

January 2012

UPDATE ON THE ADOPTION OF HEALTH INFORMATION TECHNOLOGY
AND RELATED EFFORTS TO FACILITATE THE ELECTRONIC USE AND
EXCHANGE OF HEALTH INFORMATION

A REPORT TO CONGRESS

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Submitted to:

The Honorable Denny Rehberg, Chairman, Subcommittee on Labor, Health and Human Services, Education and Related Agencies, Committee on Appropriations

The Honorable Rosa DeLauro, Ranking Member, Subcommittee on Labor, Health and Human Services, Education and Related Agencies, Committee on Appropriations

The Honorable Richard Shelby, Ranking Member, Subcommittee on Labor, Health and Human Services, Education and Related Agencies, Committee on Appropriations

The Honorable Dave Camp, Chairman, Committee on Ways and Means

The Honorable Sander Levin, Ranking Member, Committee on Ways and Means

The Honorable Fred Upton, Chairman, Committee on Energy and Commerce

The Honorable Henry Waxman, Ranking Member, Committee on Energy and Commerce

The Honorable Max Baucus, Chairman, Committee on Finance

The Honorable Orrin G. Hatch, Ranking Member, Committee on Finance

The Honorable Tom Harkin, Chairman, Committee on Health, Education, Labor, and Pensions

The Honorable Michael B. Enzi, Ranking Member, Committee on Health, Education, Labor, and Pensions

The Honorable John D. Rockefeller, Chairman, Committee on Commerce, Science, and Transportation

The Honorable Kay Bailey Hutchison, Ranking Member, Committee on Commerce, Science, and Transportation

The Honorable Ben Quayle, Chairman, Subcommittee on Technology and Innovation, House Committee on Science, Space and Technology

The Honorable Donna Edwards, Ranking Member, Subcommittee on Technology and Innovation, House Committee on Science, Space and Technology

EXECUTIVE SUMMARY

This report to Congress is submitted pursuant to Section 13113(a) of the American Recovery and Reinvestment Act of 2009 under Title XIII of Division A, part of the Health Information Technology for Economic and Clinical Health Act or the “HITECH Act.” The section requires the Secretary of Health and Human Services to submit to the appropriate committees of jurisdiction in the House of Representatives and Senate a report that: “(1) describes the specific actions that have been taken by the Federal Government and private entities to facilitate the adoption of a nationwide system for the electronic use and exchange of health information; (2) describes barriers to the adoption of such a nationwide system; and (3) contains recommendations to achieve full implementation of such a nationwide system.”

This report provides (1) updates on the adoption of health information technology (IT) as well as the efforts of the Office of the National Coordinator for Health IT to facilitate nationwide adoption and exchange of electronic health information and (2) identification and discussion of barriers to the adoption and exchange of electronic clinical data. Any recommendations to Congress to achieve full implementation will be presented in separate Department communications. The findings from this report are as follows:

Adoption

- Data show steady increases in the adoption of electronic health records (EHRs) among non-federal acute care hospitals and non-hospital-based physicians. As of 2011, about 34 percent of non-hospital-based physicians had adopted a “basic” EHR, doubling the adoption rate of 2008.¹ Approximately 40 percent of primary care physicians have a basic EHR, nearly double the adoption rate in 2008. Hospital adoption of EHRs increased by 50 percent since 2008 to about 19 percent in 2010.
- Data also show sizeable increases in the percent of physicians who are actively electronic prescribing (e-prescribing). The percent of non-hospital based physicians sending e-prescriptions through an electronic health record has increased more than three-fold since 2008, to 44 percent.
- Programs within the Office of the National Coordinator for Health Information Technology (ONC) have made substantial progress in facilitating the adoption of EHRs and establishing standards and infrastructure for clinical data exchange. One of the primary successes of ONC programs is their ability to engage their grantees and other private sector entities. Through the State Health Information Exchange (HIE) program, ONC has cooperative agreements to support health information exchange in 56 states and territories. Over 120,000 primary care providers have signed up with Regional Extension Centers for training, information, and technical assistance in their switch to EHRs.
- Stage 1 of the Medicare and Medicaid EHR Incentive Programs is well underway. As of December 2011, 172,972 eligible professionals and 3,077 eligible hospitals have registered with either the Medicare or Medicaid programs, indicating their intention to adopt and meaningfully use electronic health records to receive their incentive payments. Of those who have registered under the Medicare program, 15,255 eligible professionals and 604 hospitals have attested to using electronic health records meaningfully and received incentive payments. Under the

Medicaid program, 14,089 eligible professionals and 1,043 eligible hospitals have received Stage 1 incentive payments for adopting, implementing, or upgrading electronic health records.

- Both the Medicare and Medicaid EHR incentive programs have seen accelerating growth over the last few months in the number of providers and hospitals attesting as meaningful users or adopters and implementers of EHRs. The number of eligible professionals who received incentive payments nearly tripled from August to December, and more than half of eligible hospitals that received incentives did so during the final three months of the year.
- States voluntarily administer the Medicaid EHR Incentive Programs and disburse payments (matched by federal funds at 100%). Through December 2011, 41 states have launched Medicaid EHR Incentive Programs. The remaining nine states plan to launch their incentive programs in 2012. States and territories receive a 90% federal match for expenses related to the development, implementation, and operation of their incentive programs. All states and territories have requested and received HITECH funds to plan their Medicaid EHR Incentive Programs, and almost all have received HITECH funds to implement their programs. CMS has paid states and territories \$447 million for program planning and implementation, in addition to providing significant technical assistance to States.

Barriers to Adoption

- Despite increases in adoption of health IT and the successes of CMS and ONC programs thus far, data show that certain types of eligible professionals face challenges adopting and meeting the requirements of the Medicare and Medicaid EHR Incentive Programs..
- Lack of available resources to invest in health IT and other barriers such as lack of broadband access, an unclear business case, concerns over the privacy and security and the interoperability of systems, and the availability of a qualified workforce remain more challenging to overcome in certain settings than others.

INTRODUCTION

Health IT has the potential to improve health, lower costs, and engage patients in their own health care.² Despite evidence of these benefits,³ use of health IT and electronic health records (EHRs) is not yet widespread.^{4,5}

To accelerate the use of health IT, Congress passed and President Obama signed into law the Health Information Technology for Economic and Clinical Health (HITECH) Act in 2009, which made available billions of dollars in incentive payments through the Centers for Medicare & Medicaid Services (CMS) to eligible hospitals, critical access hospitals (CAHs), and eligible professionals to adopt certified EHR technology and meaningfully use it in the course of care.⁶ The HITECH Act also established programs within ONC to guide physicians, hospitals, and other key entities as they adopt certified EHR technology and use it to achieve “meaningful use” as established in subsequent federal regulations.⁷

Given the substantial federal investment in health IT, this report is an important update on the adoption of health IT and the progress being made to establish a nationwide foundation for clinical data exchange. Additionally, this report helps identify those eligible professionals who face greater challenges in adopting health IT and exchanging clinical data.

This report first provides an overview of our methods of analyzing adoption of health IT, including the external data sources we used and updates on ONC and CMS programs. Second, the report describes some limitations to our approach. Next, the report details findings on the current state of health IT adoption and programs to support that adoption. Finally, the report discusses potential barriers facing providers seeking to adopt electronic health records.

METHODS

Surveys

We analyzed annual surveys from the American Hospital Association (AHA) and the Centers for Disease Control and Prevention (CDC)'s National Center for Health Statistics (NCHS) that track health IT adoption among hospitals and office-based physician practices since before enactment of the HITECH Act. The AHA surveyed all 4,502 non-federal acute care hospitals in 2010 and received 2,902 responses (64 percent). The survey from NCHS had 4,666 office-based physician respondents from an initial sample of 10,301 (45 percent). We weight survey results to account for bias in estimates of adoption for the entire eligible hospital and provider population.

Additional Data Sources

In addition to the hospital and physician surveys, we evaluated additional data sources to (1) provide a specific update on a key ONC program, the Regional Extension Center (REC) program; (2) examine an important form of health information exchange (electronic prescribing); (3) measure the progress of ONC programs and uptake of electronic prescribing against the broader eligible professional population; and (4) provide a specific update on the Medicare and Medicaid EHR Incentive Program.

- We gathered data from ONC's REC program, the primary program designed to help eligible professionals achieve meaningful use, in order to determine the number of eligible professional registrations and program progress to date.
- We used data from Surescripts, the leading electronic prescribing network, to determine levels of this key aspect of health information exchange.
- We applied data to both of these measures from SK&A/Cegedim, a leading physician/medical professional market research firm, to establish denominators for measuring REC registration and electronic prescribing activity against the broader eligible professional population.
- We gathered data from CMS's Medicare and Medicaid EHR Incentive Program, indicating the number of eligible professionals and hospitals who have registered to participate in the program.

Program Updates

This report also presents status updates on three ONC efforts to facilitate adoption of a nationwide system for electronic use and exchange of health information. In addition to Regional Extension Center (REC) and Medicare and Medicaid EHR Incentive Programs discussed above, we provide progress on state health information exchange (HIE) efforts and our standards and interoperability efforts, both of which are critical to furthering the electronic exchange of clinical data.

Measures

This document reports the following quantitative measures: (1) the current status of EHR adoption and electronic prescribing; (2) an assessment of provider readiness for achieving meaningful use; and (3) REC registration to date. With regard to current adoption, we tracked the presence of "basic" EHRs in non-federal acute care hospitals and office-based physician practices over time. The components of "basic" records for physicians and hospitals were determined by panels of health IT experts and users.^{8,9} Although "basic" records are not advanced enough for providers to achieve meaningful use, they are a key first step in provider efforts to improve quality and reduce costs through health IT. We then examined electronic prescribing, a key measure of and proxy for health information exchange. Related to assessing adoption, our assessment of meaningful use readiness provides further detail on where reaching meaningful use is more challenging. Finally, we include REC registrations to date. Where applicable, estimates are weighted to adjust for potential response bias.

LIMITATIONS

Eligibility for EHR Incentive Payments

The HITECH legislation created the Medicare & Medicaid EHR Incentive Programs that make incentive payments available to eligible hospitals, CAHs, non-hospital-based physicians, and other eligible health professionals that adopt certified EHR technology and become meaningful users of that technology. Certain entities are ineligible to participate in the EHR Incentive Program; these include post-acute and long-term care facilities, hospital-based physicians, and physicians ineligible to participate in Medicare or Medicaid. Although ONC and many of its grantees have programs to assist providers who are ineligible to receive incentive payments,¹⁰ we do not have a way to track the adoption of health IT and clinical exchange activity as specifically in these settings as we do for eligible professionals. Our assumption is that the incentives and related federal programs will create a strong foundation in and demand for health IT that will encourage adoption and exchange among all provider types.

Data Limitations

Our estimates for adoption and exchange activity are based on surveys and sources that do not cover the entire provider population. Although we weight responses to try to account for bias in our data, we cannot determine how respondents and non-respondents differ on unobserved characteristics, and we cannot be certain on the state of adoption and exchange among non-responding or non-participating providers.

This limitation applies especially to our exchange data: although Surescripts is the largest e-prescribing network (it is estimated that more than half of office-based physicians send electronic prescriptions on the Surescripts network either through an EHR or a standalone e-prescribing application), we cannot measure e-prescribing activity outside of Surescripts. In addition to e-prescribing, ONC is focused on furthering the exchange of lab data and clinical summaries; however, we cannot yet measure lab data and clinical summary exchanges in the way that we can measure electronic prescriptions. Lastly, achieving meaningful use requires the implementation of as well as meeting specific

measures for at least 19 individual health IT functionalities for hospitals and 20 for eligible professionals. Because past surveys have not addressed all 19 or 20 health IT functionalities specifically, tracking the current adoption of these functionalities through surveys would have resulted in a loss of much of the data continuity across survey years. As a result, our meaningful use readiness assessment is not a perfect measure, but rather a best approximation using available data.

FINDINGS

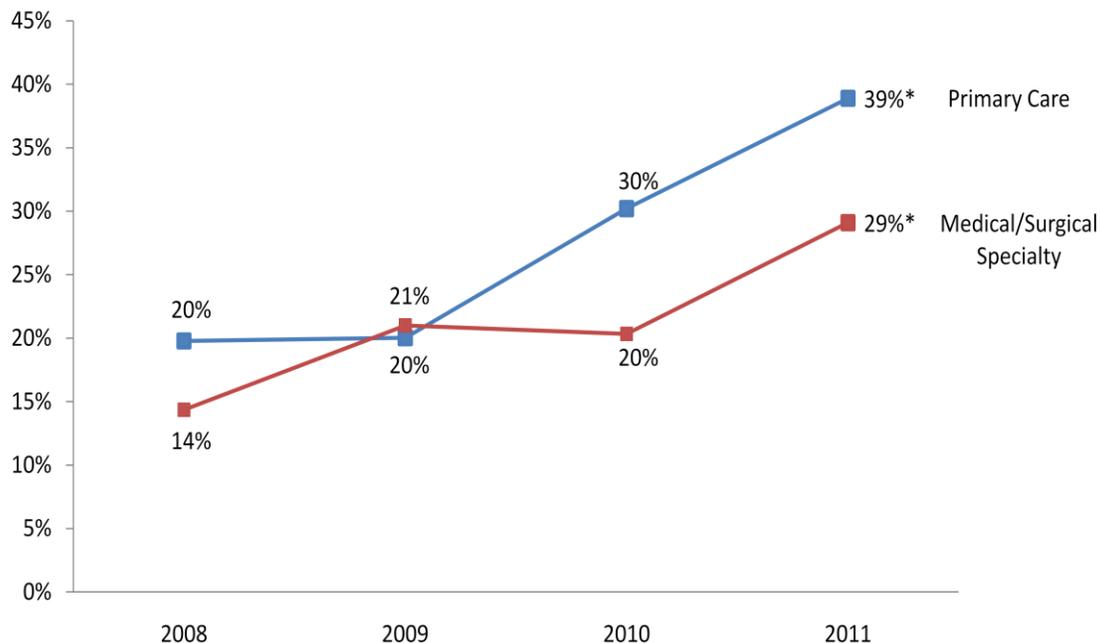
Adoption of Electronic Health Records

Accelerating adoption of EHRs is the critical first step in realizing quality improvements and cost savings through health IT. Surveys from both the National Center for Health Statistics and the American Hospital Association indicate that, prior to the HITECH Act, roughly 1 in 6 office-based physician and 1 in 8 hospitals had adopted a “basic” EHR. Given the benefits that can accrue in using health IT in the regular course of care,^{11,12,13} Congress and the President set out to change this low adoption rate; early results suggest that the HITECH Act has contributed to increases in adoption among physicians and hospitals.

Adoption of Electronic Health Records Among Non-Hospital-Based Physicians

As of 2011, 34 percent of non-hospital-based physicians had adopted a “basic” EHR. This is double the adoption rate among non-hospital-based physicians in 2008. Adoption among primary care physicians, a key focus area of the HITECH Act, grew to approximately 40 percent; adoption among this same group has nearly doubled since 2008 (Figure 1). These results are initial indications of the effects that the HITECH Act and CMS and ONC programs have had to date in accelerating the adoption of health IT and EHRs.

Figure 1. Adoption of “Basic” Electronic Health Records Among Non-Hospital-Based Physicians

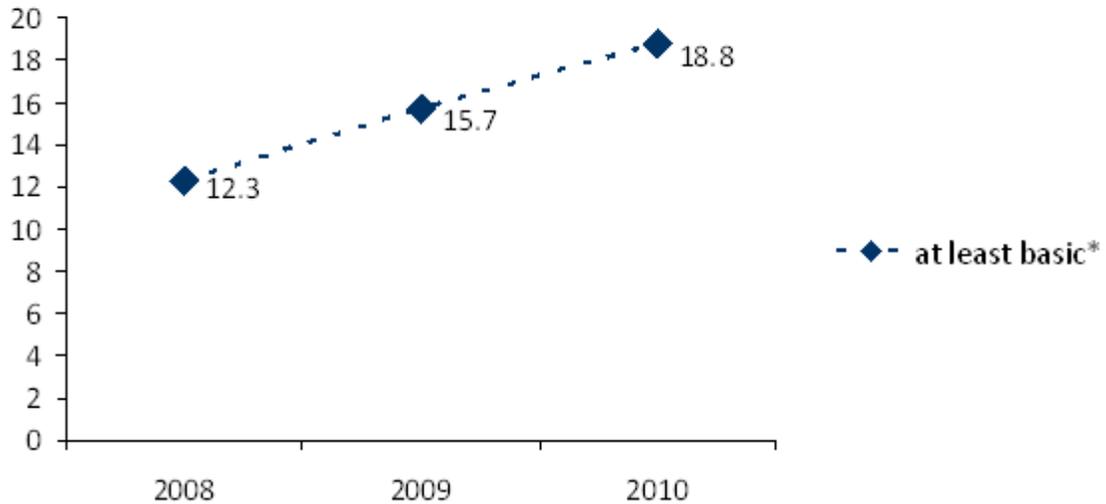


*Significantly higher than previous year estimate, or in the case of primary care all other physicians, at $p < 0.05$. Adoption of “Basic” electronic health records as defined in: Hsiao CJ, et al. Electronic Medical Record/Electronic Health Record Systems of Non-hospital-based physicians: United States, 2009 and Preliminary 2010 State Estimates Health E Stats. National Center for Health Statistics, Centers for Disease Control. Source: National Center for Health Statistics, Centers for Disease Control, NAMC (National Ambulatory Medical Care) Survey (mail-only respondents), 2008-2010

Adoption of Electronic Health Records Among Non-Federal Acute Care Hospitals

Nearly 19 percent of non-federal acute care hospitals adopted a “basic” EHR by 2010. This represents over a 50 percent increase in adoption among hospitals since 2008.

Figure 2. Adoption of “Basic” Electronic Health Records Among Non-Federal Acute Care Hospitals



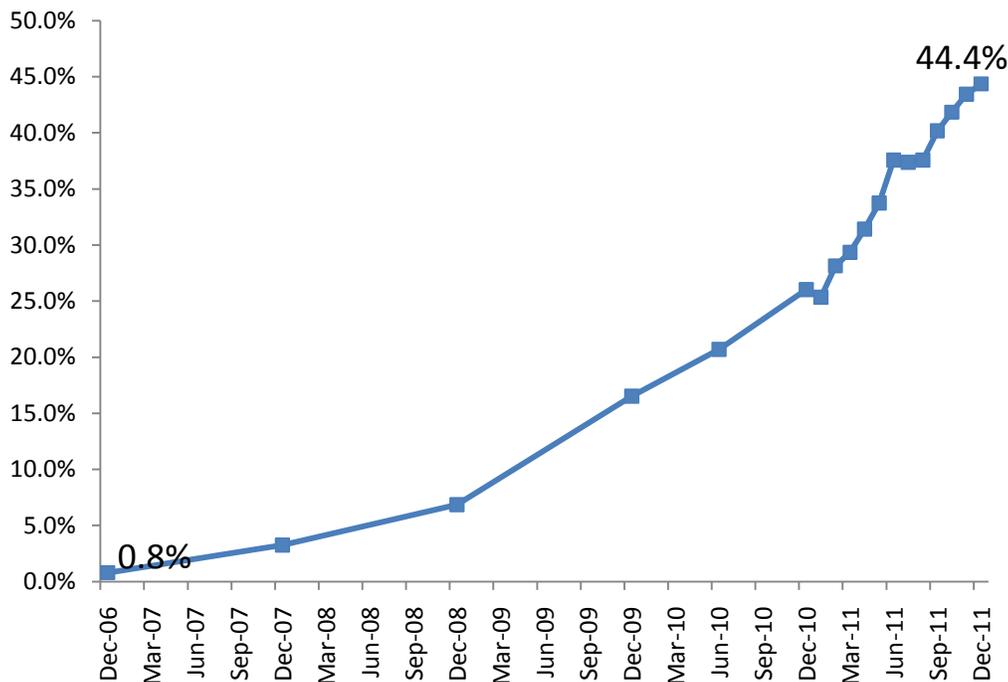
*Without physician notes and Nursing Assessments, as defined in Jha AK, et al. Use of Electronic Health Records in U.S. Hospitals. N Engl J Med. 2009 360;16.

Adoption of Electronic Prescribing Among Non-Hospital Based Physicians and Retail Community Pharmacies

Data from Surescripts, the nation’s largest electronic prescribing network, show that the percent of non-hospital based physicians active on the Surescripts network using an electronic health record has increased more than three-fold since 2008, to 44 percent. Pharmacies have reached near-universal adoption of electronic prescribing at 93 percent. This increase can partly be attributed to the introduction of the Electronic Prescribing (eRx) Incentive Program by the Centers for Medicare & Medicaid Services (CMS). Under the program, physicians and other eligible professionals receive payment incentives (in 2010, a 2 percent increase in physician fee schedule payments under Medicare Part B; and a one percent increase in 2011) as a bonus for meeting the e-prescribing requirements of the program. Physicians and other eligible professionals are also subject to payment reductions under Part B if they do not meet the requirements in 2012 through 2014.¹⁴. Lately, this growth in e-prescribing is most pronounced among those using an electronic health record, suggesting that this recent growth may be attributable to the shift towards electronic health records to meet the core requirement of the Medicare and Medicaid EHR Incentive Programs to e-prescribe.

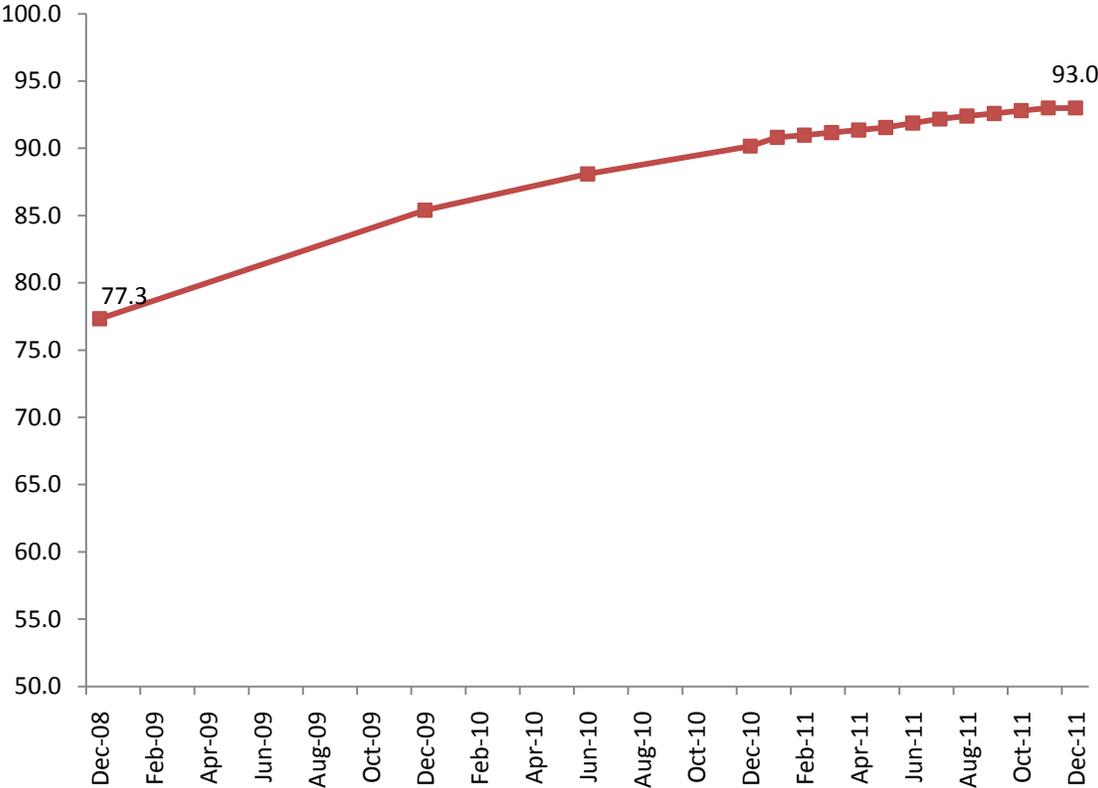
These data serve as an important proxy for (1) the impact federal incentive programs can have in terms of spurring the adoption of health IT, and (2) health information exchange. Additionally, as the majority of electronic prescription transactions in the United States are routed through the Surescripts network, growth in its network demonstrates how communication of clinical data depends on shared standards for the data.

Figure 3. Adoption of Electronic Prescribing Through an Electronic Health Record Among Non-Hospital-Based Physicians



Source: ONC analysis of Surescripts data. Denominator of non-hospital-based physicians derived from SK&A census data of June 2011

Figure 4. Adoption of Electronic Prescribing Among Retail Community Pharmacies



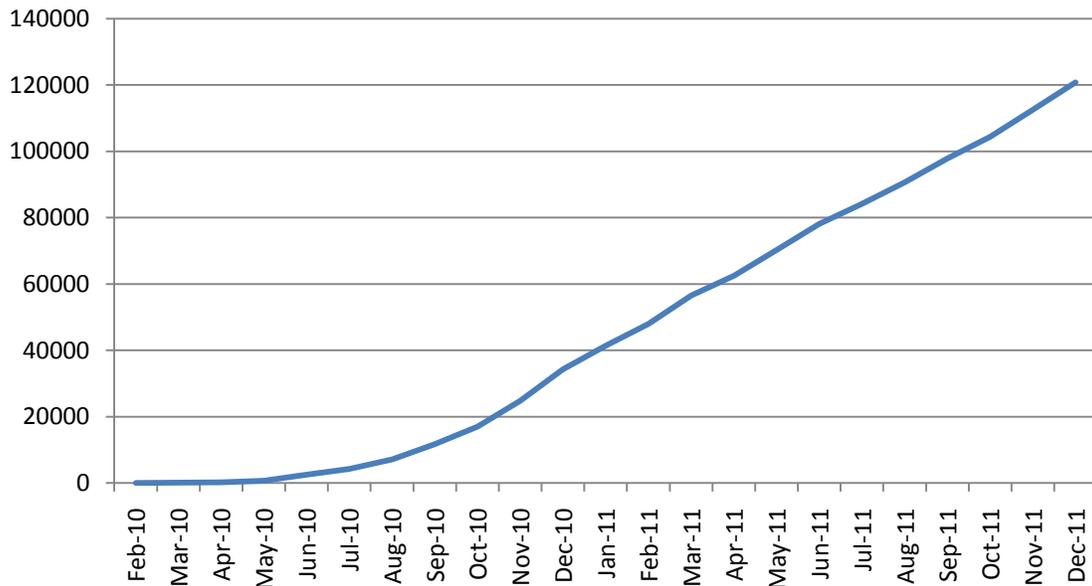
Source: ONC analysis of Surescripts data.

Program Updates

Regional Extension Centers (REC)

ONC is funding 62 Regional Extension Centers (RECs) and a national Health Information Technology Research Center (HITRC). Modeled on the successful regional extension center program at the Department of Agriculture, the REC program offers providers training, information, and technical assistance to accelerate the adoption of certified EHR systems and participation in the Medicare and Medicaid EHR Incentive Programs. Each REC is independent and is usually operated by a local non-profit or consortium to meet the needs of the community and region where it is located. The REC program's particular focus is on helping priority primary care providers (practice sizes of 10 physicians or fewer), critical access hospitals, and other underserved or under-resourced providers achieve the meaningful use requirements of the Medicare and Medicaid EHR Incentive Programs. The RECs are also providing assistance to thousands of providers who are not eligible for incentive payments, but want to adopt EHR systems and use them in meaningful ways to provide better care. The HITRC provides technical assistance and develops best practices for the RECs and the general public for the implementation, adoption, and effective use of health IT. As of January 1, 2012, the REC program has enrolled over 120,000 priority primary care providers, already exceeding its goal to enroll 100,000 priority primary care providers by the end of 2011. What's more, analyses of data from October 2011 show that the majority of primary care providers in rural areas are enrolled with an REC and that RECs are assisting up to 70% of rural primary care providers in small practices.

**Figure 5. Cumulative REC Enrollment of Priority Primary Care Providers
February 2010 through December 2011**



Source: ONC REC data

The Medicare and Medicaid EHR Incentive Program

As of December 2011, 172,972 eligible professionals and 3,077 eligible hospitals have registered with either the Medicare or Medicaid EHR Incentive Programs. Of those who have registered under the Medicare program, 15,255 eligible professionals and 604 hospitals have attested that they are now meaningfully using electronic health records under Stage 1 and received an incentive payment.

Figure 6. Eligible Professionals Receiving Incentives Under the Medicare EHR Incentive Program

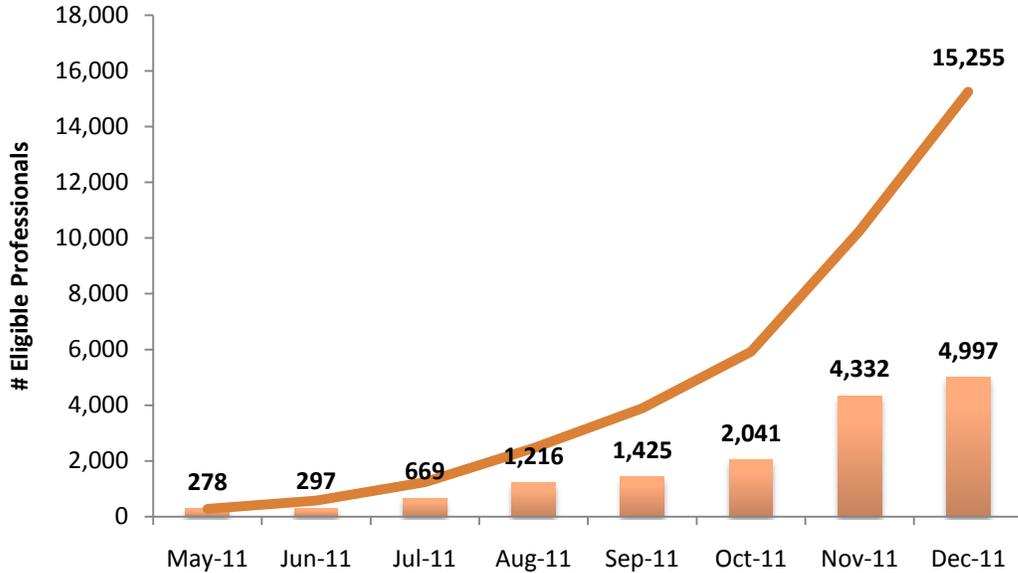
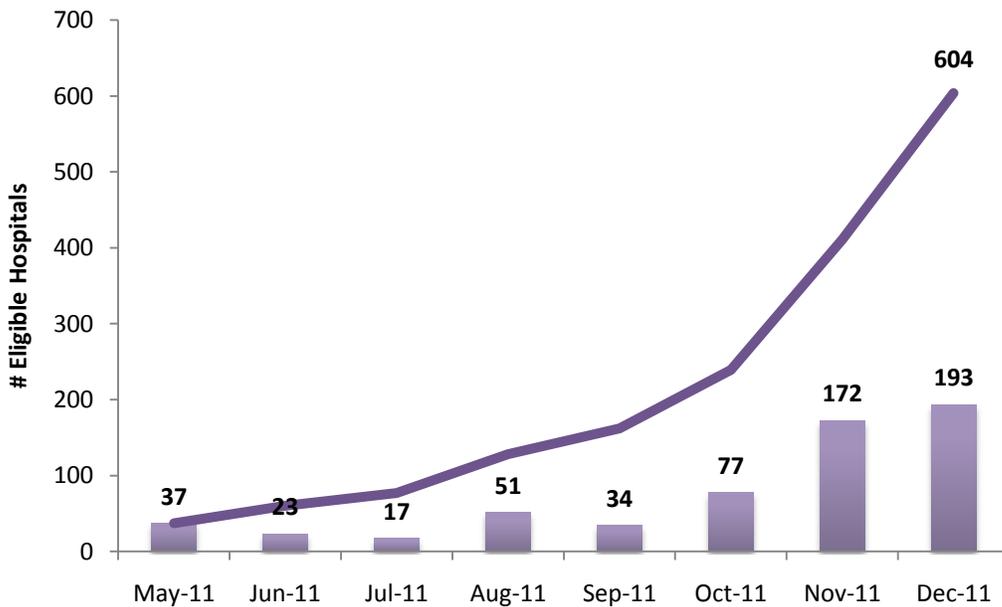


Figure 7. Eligible Hospitals Receiving Incentives Under the Medicare EHR Incentive Program



Under the Medicaid program, 14,089 eligible professionals and 1,043 eligible hospitals have received their Stage 1 incentive payments for adopting, implementing, or upgrading to electronic health records. (Eligible professionals participating in their first year of the Medicaid EHR Incentive Program can receive an incentive for adopting, implementing, or upgrading to EHR technology. For subsequent years, they must demonstrate meaningful use of certified EHRs to receive incentive payments.)

Figure 8. Eligible Professionals Receiving Incentives Under the Medicaid EHR Incentive Program

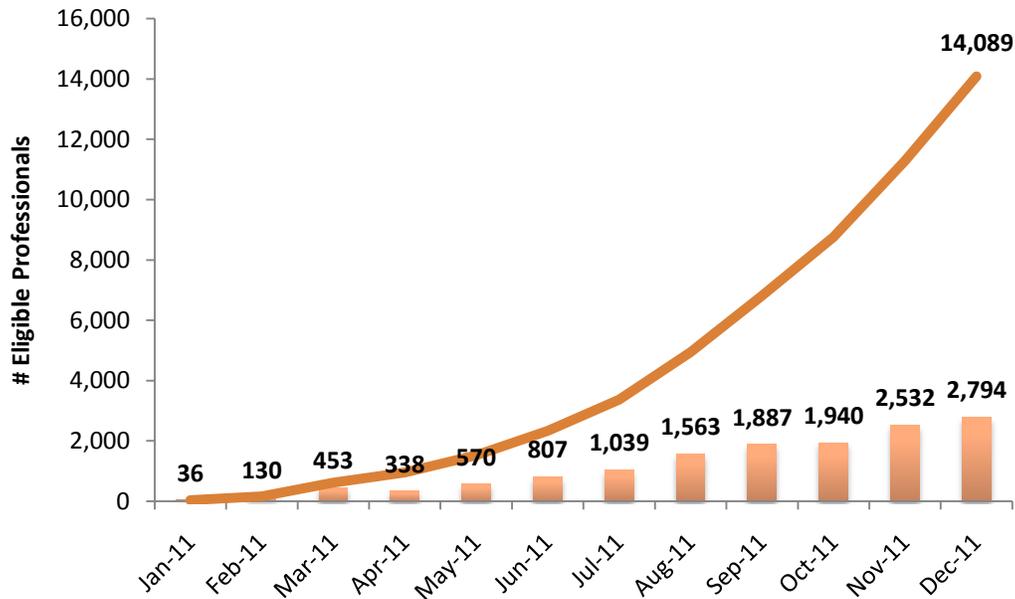
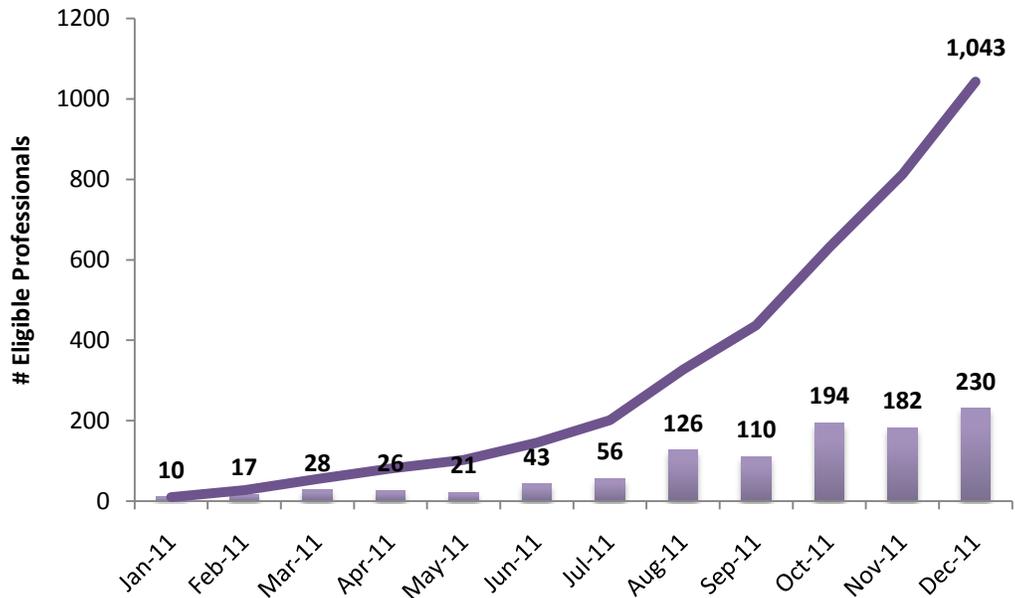


Figure 9. Eligible Hospitals Receiving Incentives under the Medicaid EHR Incentive Program



Source: CMS EHR Incentive Program
Data as of 12/31/2011

The State Health Information Exchange Cooperative Agreement Program

Through the state HIE Cooperative Agreement Program, states and territories are charged with ensuring that every provider has at least one option to meet core Meaningful Use exchange requirements under Stage 1 of the Medicare EHR Incentive Program including participating in e-prescribing, receiving structured lab results and sharing care summaries.

States are focused on rapidly enabling exchange capabilities through a variety of levers:

- Open, transparent governance to set priorities and map strategy
- Use of state policy levers, such as Medicaid purchasing requirements, that motivate exchange
- Funding, certification and accreditation of local exchange entities to ensure a common baseline of trust and interoperability
- Gap-filling services for providers and data suppliers with limited resources, such as extension services for critical access hospitals and small laboratories
- Core services such as openly available directories and identity services
- Services to deploy easily adoptable, scalable and low-cost ways for secure, direct exchange of electronic health information

Each grantee is responsible for increasing connectivity among local providers as well as supporting the exchange of information across state lines to achieve nationwide interoperability.

State HIE grantees provide technical assistance and gap-filling services to providers with smaller practices or fewer resources, build on and connect market-based exchange efforts, and encourage the adoption of baseline privacy and standards expectations to ensure trust and interoperability.

Standards and Interoperability

ONC's Office of Standards and Interoperability (OSI) works to enable standards for data to be captured and exchanged among health IT systems in an interoperable manner. Several components of the office's efforts allow ONC to: (1) support the life-cycle of standards and implementation specifications for health IT; (2) identify existing or develop new standards, service descriptions, and implementation specifications for health IT; (3) develop and maintain certification criteria and a certification process for health IT products; (4) provide a core set of needed publicly accessible specifications, tools, and services that support standardization of information exchange; (5) coordinate federal participation in health information exchange (e.g., the Federal Health Architecture¹⁵); and (6) support the Virtual Lifetime Electronic Record (VLER) project, a presidential priority creating a unified electronic record for military personnel and veterans.

OSI has undertaken a wide range of activities related to standards and certification criteria to support the mission of the HITECH Act. Meaningful use requirements for the Medicare and Medicaid EHR incentive Programs advance over time from a focus on data collection to an increasing requirement for improved processes of care, better care coordination, and demonstration of improved outcomes. This progression of meaningful use requirements fundamentally depends on the specification of standards, services, and policies that support interoperability of EHRs and health information exchange.

Among OSI's activities that are critical to information exchange is the Nationwide Health Information Network (NwHIN). The NwHIN is a set of standards, services and policies that enable secure health information exchange over the Internet. The network will provide a foundation for the exchange of health information across diverse entities, within communities and across the country, helping to achieve the goals of the HITECH Act. This critical part of the national health IT agenda will enable health information to follow the consumer, be available for clinical decision making, and support appropriate use of healthcare information beyond direct patient care so as to improve population health.

An important part of the NwHIN strategy is to provide a reference implementation of the Nationwide Health Information Network's interoperability standards and specifications for entities to use in exchanging information with one another. A reference implementation is a working software application that meets all the specification criteria for exchanging health information. The OSI's CONNECT project is a Federal Health Architecture (FHA) initiative to develop a production-ready, open-source software solution that can be adopted by federal systems as well as private entities to exchange health information. CONNECT supports such a reference implementation.

ONC's DIRECT project develops specifications for a secure, scalable, standards-based way for providers, laboratories, hospitals, pharmacies, and patients to send encrypted health information directly to known, trusted recipients over the Internet (Direct addresses are analogous to e-mail). This 'open government' initiative brought together over 200 participants from more than 60 companies and organizations to assemble consensus standards that support secure exchange of basic clinical information and public health data between known and trusted providers. Eight states (Minnesota, Rhode Island,

New York, Connecticut, Tennessee, Texas, Oklahoma, and California) have begun pilot programs aiming toward formal adoption of the standards and their wide availability by 2012.

ONC's standards and interoperability programs benefit greatly from the participation of the health IT industry. The Standards and Interoperability (S&I) Framework harmonizes standards relating to meaningful use and specifies standards, services, and policies that support EHR interoperability and actual health information exchange. This approach provides flexibility in meeting meaningful use needs, advances interoperability across the nation, and leverages OSI resources across the private sector and our Federal partners to achieve greater impact and value from these investments.

In FY 2010, OSI developed and implemented a temporary certification program, accredited six Authorized Testing and Certification Bodies, and established the Certified Health IT Products List (CHPL) to assure eligible professionals that the EHR products they purchase will meet the requirements necessary to participate in the Medicare and Medicaid EHR Incentive Programs. OSI collaborated with the National Institute of Standards and Technology (NIST) to develop and apply tests to ensure EHRs function in a manner that is compliant with the standards and technical requirements the EHR Incentive Programs. The Temporary Certification Program became operational in Q1 FY2011. To date, the health IT industry response to the current Temporary Certification Program has been strong and steady. In the first year of operation, over 1300 products from over 600 vendors were posted on the CHPL.

Privacy & Security

As discussed below, some providers delay their adoption of health IT over security concerns and liability for fraud and/or privacy breaches. As directed by the HITECH Act, ONC's Chief Privacy Officer is responsible for advising the National Coordinator on privacy, security, and data stewardship of electronic health information. ONC has addressed security and cybersecurity with multiple strategies including provider education, assistance, and outreach, threat and vulnerability analysis, mitigation planning and implementation, and breach prevention technology. The Office of the Chief Privacy Officer (OCPO) supports security efforts both within ONC programs as well as across the federal government.

OCPO found that the overwhelming number of substantial medical-records breaches required to be reported under ARRA have resulted from the loss or theft of computing devices ranging from server hard drives to flash memory sticks. The study found that external intrusions or "hacking" accounted for less than 10% of data loss. This finding and the HIT Task Force Cybersecurity Work Group recommendations proceeding from it have provided the direction for ONC's data loss prevention efforts.

OCPO has partnered with the HHS Office for Civil Rights (OCR) and the NIST for development of methods to automate EHR security from the initial installation through the lifetime of the system. This project's objectives are to reduce the technology burden on providers while simultaneously improving the overall level of security across the

health IT ecosystem. ONC is testing advanced technologies for security automation, including NIST's Security Content Automation Protocol (SCAP), software assurance, anti-theft technology, and hardware-based security. The result will be proven specifications for standard system configurations that providers can install off-the-shelf with the knowledge that the security is built-in: "Security-in-a-Box."

OCPO has initiated a series of studies, the first of which was delivered in January 2011, to survey emerging technologies for data protection. Among the advanced technologies recommended for further investigation are hardware-based anti-theft capabilities (e.g. Lojack for Laptops®) and remote destruction programs, which allow system administrators to wipe all data off of a stolen laptop regardless of location. As a result of this study, OCPO has included these emerging technologies in its security testing of EHRs.

BARRIERS TO ADOPTION

Providers Who Face Greater Challenges in Achieving Meaningful Use

Analysis of hospital and physician data shows that certain providers face greater challenges in meeting the meaningful use requirements of the Medicare and Medicaid EHR Incentive Programs. Using data from the National Center for Health Statistics and the American Hospital Association, we created measures for physician and hospital readiness for meeting the meaningful use requirements.¹⁶ Smaller for-profit hospitals in rural areas (specifically the Midwest) face greater challenges in achieving meaningful use. Results also indicate hospitals without graduate medical education programs, membership in a system, or advanced technology and services such as coronary units are less likely to be closer to achieving meaningful use. For physicians, data indicate that physicians in smaller, often single-specialty practices will face greater challenges (measures and results are detailed in Appendix A). These results support previous findings and inform the current focus of many CMS and ONC activities and programs.

Drivers of Gaps in Adoption and Readiness for Meaningful Use

Access to investment capital to acquire or advance health IT systems is a challenge faced by many smaller, more rural health care providers. Incentives for health IT adoption and achieving meaningful use were put in place by Congress and President Obama to help address financial barriers to adoption for all eligible physicians and hospitals. The Adopt, Implement, or Upgrade (AIU) incentive payment under the Medicaid EHR Incentive Program for example, which makes incentives available for providers that adopt, implement, or upgrade to certified EHR technology in their first year of participation, will be especially important to smaller and/or rural providers because the payment is closer to the time of investment and does not require the demonstration of meaningful use. Additionally, some rural providers have overcome financial constraints by partnering with other providers and pursuing group purchasing arrangements and/or pursuing other grant funding.¹⁷

However, challenges still remain. A recent report on broadband utilization among physicians by the University of Texas and the Center for Rural Strategies found that although 95 percent of the land area in the study had access to some type of broadband service, cost of the service remained a barrier.¹⁸ To address these cost barriers, the Federal Communications Commission (FCC) offers assistance for rural telemedicine services to help ensure that rural health care providers pay no more for telecommunications in caring for patients than their urban counterparts pay.¹⁹ Ensuring that eligible professionals utilize this assistance program and parallel funding opportunities is a key priority of ONC and its grantees.

Additionally, a key report from the Robert Wood Johnson Foundation and research partners that focuses in part on barriers to health IT adoption found other barriers to adoption such as: (1) payment systems that reward volume and intensity over quality and efficient performance; (2) security concerns and liability for fraud and/or privacy breaches; (3) lack of interoperability among current systems and whether the system will remain up-to-date; and (4) lack of organizational leadership, a qualified workforce,

and/or accountability for quality.²⁰ ONC's programs discussed above and others, such as the Health IT Workforce Development Program and efforts to ensure the privacy and security of health IT, are working to address these barriers and support the broader changes in health care delivery that will more than likely align the financial interests of providers with the quality and efficiency benefits from health IT.

CONCLUSION

Under the HITECH Act, the Medicare & Medicaid EHR Incentive Programs are designed to accelerate the adoption of health IT (specifically certified EHR technology) and its role in delivering high quality and affordable care. This report serves as an update for policy makers on the status of adoption and the progress of CMS and ONC programs in helping to establish a nationwide system for electronic use and exchange of health information. Results thus far point to steady adoption of health IT and EHRs with encouraging increases among primary care providers, a key priority area of the HITECH Act. Results also indicate sizeable growth in electronic prescribing activity, which is both a key measure and initial proxy for the goal of robust clinical data exchange outlined in the HITECH Act. However, the data also show that gaps exist in health IT adoption, especially among smaller and/or rural hospitals and physician practices, and as a result, in provider readiness for achieving meaningful use. These gaps indicate that programs from CMS and ONC designed to help providers adopt electronic health records are well-focused on those in need of more assistance.

Appendix A. Readiness for Meaningful Use Measures and Results

Background on the Measures

For hospitals, using the AHA survey, we are able to track 12 of the 14 “core” electronic health record functionalities that hospitals have to implement to participate in the Medicare and Medicaid EHR Incentive Programs. To assess the difficulty of implementing certain functionalities and the distribution of hospitals across the number of “core” functionalities in place, we examined hospitals that reported having 9 or more “core” in place versus those that do not.

For physicians, our ability to modify the most recent survey instrument to capture additional meaningful use functionalities was more limited. As a result we looked at the characteristics of physicians with at least a “basic” EHR and intentions to apply for EHR Incentive Program payments compared to those without a basic record without plans to apply for EHR Incentive Program payments.

Table 1. Characteristics of Responding Hospitals with 9 or More “Core” Meaningful Use Functionalities in Place and All Other Respondents

		Closer to MU¹	Others	P-value
		N=1,406	N=1,496	
		Percent (95% Confidence)	Percent (95% Confidence)	
Size	Small (6-99 beds)	37 (35,40)	58 (56,61)	p<0.001
	Medium (100-399 beds)	49 (46,51)	35 (33,38)	
	Large (400+ beds)	14 (12,16)	6 (5,8)	
Region²	Northeast	15 (13,17)	11 (9,13)	p<0.001
	Midwest	20 (18,22)	26 (24,29)	
	South	47 (44,49)	42 (40,45)	
	West	18 (16,20)	20 (18,23)	
Ownership	For-profit	12 (11,14)	19 (17,21)	p<0.001
	Private non-profit	66 (64,69)	55 (53,58)	
	Public	21 (19,24)	26 (24,28)	
Other Factors	Teaching Hospitals	30 (28,33)	18 (16,20)	p<0.001
	System Members	60 (58,63)	53 (50,55)	p<0.001
	Rural	37 (34,40)	51 (47,52)	p<0.001
	With Coronary Unit	38 (35,40)	26 (23,28)	p<0.001

(1) Closer to MU is defined as responding hospitals that have 9 or more functions needed to meet “core” meaningful use measures of the EHR Incentive Programs. Source: American Hospital Association Information Technology Survey, 2010.

(2) Northeast: CT, MA, ME, NH, NJ, NY, PA, RI, and VT;

Midwest: AL, IA, KS, KY, MN, MO, MS, ND, NE, SD, and TN;

South: AR, DC, DE, FL, GA, IL, IN, LA, MD, MI, NC, OH, OK, SC, TX, VA, WI, and WV;

West: AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, and WY.

**Table 2. Characteristics of Responding Physicians with at least a “Basic”
Electronic Health Record in Place and Plans to Apply for
EHR Incentive Program Payments and All Other Respondents**

		Closer to MU¹	Others	P-value
		N=696	N=3,970	
		Percent (95% Confidence)	Percent (95% Confidence)	
Size	1 to 2 Physician	23 (20,26)	44 (43,46)	p<0.001
	3 to 5	35 (32,39)	27 (25,28)	
	6 to 10	18 (15,21)	18 (16,19)	
	11 or more	24 (21,27)	12 (11,13)	
Specialty	Primary Care	62 (58,65)	48 (46,49)	p<0.001
	Medical Specialty	23 (20,26)	32 (30,33)	
	Surgical Specialty	16 (13,18)	21 (19,22)	
	Multi Specialty Practice	38 (35,42)	18 (17,19)	

(1) Closer to MU is defined as responding physicians that have at least a “basic” electronic health record in place and plans to apply for EHR incentive program payments. Source: National Ambulatory Medical Care Survey, 2010.

Notes

¹ Adoption of “Basic” electronic health records as defined in: Hsiao CJ, et al. Electronic Medical Record/Electronic Health Record Systems of Non-hospital-based physicians: United States, 2009 and Preliminary 2010 State Estimates Health E Stats. National Center for Health Statistics, Centers for Disease Control. Source: National Center for Health Statistics, Centers for Disease Control, NAMC (National Ambulatory Medical Care) Survey (mail-only respondents), 2008-2010

² Blumenthal D. Launching HITECH. *N Engl J Med.* 2010;362(5):382–5.

³ Goldzweig CL, Towfigh A, Maglione M, Shekelle PG. Costs and benefits of health information technology: new trends from the literature. *Health Aff (Millwood).* 2009; 28(2):w282-93. DOI: 10.1377/hlthaff.28.2.w282.

⁴ Jha AK, DesRoches CM, Campbell EG, Donelan K, Rao SR, Ferris TG, et al. Use of electronic health records in U.S. hospitals. *N Engl J Med.* 2009; 360(16):1628-38. Hsiao CJ, et al. Electronic Health Record Use by Non-hospital-based physicians: United States, 2009 and Preliminary 2010. Health E Stats. National Center for Health Statistics, Centers for Disease Control.

⁵ Hsiao CJ, et al. Electronic Health Record Use by Non-hospital-based physicians: United States, 2009 and Preliminary 2010. Health E Stats. National Center for Health Statistics, Centers for Disease Control

⁶ Centers for Medicare and Medicaid Services. Medicare and Medicaid Programs; Electronic Health Record Incentive Program; Final Rule, 42 C.F.R. Parts 412, 413, 422 et al., July 28, 2010 [Internet]. Washington (DC): CMS; [cited 2011 Feb 10]. Available online at: <http://healthit.hhs.gov/portal/server.pt?open=512&objID=2996&mode=>

⁷ Subsequent regulations refers to two Department rules governing the meaningful use and standards and certification for electronic health records and health information technology. The standards and certification rule is available here: <http://frwebgate1.access.gpo.gov/cgi-bin/PDFgate.cgi?WAISdocID=6qC3r7/9/2/0&WAIAction=retrieve>; The Medicare and Medicaid Electronic Health Record Incentive Program final rule is available here: <http://healthit.hhs.gov/portal/server.pt?open=512&objID=2996&mode=>

⁸ Jha AK, DesRoches CM, Campbell EG, Donelan K, Rao SR, Ferris TG, et al. Use of electronic health records in U.S. hospitals. *N Engl J Med.* 2009; 360(16):1628-38.

⁹ Hsiao CJ, et al. Electronic Health Record Use by Non-hospital-based physicians: United States, 2009 and Preliminary 2010. Health E Stats. National Center for Health Statistics, Centers for Disease Control and Prevention

¹⁰ Daniel J, Hogin, E. The Many meaningful uses of Health Information Technology. Office of the National Coordinator Health IT Buzz Blog. Available online at: <http://www.healthit.gov/buzz-blog/meaningful-use/meaningful-health-information-technology/> (accessed May 23, 2011).

¹¹ Buntin MB, Burke MF, Hoaglin MC, Blumenthal D. The benefits of health information technology: a review of the recent literature shows predominantly positive results. *Health Aff (Millwood).* 2011 Mar; 30(3):464-71.

¹² Goldzweig CL, Towfigh A, Maglione M, Shekelle PG. Costs and benefits of health information technology: new trends from the literature. *Health Aff (Millwood).* 2009; 28(2):w282-93. DOI: 10.1377/hlthaff.28.2.w282.

¹³ Chaudhry B, Wang J, Wu S, Maglione M, Mojica W, Roth E, et al. Systematic review: impact of health information technology on quality, efficiency, and costs of medical care. *Ann Intern Med.* 2006; 144(10):742-52.

¹⁴ The Centers for Medicare and Medicaid Services. Electronic Prescribing (eRx) Incentive Program. Available online at: <https://www.cms.gov/ERXIncentive/> (accessed May 5, 2011).

¹⁵ The Federal Health Architecture (FHA) was formed to coordinate health IT activities among the more than 20 federal agencies that provide health and healthcare services to citizens. For more information see http://healthit.hhs.gov/portal/server.pt/community/healthit_hhs_gov_federal_health_architecture/1181

¹⁶ The methodologies for our meaningful use measures are detailed in Appendix A.

¹⁷ The Altarum Institute. Economic Case Study: Overcoming Challenges to Health IT Adoption in Small Rural Hospitals. Forthcoming to ONC Fall 2011.

¹⁸ The Center for Rural Strategies. Scholars' Roundtable: The Effects of Expanding Broadband to Rural Areas. April 2011. Available online at: http://www.ruralstrategies.org/sites/all/files/Broadband_Investment.pdf (accessed May 24, 2011).

¹⁹ The Universal Service Administrative Company. Overview of Rural Health Care Program. Available online at: <http://www.universalservice.org/rhc/about/program-overview.aspx> (accessed May 24, 2011).

²⁰ Robert Wood Johnson Foundation, George Washington University Medical Center, Institute for Health Policy, Massachusetts General Hospital. Health Information Technology in the United States: The Information Base for Progress. June 2009. Available online at: <http://www.rwjf.org/files/publications/other/EHRReport0609.pdf> (accessed May 29, 2011).