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Physician adoption of health information technology:
Implications for medical practice leaders and business partners

Executive summary

Based on the Deloitte Center for Health Solutions 2013 Survey of U.S. Physicians

The adoption and systematic use of health information technology (HIT) in medical practices remains problematic for many U.S. physicians.

The push to increase adoption through regulatory requirements in the Health Information Technology for Economic and Clinical Health (HITECH) Act (2009)[1] has raised physicians' levels of awareness about electronic health records (EHRs). Health care reform-related programs requiring clinical integration (accountable care organizations, medical homes, bundled payments) have accelerated adoption. This has occurred as physicians accept more risk for cost-savings and patient outcomes. However, implementation and operational integration costs are major concerns to many physicians.

The Deloitte Center for Health Solutions 2013 Survey of U.S. Physicians* has found that most U.S. physicians…

- Believe that meaningful use (MU) holds promise for improved efficiency. In particular, primary care physicians (PCPs) perceive efficiencies through faster and more accurate billing and time savings through e-prescribing. Physicians working in accountable care organizations (ACOs) recognize improved care coordination and quicker access to clinical support (guidelines, lab reports, lab tests) as principal benefits.

- Think that major barriers to EHR adoption – costs and ease of operational integration – should be overcome for non-adopters to meet MU Stage 1 requirements. Some remain unconvinced: close to half of non-adopters have no current plans to introduce an EHR that meets MU criteria.
- Are slow to adopt online tools and digital health technologies in direct patient care.
- Do not use mobile health technologies – tablets or smart phones – for clinical purposes.

What is Health Information Technology?

Per the HITECH Act, "the term 'health information technology' means hardware, software, integrated technologies or related licenses, intellectual property, upgrades, or packaged solutions sold as services that are designed for or support the use by health care entities or patients for the electronic creation, maintenance, access, or exchange of health information."

Technologies may include:

- **Electronic health records (EHRs):** electronic systems that store digitized health records

- **Personal health records (PHRs):** similar to an EHR, except patients control information

- **E-prescribing:** electronic transmission of prescriptions from providers to pharmacies

- **Health information exchange (HIE):** interoperable data, infrastructure, and technology for the exchange of patient data

- **Analytics/decision support:** analysis that supports and assists clinicians in improved decision-making by providing evidence-based knowledge with respect to patient data

- **Patient support tools:** web sites, mobile apps, and devices for patients to track and manage health and wellness

- **Mobile health technologies:** tablets and smart phones allow providers mobile access to information instantly, help patients to understand and follow care regimens, allow for health education, and provide point-of-care decision support

Sources: HealthIT.gov. Basics of Health IT; HIMSS. Health IT Resource Library; and Analytics. Intelligent decision support in healthcare.

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* Background: This report presents physicians' current use and overall views of electronic health records (EHRs), patient support tools, and mobile health technologies from the Deloitte Center for Health Solutions 2013 Survey of U.S. Physicians. For more information about the survey methodology, please see the appendix. A companion report is available on health care reform and the future of the medical profession at www.deloitte.com/ centerforhealthsolutions. The Deloitte 2011 Survey of U.S. Physicians can also be found at www.deloitte.com/ centerforhealthsolutions.

Deloitte Center for Health Solutions

Our view

U.S. physicians who use HIT are optimistic about its prospects for better care and lower administrative costs once fully integrated. Physician non-adopters accept HIT as an inevitable requirement for practicing medicine in the future. However, they may be skeptical about clinical value and concerned about implementation costs. As a result, care coordination via cross-practice clinical data sharing is not widespread. And the clinical impact of HIT on population health outcomes is not readily apparent in many communities.

In our view, this skepticism is likely to change. Powerful market forces exerted by health plans and consumers are accelerating HIT adoption.

HIT adoption is expected to promptly move from Wave One – use for outcome improvement – to Wave Two – use for coordination of care in risk-sharing relationships with payers.

In Wave One, adoption for clinical and administrative improvements is likely to gain traction as the meaningful use of EHRs and data sharing results in error reduction and increased physician adherence to evidence-based practices. Both sets of results could be widely accessible to the public in coming years.

In Wave Two, HIT-enabled care coordination connecting patients and providers is expected. The catalyst being physicians working together in accountable care models to manage population health and share risk for savings and outcomes.

The adoption of HIT, therefore, remains a work in progress in many communities. Acceleration of adoption is more likely if local insurers, employers, and consumers tie their provider choices (narrow networks) to those using HIT effectively in clinical care coordination and administrative paperwork reduction. Otherwise, physicians may remain slow to adopt or limit their use rather than optimize HIT's potential to improve safety and outcomes, increase accuracy in diagnosing medical problems, reduce administrative costs, and engage patients (consumers) in meaningful self-care.

Those physicians who are early adopters of HIT, especially the full capabilities of certified EHRs, will potentially gain market advantages over time. Performance-based incentives used by Medicare and private plans require effective care coordination, demonstrated adherence to evidence-based practices, and technology-enabled patient interaction and administrative paperwork reduction. The return on investment from these market-based applications of HIT is expected to accelerate adoption and use of these tools. However, persuading physician non-adopters to "catch up" could be an issue for their business partners – hospitals, larger medical groups, accountable care collaborators, and health plans – with whom they share responsibility for improved care and efficiency.

Key findings

Impact of health information technology

Higher costs but better quality

The majority of all physicians believe that increased collaboration and improved care are potential positive effects of HIT:[2]
- 75 percent of all physicians consider that clinical capabilities are a major positive reason to collaborate with hospitals – higher among physicians employed in ACOs (89 percent) and those working in integrated systems (84 percent).
- 73 percent of all physicians believe that HIT will improve the quality of care provided in the longer term – higher among physicians with 10 or less years in practice (81 percent) and those in larger practices (80 percent of those with 10 or more physicians and 73 percent of practices with two to nine physicians).

However, 71 percent of all physicians believe that the promise of reduced costs resulting from increased use of HIT is inflated and that it will cost more, not less – higher among solo physicians (81 percent) and those not employed in ACOs (75 percent).[3] Also, six out of 10 of all physicians believe that the hospital-physician relationship will suffer as physician privileges are put at risk due to compliance with hospital standards for meaningful use.[4]

Electronic health records: use, benefits, and concerns

EHR use and adoption

Two-thirds of physicians report that their practice has an EHR that meets MU Stage 1 requirements. This number is higher for those working in an integrated system at 89 percent.[5] By contrast, EHR availability (practice has an EHR meeting MU Stage 1 requirements) is lower among physicians aged 60+ years (50 percent) compared with younger physicians (age 50-59, 67 percent; age 25-39, 71 percent; and age 40-49, 72 percent).

Practice size is a critical factor for adoption: only 31 percent of solo practitioners have an EHR system that meets MU Stage 1 requirements compared with 62 percent of mid-size practices employing between two and nine physicians and 82 percent of larger practices employing 10 or more physicians.

Among physicians in practices that do not have an EHR meeting MU Stage 1 requirements:[6]
- 32 percent say that their practice has plans within the next 12 months, and 23 percent say that their practice has plans sometime after the next 12 months, to introduce an EHR that meets meaningful use criteria.
- 45 percent of physicians say that their practice has no current plans to introduce an EHR that meets meaningful use criteria. The percentage is higher among solo practitioners (71 percent versus 32 percent among two-to-nine physician practices and 28 percent among 10+ physician practices).

A majority of physicians in practices that do not have an EHR meeting MU Stage 1 requirements say that the upfront financial investment (72 percent) and the additional burden to an already complex delivery process (70 percent) are the greatest barriers to EHR adoption, followed closely by ongoing maintenance costs (56 percent).[7] The upfront cost is the greatest concern among smaller practices of one (79 percent) or two to nine physicians (75 percent) versus larger practices of 10 or more physicians (46 percent).

Benefits of EHRs

Among physicians whose practice has an EHR meeting MU Stage 1 requirements, overall satisfaction with the EHR is 63 percent (15 percent say they are "very satisfied" and 48 percent say they are "somewhat satisfied").[8]

Based on their EHR experience, seven out of 10 physicians whose practice has an EHR meeting MU Stage 1 requirements think that the greatest EHR benefits are faster and more accurate service billing, time savings through e-prescribing, and improved communication and care coordination capabilities (Figure 1).[9]

Physicians working in ACOs, versus those not working in ACOs, are significantly more likely to think that improved communication and care coordination capabilities (75 percent versus 60 percent) are benefits of EHR use. Another significant benefit is patient care improvement through clinical guideline prompts/faster lab results (62 percent among physicians in ACOs compared with 47 percent among those not in ACOs).

Physician concerns with EHRs

Among physicians whose practice has an EHR meeting MU Stage 1 requirements, 67 percent – higher among non-surgical specialists at 71 percent – think (based on their experience to date with their EHR) that the time spent completing the EHR during an exam disrupts patient interactions.[10]

Nine in 10 physicians whose practice has an EHR meeting MU Stage 1 requirements say that their EHR captures patients' prescription medication use.[11] However, these same physicians also report the systems have limited ability to capture other products that patients may take to treat a health condition/problem or improve their health – over-the-counter medications (66 percent), vitamins or minerals (58 percent), herbal medicines or supplements (38 percent), or nutritional foods (consumed for presumed health benefit) (17 percent).

Figure 1. Benefits of EHR use (among physicians whose practice has an EHR meeting MU Stage 1 requirements and based on experience to date with their EHR)

Percent responding strongly agree or agree	Total	PCP	Surgical specialist	Non-surgical specialist	Other
Faster and more accurate billing for services	74%	80%	67%	77%	72%
Time savings through e-prescribing	67%	78%	64%	64%	71%
Improved communication and care coordination capabilities due to interoperability	67%	56%	64%	70%	76%
Clinical benefit due to immediately available data	59%	63%	53%	56%	77%
Cost saving by no longer managing and storing paper records	59%	66%	51%	58%	66%
Patient care improvement through clinical guideline prompts and faster lab results	56%	64%	49%	55%	63%
Practice or worksite efficiency increase	53%	61%	50%	51%	60%
Patient opportunity to submit information to their health record	41%	43%	42%	38%	51%

Patient support tools

Communication channels are underexplored

Engaging consumers using HIT is now a part of meaningful use requirements for consumer interactions, but the overall access to, or use of, patient support tools is low among all physicians (Figure 2):[12]

Figure 2. Access to, or use of, patient support tools (among all physicians)
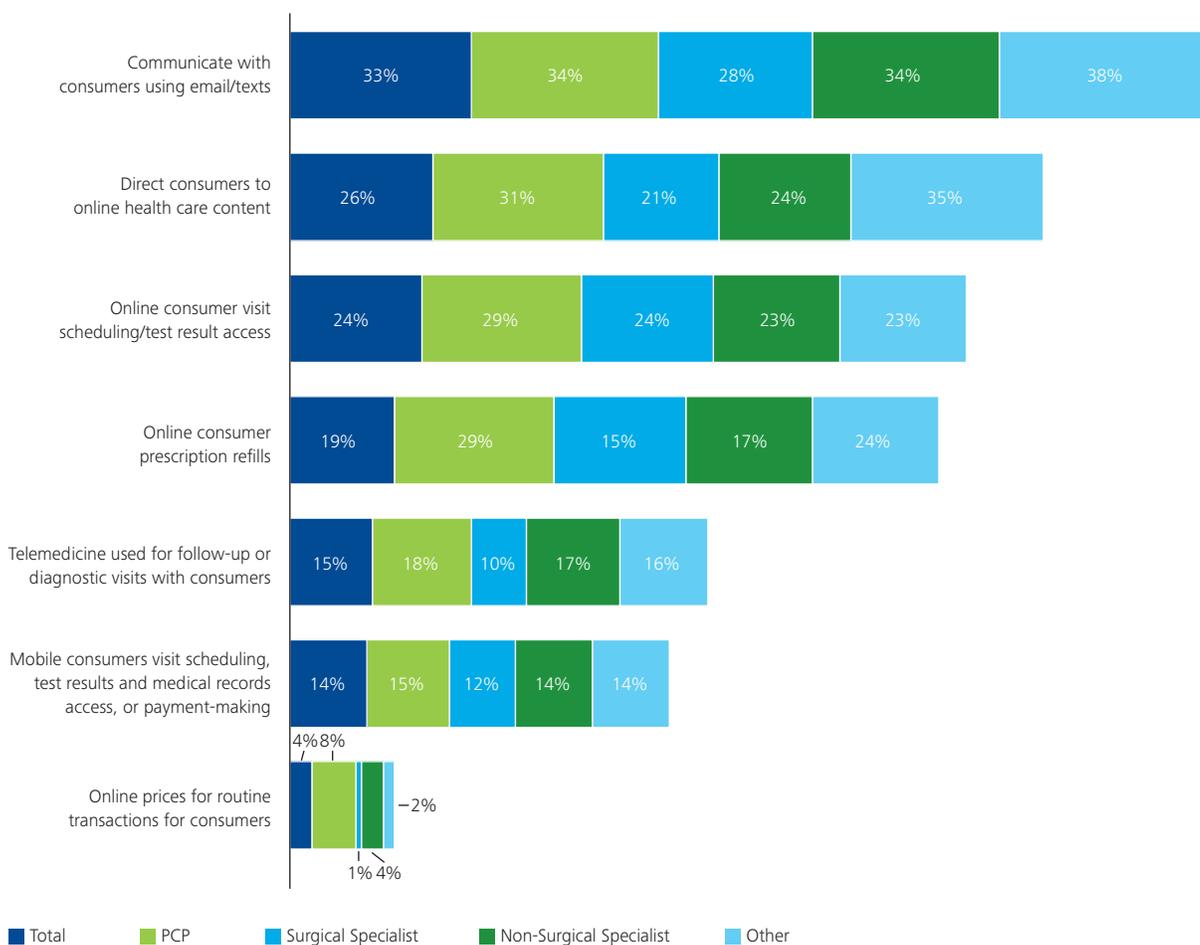
(Respondents could select more than one response)

More physicians in practices that have an EHR meeting MU Stage 1 requirements, compared with those that do not, use patient support tools (Figure 3).[13]

Figure 3. Use of patient support tools, by physicians in practices with an EHR meeting MU Stage 1

Use of patient support tools	Practice has an EHR meeting MU Stage 1 requirements (N=404; 66%)	Practice does not have an EHR meeting MU Stage 1 requirements (N=161; 26%)
Communicate with consumers using email/texts	37%	27%
Online consumer visit scheduling/test result access	31%	10%
Direct consumers to online health care content	30%	17%
Online consumer prescription refills	26%	5%
Mobile consumer visit scheduling, test results and medical records access, or payment-making	19%	2%
Telemedicine used for follow-up or diagnostic visits with consumers	18%	10%
Online prices for routine transactions for consumers	5%	1%

Mobile health technologies

Mobile technologies interest physicians but are as yet untapped

Mobile health technology could be a "valuable partner in health care's shift towards a delivery model that is patient-centered and value-based."[14] Yet, nearly six in 10 physicians are non-users and don't employ mobile health technologies – tablets or smart phones – for clinical purposes, such as accessing EHRs, e-prescribing, and communicating with other health care professionals.[15] Non-users cite failure of the worksite to provide such devices, and unwillingness or inability to use their personal devices, (44 percent) as a major limitation, more so than concerns about patient privacy (29 percent) or that the applications (apps) and programs are not suited to their needs (26 percent) (Figure 4).[16] In the near future, however, one in five (22 percent) non-users intends to use mobile health technologies.

Practices also tend not to have mobile capabilities – only 14 percent of all physicians report that mobile consumer visit scheduling, test results and medical records access, or payment-making, are available at their practice (Figure 2).

Figure 4. Reasons for not using mobile health technologies (among non-users)

Users 43%, Non-users 57%. Work-setting does not provide and unwilling to use personal device 44%. Concerned about patient privacy 29%. Apps and programs not suited to physician-needs 26%.
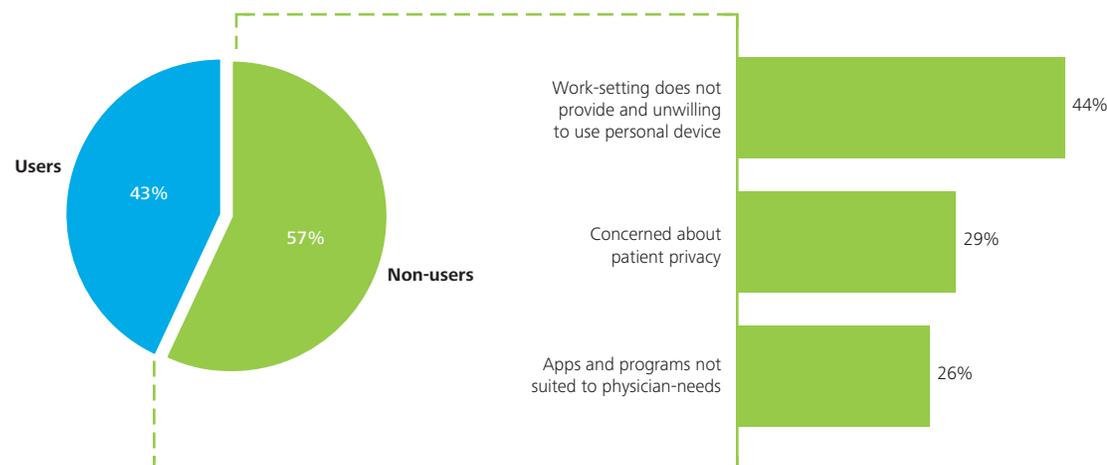
Key implications for physicians and their business partners

HIT in its many forms is the keystone of health care system transformation. It is the requisite toolkit whereby clinicians, care teams, and their patients are likely to effectively participate in models of care that reward value over volume and capture data required in public performance reporting. There are two key elements for effective HIT use in patient-centered care models and achieving quality performance standards:
• a comprehensive HIT strategy centered around shared EHR use by a team of clinicians, and
• a comprehensive strategy for managing targeted populations of patients leveraging technologies and social media to increase adherence to appropriate treatments and optimize outcomes.

EHRs are foundational to HIT – an essential tool to help coordinate treatment across multiple practitioners and settings, reduce redundancy in diagnostic testing, improve accuracy of diagnosis, and monitor patient outcomes. EHRs combined with patient support tools, like online coaching and PHRs, could equip providers with resources to navigate payment models where they assume risk for better care at lower costs. Mobile health technologies could add better versatility for clinical purposes (such as increased diagnostic capabilities, remote and point-of-care data access, and remote care and monitoring) and consumer engagement.

Implementation of an HIT strategy by physicians acting independently or with business partners requires careful consideration of these factors:

HIT strategy – A comprehensive strategy focused on which business partners, clinical populations, and outcomes are sought is requisite at the start. Otherwise, HIT efforts could become patchwork. *Key questions: What are we trying to do? What is the long-term goal?*

Assembling the right team – If organizational focus is exclusively on chronic care populations then the cadre of required clinicians and health professionals is distinct. If the focus is on acute care, or accountable care and bundled payment programs, then a broader group of specialists, hospitals, and post-acute providers is required. *Key question: With whom should we share data and performance risk?*

Capable physician leadership – Experienced early-adopter physicians are essential to widespread HIT adoption and systematic use of HIT. Skeptical physicians are likely to be more readily influenced by peers with credible firsthand clinical experience using HIT. *Key questions: Do we have the right physician leaders to carry the torch on HIT adoption? Are they equipped to lead?*

Adequate HIT infrastructure capital – The HIT journey is expensive, and costs go beyond vendor contracts for hardware, software, and technical support. The lion's share of costs is operational - in particular, eliminating the major drivers of avoidable costs, such as redundant processes and paperwork, quickly and without disruption. *Key questions: How much capital is needed to acquire and implement the HIT strategy? Is it worthwhile to consider a business partner to lower implementation risk, or co-invest? How should business relationships be structured so as to comply with self-referral, transparency, and other regulatory requirements?*

Effective operational integration – Investment in HIT is often suboptimized by poor execution or ill-conceived expectations. Care teams should be trained to efficiently integrate HIT into care and cost management. Focus on learning and skill development. Consolidate implementation and reduce operational errors with ongoing training and help-desk support. Conduct root-cause analyses to standardize operational procedures to reduce variation. Reward adherence to procedures to improve the usefulness of HIT across the organization. HIT and EHRs are complex tools. Raising physician awareness of the full extent of the capabilities of the EHR system, focusing on "what's in it for me," may go a long way towards fostering adoption and use. HIT and EHRs are complex tools. Raising physician awareness about the full extent of the capabilities of the EHR system by focusing on "what's in it for me" may go a long way towards fostering adoption and use. *Key questions: Is the implementation of our HIT strategy efficient, focused, and effective? Is the implementation process carefully monitored and are adjustments made based on ongoing, objective analysis of results?*

Data – "What gets measured gets improved." The final element of an HIT strategy is analytics – capturing the relevant data, structuring actionable dashboards and alerts, and converging data from one community of providers with others. Transparent reporting of clinical outcomes, patient experiences, and costs is increasingly required and dependent upon higher levels of data granularity. Policies and procedures to help ensure privacy and security of personal health information – both within the organization and with business associates – are critical. *Key questions: What types of information (data) are needed to manage the clinical enterprise at the practice level, shared risk pool level, and for external reporting to payers and regulators? What is the correct process for gathering, storing, and managing the data? What external data sources are required to assist in high-quality performance?*

Given these considerations, some physicians are expected to seek business partners for HIT deployment, while others may take an independent route. Regardless, HIT underpins the future health care system and is a required tool for physicians. While apprehension may be understandable, inaction is not an option.

Appendix: About this research

Starting in 2011, the Deloitte Center for Health Solutions has annually polled a nationally representative sample of the U.S. physician population to understand perspectives and attitudes about health care.

In 2012, a random sample of U.S. primary care and specialist physicians was selected from the American Medical Association's (AMA) master file of physicians. Invitation letters describing the nature of the survey were mailed to physicians via postal mail. Those interested in participating were directed to a website where the questionnaire was completed online. A completion incentive that varied by respondent specialty was offered. Six-hundred-thirteen physicians completed the survey, achieving the target quota. Data reflect the national distribution of physicians in the AMA master file by years in practice, gender, region, and medical specialty. The margin of error is +/- 3.89 percent at the .95 confidence level.

Survey sample composition

	PCPs	Surgical Specialist	Non-surgical Specialist	Other*	Total
Total # of completed surveys	146	142	197	128	**613**
Total invitation letters mailed					
# of letters mailed	3,245	5,183	7,256	4,788	**20,472**
# of post office-returns	56	114	143	198	**511**
Additional Information:					
# of surveys completed over quotas	7	133	225	64	**429**
# of incomplete surveys	12	9	15	20	**56**
# of ineligible surveys	5	12	10	11	**38**

* Other physician type includes: Anatomic/Clinical Pathology, Occupational Medicine,
Public Health and General Preventive Medicine, and Other (i.e., some other specialty not listed).

Endnotes

Survey questions and literature references presented in this brief

1   Health Information Technology for Economic and Clinical Health (HITECH) Act: Signed into law in February 2009, the Act promotes the implementation, application, and meaningful use (MU) of health information technology (HIT) to improve health outcomes. The Act includes incentives for providers who adopt certified EHR and meet MU criteria between 2011 and 2015 (penalties thereafter for failure to achieve MU). There are three stages for meeting MU requirements: Stage 1: Data capture and sharing (2011-2012); Stage 2: Advance clinical processes (2014); and Stage 3: Improved outcomes (2016). (Sources: Morris M, Obey T, Doty B. *HITECH at a glance.* Deloitte. 2010; U.S. Department of Health and Human Services, Office of the National Coordinator for Health Information Technology. *How to Attain Meaningful Use.* Cited 2013 Apr 7. Available at: http://www.healthit.gov/providers-professionals/how-attain-meaningful-use).

2   "Information technologies that facilitate sharing of clinical and administrative data across practices and between labs, hospitals, and other facilities, are a central focus of health system changes. Please indicate your level of agreement with the following statements about the potential effects of HIT."

3   ibid.

4   ibid.

5   "Does your primary practice or work-setting have/use electronic health records (EHR) that meet meaningful use (MU) Stage 1 requirements to manage clinical information about patients? Per the Health Information Technology for Economic and Clinical Health (HITECH) Act, providers and hospitals can qualify for Medicare or Medicaid incentive payments if they adopt and meaningfully use certified EHR. Stage 1 required eligible providers including physicians, community hospitals, and critical access hospitals (CAHs) to collect data electronically and provide patients with electronic copies of their health information."

6   "Does your primary work-setting have any plans to introduce EHR that meets meaningful use criteria?"

7   "How much of a barrier are the following to EHR adoption in your primary work-setting?"

8   "Overall, how satisfied or dissatisfied are you with your EHR system?"

9   "Thinking about your experience to date with your EHR system, please indicate your level of agreement with the following statements about using your EHR system."

10 ibid.

11 "Patients may take the following products to treat a health condition/problem or improve their health. Please indicate whether your EHR system captures patients' current use of these products. If you work in more than one practice or setting, please answer for the place you consider your primary practice."

12 "At your primary work-setting, can…?"

13 ibid.

14 Greenspun H, Coughlin S. *mHealth in an mWorld, How mobile technology is transforming health care.* Deloitte Center for Health Solutions. 2012.

15 "Do you use a tablet or smart phone for clinical purposes (i.e., accessing EHR, e-prescribing, communicating with other health care professionals, etc.)?"

16 "Why don't you use a tablet or smart phone for clinical purposes?"

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