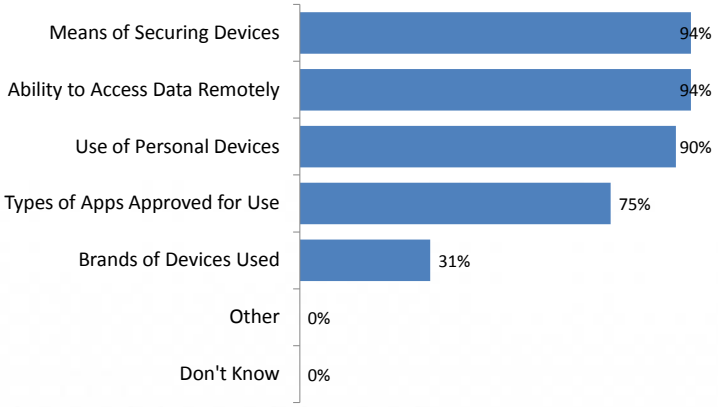
Areas Addressed by Mobile Technology in Proposed Policy



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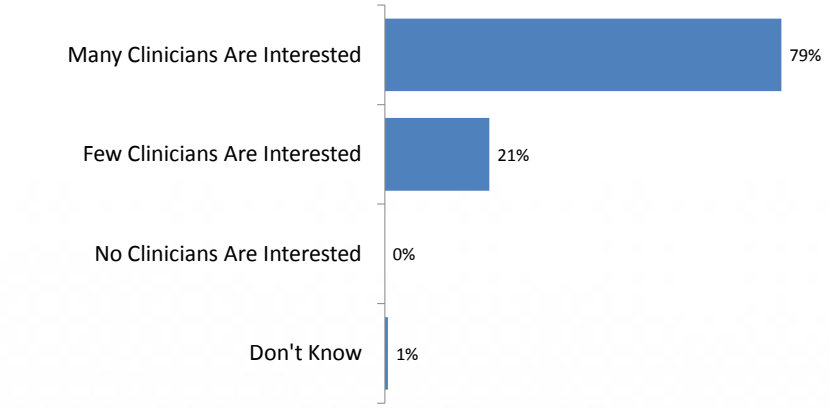
Level of Clinician Interest in Mobile Technology



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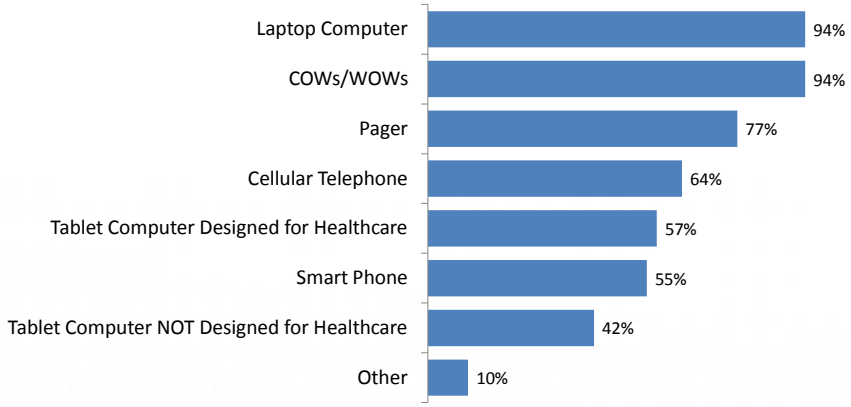
Mobile Devices Presently Provided to Clinicians



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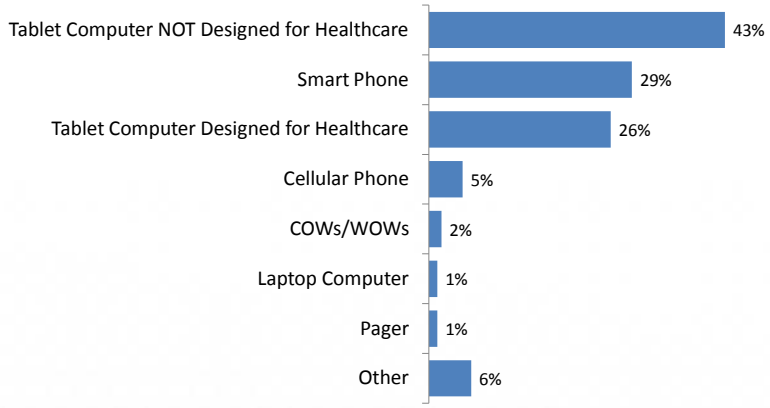
Mobile Devices Anticipated for Future Use by Clinicians



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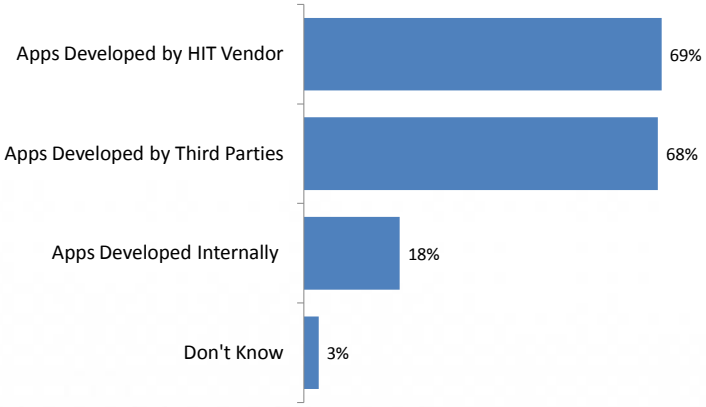
Types of Apps Provided to Clinicians



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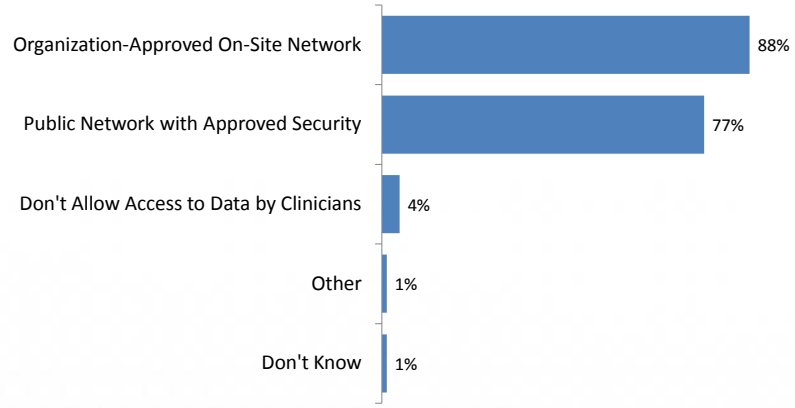
Locations From Which Clinicians Can Access Data Using Mobile Devices



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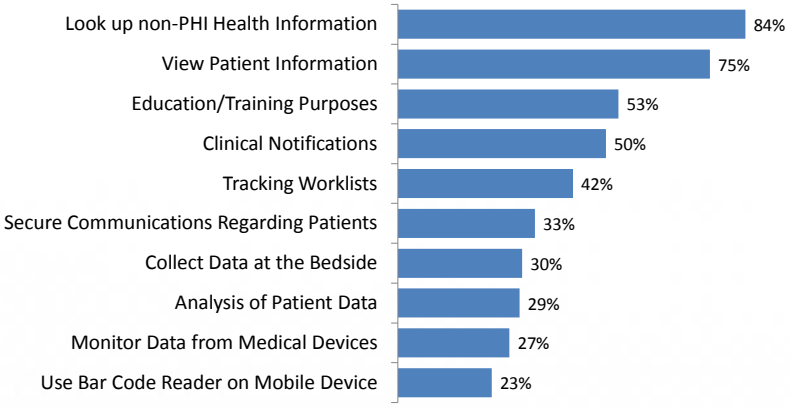
Clinician Use of Apps Top 10 Responses



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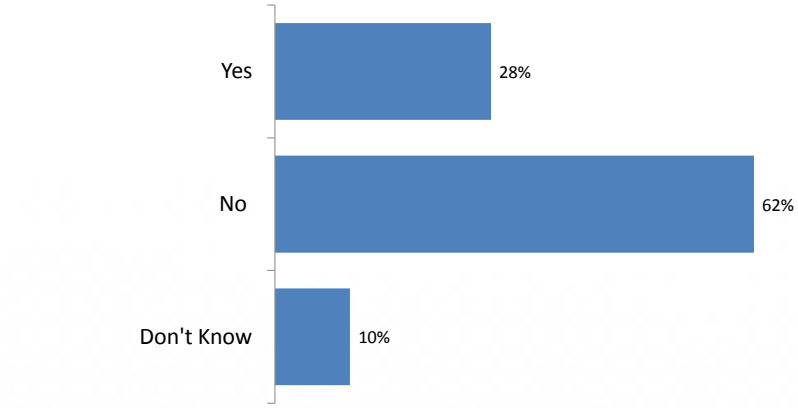
Mobile Devices Retain Patient-Specific PHI



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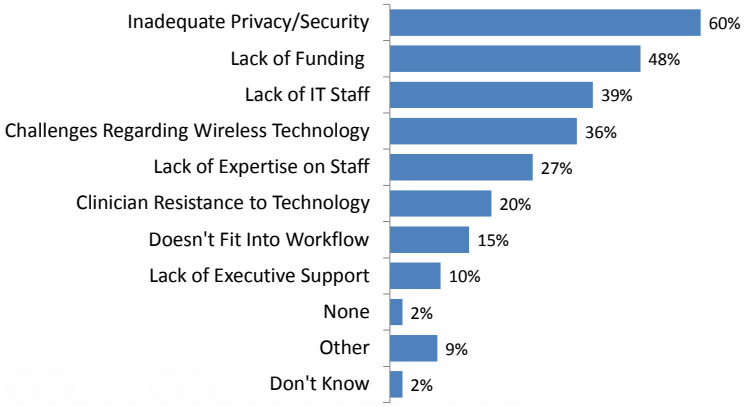
Barriers to Use of Mobile Technology



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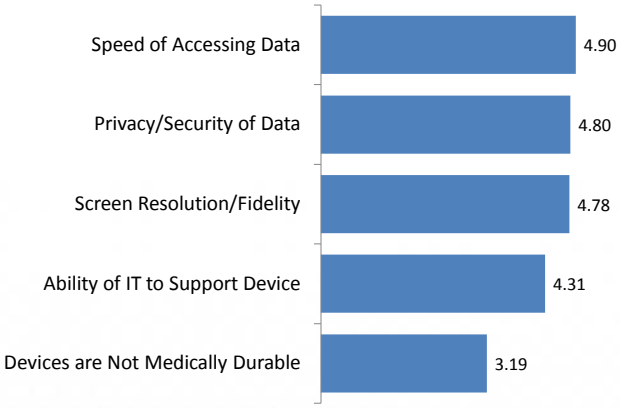
Areas of Clinician Concern Regarding Use of Mobile Technology for Patient Care



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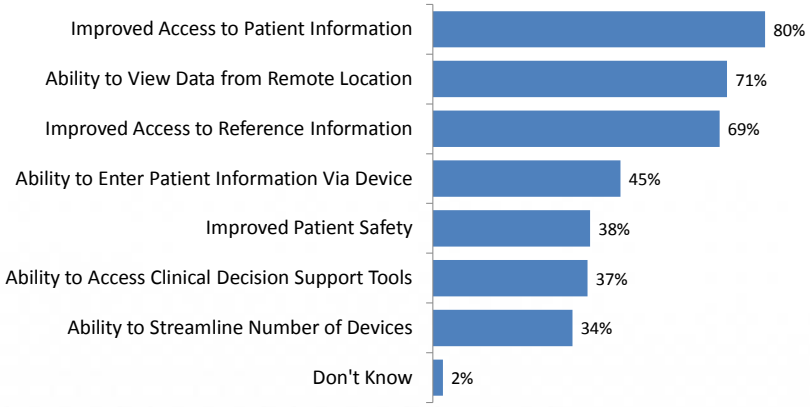
Benefits Identified with Use of Mobile Technology



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