# HEALTH POLICY ISSUE BRIEF

MARCH 2015

# High Value Health IT:
## Policy Reforms for Better Care and Lower Costs


AUTHORS

Peter Basch, Mark McClellan, Christopher Botts, and Pratyusha Katikaneni



BROOKINGS

The Brookings Institution | Washington, DC

**www.brookings.edu**

# Authors

**Peter Basch**
Visiting Scholar, Economic Studies, The Brookings Institution

**Mark McClellan**
Director, Health Care Innovation and Value Initiative
Senior Fellow, The Brookings Institution

**Christopher Botts**
Project Manager

**Pratyusha Katikaneni**
Research Assistant

## Abstract

Achieving better health outcomes at a lower cost and succeeding with payment reforms that shift from volume to value is difficult without health information technology (IT). Health IT can engage and support health care providers, patients, and consumers with access to timely and accurate clinical information from electronic health records (EHRs) and other sources. It can also provide access to cost and coverage information that avoids burdensome administrative processes and unexpected costs. Health IT can achieve these benefits through interoperability across information and data exchange platforms – avoiding duplicative parallel systems and additional data entry. Engaged patients and providers, supported by flexible, usable and useful health IT, can make informed shared decisions about testing and treatment which can lead to more timely, efficient, and higher-value health care.

The Meaningful Use (MU) program has led to substantial adoption of EHRs by health care providers across the U.S., with approximately half of providers now using an EHR that is MU certified. To achieve the promise of interoperability, the Office of the National Coordinator (ONC) for Health IT recently announced a ten-year "Interoperability Roadmap" as the next step in its effort to promote more straightforward exchange of electronic health data for a wide range of clinical, administrative and public health purposes.

Despite this progress, significant gaps in practical interoperability remain. Many health care providers do not view health IT systems as a substantial benefit to the quality or ease of their patient care work. Further, existing health IT tools and information flows are not yet supporting consistent, efficient delivery of high value care. Consequently, concerns remain that the current approach to MU and interoperability will not be sufficient to enable the changes in information flow and technology necessary to achieve the promise of health IT.

This policy brief details several major challenges with existing health IT policy, and also describes policy recommendations to address these issues. The main goals of these recommendations are: (1) to align health IT efforts directly with other major payment reforms and policies to support higher value care and (2) ensure better health outcomes for patients, and (3) implement data standards for the most important information to support care improvement in particular areas of clinical practice.

## Overview

Achieving better health outcomes at lower cost is a major objective of many initiatives in American health care. Major efforts are underway to shift provider payment from pay-for-volume towards pay-for-value, to create more transparency about the quality and cost of health care, and to shift insurance benefits to a greater focus on value. All these efforts depend on a more adaptable and effective health IT infrastructure. To achieve these innovations, timely, accurate and actionable information—including not only relevant clinical information but also cost and coverage data—must be available to providers and patients throughout the care continuum. Such "data liquidity" and flexibility in meeting provider and patient needs would mean not only better care decisions, but also more efficient health care operations through reduced administrative burdens and reporting costs.

While important progress on health IT adoption has occurred, the promise of health IT to make care better, safer and more value-laden remains unfulfilled. Health IT is now helpful in many settings, but the current health IT infrastructure is not sufficiently flexible to support the varied needs of a diverse care environment. For instance, provider and patient community engagement, an invaluable source of specialty-specific innovations, has yet to be tapped.[1,2] Additionally, access before and at the point-of-care to useful and usable information on costs and patient-specific coverage is not yet widely available.

This may not be surprising, since the ability of providers to use health IT, particularly EHRs, as a vehicle for innovation and improving care is a recent phenomenon. Prior to 2009, with a few notable exceptions, commercial EHRs were developed to serve primarily as tools for documentation and coding for payments. The market force driving development of commercial EHRs was a reflection of the 1995 and 1997 Evaluation and Management Documentation Guidelines (E&M Guidelines).[3] These guidelines redefined physician payment for non-procedural services by stipulating the format and volume of documentation of services provided, rather than the services themselves.[4] The MU program, created by the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009,[5] was subsequently introduced to shift the market-driver for EHR design and use from billing, coding and documentation to more "meaningful" purposes.[6] Time-limited financial incentives and the threat of future penalties were introduced to encourage this rapid change.

The first phase of MU incentives (Stage 1) focused on process-driven health IT requirements, such as consistent use of structured problem, medication and allergy lists, along with e-prescribing.[7] Later phases of the MU program are intended to focus more directly on improving outcomes. In its early years, MU was widely supported by many provider organizations and health IT leaders, despite its reliance on a single set of prescribed functions and workflows. MU is viewed as largely responsible for rapid growth in the use of EHRs[8] and e-prescribing, as well as the policies and tools necessary to give patients timely access to their own electronic health information. As of late 2013, EHR adoption had risen to approximately 48 percent and 59 percent for physicians and hospitals, respectively;[9,10] and electronic health information exchange (HIE) use increased by nearly 51 percent as of 2014.[11]

More recently, however, this capabilities-driven approach to EHR design and use, and the continued expansion of HIE via enhanced interoperability, has come into question. MU has been criticized by providers for its reliance on a single set of specific mandatory functions and workflows (characterized as "one-size-fits-all") that define data collection and EHR capabilities.[12,13] Furthermore, EHR usability and usefulness, which has not been highly rated except by enthusiastic early adopters, has worsened since MU began to drive EHR functionality and design via the parallel MU EHR certification program.[14] Patient care with MU-certified EHRs requires additional time, and administrative burdens remain substantial for medical practices. A recent unpublished survey of Association of Medical Directors of Information Systems (AMDIS) members, a group of early adopters and/or health system implementers of EHRs systems, confirmed this concern – with 0 percent reporting that their EHRs helped providers and staff reduced practice burden or contain costs.[15] Some respondents complained that practice burden has even worsened with MU-certified EHRs; although they also indicated that the worsening of practice burden may not be solely attributed to EHRs. Lastly, providers have complained of excessive prices associated with clinical interoperability.[16]

Despite these challenges, EHRs and other health IT can help, and in many cases have helped, providers and patients achieve the goal of better health at lower cost. In this paper, we describe how the availability of more flexible and effective EHRs and other health IT tools could be accelerated through closer alignment with payment models that pay for the intended results of health IT systems, rather than continuing on the current trajectory of specific processes and capabilities.[17] We also highlight the need for these aligned payment models to drive and be supported by innovation in specialty-specific workflows and adaptive technologies.[18] We note that this could be supported by more specific and targeted standardization of key data elements for effective interoperability and information exchange in particular areas of clinical practice. Such practical and targeted support for key data exchange would also prioritize access to important coverage and cost information that physicians and their patients need to make informed care decisions, but that has not generally been part of certified EHR systems.

This approach is intended to support a more sustainable business case for providers to use health IT to achieve better care and greater administrative efficiency. In doing so, it will drive practical, meaningful use of health IT and progress on interoperability, rather than driving compliance with health IT-related policy mandates and standard capabilities in the hope that changes in practices will follow. Our outcome-oriented approach to achieving the goals of meaningful use of health IT has been emphasized by many of the providers currently discouraged with their existing health IT systems.[19] Achieving these goals expeditiously will require shifting the current provider discontent to active engagement, which will result from having a clear need for relevant specialty-specific or scope-of-practice health IT that directly supports achieving high-value care. In this environment, providers, patients and health IT innovators would have more opportunity to contribute to the design, advancement and optimal use of health IT to improve care in diverse settings. Current policies that focus on specific health IT processes need to be amended to better support a health care environment that is increasingly driven by value-based payments to providers and value-focused incentives for patients.

## A. What's Right and Wrong with "Meaningful Use" Policies?

To date, MU has helped accelerate the adoption of EHRs and health IT systems among health care providers and nonclinical staff, and has furthered patient engagement and activation via timely access to their own health information. However, the continued emphasis on specific regulatory standards for MU certification may be impeding the ability of EHRs to adequately address diverse informational needs from health care stakeholders, impairing EHR usability and usefulness necessary to enable providers to succeed in a value-based payment environment.[20]

### Uniformity of Requirements

In an effort to keep MU and the EHR certification program "simple," these programs have relied on a specific set of requirements and process measures for all providers, regardless of specialty or scope of practice. In some instances, such as those surrounding e-prescribing capabilities, MU has helped ensure more certainty around adoption decisions since applications contain a specified set of minimum functionalities. However, this uniform approach does not support the different realities of clinical care, which require varying health IT functionalities and tools across different specialty and scope of practice areas. The tools and workflows for one provider are not always appropriate for others. For example, the requirements for a provider whose scope of practice demands interaction with detailed and longitudinal information (such as providers who care for patients with chronic diseases) are not the same as those who don't (such as a cosmetic surgeon). The "informationalist" clinician may feel that the EHR is too underpowered for their patient management needs; whereas the "proceduralist" might feel that the EHR is too cluttered and not designed with their needs in mind.

### Prescriptive, Process-Driven Measures

Many EHRs prior to MU were developed mainly for documentation and coding; others, primarily those in select academic medical centers (AMCs), were extremely sophisticated and built to optimize workflow and quality objectives within the center. Due to this varied EHR environment, the prescriptive approach of the early stages of MU was paramount in creating a core set of valuable functionalities and, thus helped increase provider adoption. However, as MU certification requirements increased, many AMCs had to abandon their highly usable "home grown" systems in favor of commercial EHRs which were MU certified.[21,22] Many providers have complained about their ability to use these new MU-certified products in their own practices.[23] In general, software usability improves with efforts towards "User-Centered Design", a software design principle that places end-user perceptions and needs at the forefront over those of a software engineer. In contrast, many believe that the MU certification program is a root cause of limited usability since it seems to prioritize MU-required designs over provider-driven workflows.[24]

### Failure to Prioritize Information Related to Cost and Health Plan Coverage

The current MU certification requirements do not include access to timely, accurate and actionable information on cost and health plan coverage of tests and treatments. The practical reality of care delivery today is that cost and coverage information is a critical part of patient care decisions. Further, with the shift to a more value-based care environment, patients and providers are struggling to make informed, shared decisions about testing and treatment in the absence of access to key cost and coverage information where it matters most – before and at the-point-of-care. For example, certain providers use advanced imaging studies such as MRIs for many of their patients, which are the subject of payer "utilization review" programs due to concerns that their value in some instances may be low. When health IT provides reliable access to understandable and accurate cost and coverage information, as well as the evidence that supports a payer decision to cover MRIs only under certain clinical circumstances, providers and patients would be more likely to support a decision not to immediately order an MRI – as they could see it as costly, and not indicated. Better information on drugs and drug coverage could help improve decisions for patients with multiple chronic diseases on multiple medications – not only about medication choices but also where to get prescriptions filled. Decisions made in the absence of relevant, accurate and actionable information may end up being more costly, delayed or even denied, which leads to provider rework and patient and provider frustration.

### Gaps In Practical, Effective Interoperability

Even where information is captured in the EHR and exportable using existing interoperability standards, health plans, insurance companies, and employers typically do not accept information in these standard formats; and often require duplicative documentation onto unique forms, or other manual processes such as phone calls. While needs differ across these groups, progress has been slow on supporting more efficient exchange of critical data for particular kinds of communications to improve care and reduce costs. For instance, the current proposed operating rules for prior authorization for referrals and treatments do not even consider electronic transmissions of content or attachments, though these items are necessary to resolve most prior authorizations.[25] Moreover, the current vision for this administrative interoperability is not based on leveraging what is possible today with MU-certified EHRs or more state-of-the-art pathways for clinical interoperability such as FHIR (Fast Healthcare Interoperability Resources) but rather by requiring unique and duplicative documentation in a parallel administrative system.[26] Creating a real business case for practical interoperability that is relevant to particular areas of clinical practice, rather than just an incentive for exporting data without clear impact on care, would go a long way towards improving usefulness and interoperability without the need for a complex set of process measures and detailed standard design requirements.

## B. Proposals and Policy Solutions

Both public payers like Medicare[27] and private payers[28] are committed to shifting from fee-for-service payments to a payment system that more directly supports higher-value care. These approaches will not successfully improve care without more effective support from health IT systems. To more effectively support new measures of quality and value and respond nimbly to new market demands, health IT systems must have more flexibility.[29] Providers must change their current negativity towards health IT and EHRs to constructive engagement,[30] so that they can be the source of many specialty-specific technology and care delivery innovations.

As we continue to move forward, policymakers must decide which course of action will best strengthen the health IT infrastructure, particularly EHRs, to support such efforts to improve care. This leads to the following questions:

- Is the shift in payment policy towards pay-for-value sufficient to drive innovations in health IT and care delivery?

- Are the remaining financial incentives of the MU program sufficiently aligned with these payment policies aiming to pay for value, or will they unintentionally interfere with innovation in health IT to improve care delivery?

- In light of the recent Interoperability Roadmap for Health IT, what are the most important next steps in Federal policies to promote meaningful interoperability across health IT systems?

We believe answers to these questions require the current course of health IT policies, including MU, to be adjusted. Health IT policies should be aligned more closely and specifically with value-based payment reform and the measures of quality and efficiency needed to support it. This approach would be more effective in promoting interoperability, as value-based payment reform creates pressure for interoperability to deliver lower costs for information liquidity. By shifting from prescriptive process measures, MU becomes less complex to administer. Vendors will have more flexibility to innovate based on customer demands, as long as they fall within the guardrails of interoperability standards; and providers will be able to be more innovative in care delivery. Through these steps, MU can achieve its purpose of allowing health IT to be more "meaningful" by allowing providers to refocus their attention on what is needed to improve the care of their patients rather than simply being compliant with defined process measure requirements. Recommendations for policy reform include the following two major principles:

## 1. Modify Meaningful Use payment incentives to focus on value and outcomes rather than mandated health IT processes

We recommend that MU requirements shift to reinforcing value-based payments. Moving away from the current emphasis on a single set of mandatory process measures might appear risky. While we appreciate the need for clear direction on some components of health IT (specifically those related to standards for interoperability through a minimum set of "guardrails" such that specialty-specific innovations do not lead to information silos), we believe that staying the course is even riskier, as that approach is both a major source of provider discontent and a barrier to specialty-specific innovation. Further, without provider engagement and specialty-specific innovation, many providers will not be able to reach a major goal of Stage 2 of MU (enabling advanced clinical processes), which is a prerequisite for a major Stage 3 MU goal (improving outcomes).

A value-based payment system aims to prioritize the value of care delivered to each patient, rather than the volume of care provided. Value is created when providers give the type of care that most directly maximizes health outcomes, much of which is not well supported in the current fee-for-service payment system. Thus, greater support for providers to adapt to a value-based payment system would enhance the business case for providers to use health IT in whichever manner best enables them to achieve better health outcomes and lower costs. This would increase market forces to drive vendors to create tools that are most useful to each end user (e.g., providers and patients) rather than to a general set of prescriptive health IT capabilities.

One example of this market dynamic can be seen in the Million Hearts® campaign, a national public-private partnership launched by the Department of Health and Human Services (HHS) aimed at preventing one million heart attacks and strokes by 2017.[31] The clinical focus of Million Hearts® is educating providers and patients on the "ABCs" of cardiovascular risk reduction: **A**spirin where benefit exceeds risk; **B**lood pressure screening and control; **C**holesterol screening and control; and **S**moking cessation. Applying Million Hearts® algorithms into routine care not enabled by health IT is complex and time-consuming, and thus cost-prohibitive. However, the same approach where routine care is enabled by health IT is much simpler and

while taking some additional time, is doable within the scope of routine primary care.[32] A value-based payment system, in which providers whose scope of practice includes cardiovascular screening and risk reduction, are paid for achieving these results would reinforce the relevant providers' support for these complex health IT capabilities. Similar examples and opportunities exist to improve the business case in other areas of practice where achieving better outcomes and lower costs are enabled with health IT.

Stage 3 of MU aims to shift the emphasis in MU payments toward outcomes, and is more consistent with the proposals contained in this policy brief. However, the earliest that Stage 3 will start is 2017, and the pathway for shifting from health IT process measures to outcome measures aligned with value-based payment reforms is not yet clear. There is a missed opportunity in the meantime to use MU incentives to encourage the adoption of health IT capabilities that enable both quality improvement and better measurement of outcomes of care directly from electronic data systems.

Under current law, participating in future years of Medicare MU means that providers would avoid penalties for failing to meet MU certification requirements. Thus, our proposal would enable providers to avoid MU penalties by reporting on meaningful performance measures in their area of clinical practice. A more positive incentive would be a bonus payment for reporting on such measures and/or participating in alternative payment systems based on such measures. Proposed bipartisan legislation on physician payment reform includes such a bonus for participating in alternative payment models. Our proposal amounts to an added incentive to report on such performance measures, which would only be feasible with a practically effective health IT system. Creating a bonus for reporting on meaningful performance measures would have additional short-term budgetary costs, but could be a more effective means to promote meaningful health IT adoption that leads to care improvements and subsequent cost savings.

## Recommendations

The emphasis on outcomes may also reduce administrative burdens on providers, particularly those shifting to value-based payment systems. These providers are more likely to need IT solutions that integrate information that can reduce costs, and have better aligned incentives with health plans that are seeking to avoid unnecessary health care costs. Thus, to promote the adoption of health IT capabilities that are more usable and useful for achieving better and more efficient care, current MU payment and penalty avoidance policies should be modified to:

a) **Remove the current requirement connecting EHR functionality to MU process measures**, as this focus on defined and prescriptive workflows can divert attention from the best opportunities to use health IT to improve care processes and reduce administrative burdens for high-value health care;
b) **Tie MU penalty avoidance and bonuses to reporting on relevant, outcome-oriented measures of performance**, which will support physician investment in IT systems that will enable them to access and use the information they need to report on meaningful performance measures;
c) **Support the development of value-based payment models and meaningful performance measures** in each area of clinical care, along with standards and best practices for exchanging information to report on these measures;
d) **Highlight opportunities for health IT vendors to insert principles of user-centered design into the more intuitive care workflows**, using common real world cases in each clinical area rather than certified test scripts to reinforce the shift in MU payment and penalty avoidance incentives.

## 2. Support value-based payment reform by shifting federal efforts to promote interoperability from process-oriented mandates to real business cases for data exchange that increase value

The shift toward value-based payments is intended to increase the financial benefits for practical IT solutions that improve access to timely, accurate and actionable information relevant to each provider. This increased emphasis on creating a sustainable business case for better, more efficient care would help drive steps to promote interoperability toward practically useful capabilities. For example, common format standards create a foundation for effective information exchange of key information for improving patient management, as they make desired and necessary communications easier and less costly. The adoption of such standards would be practically useful for improving care. However, many standards have been developed that are not in widespread use today, and overly prescriptive requirements on content can be counterproductive; as mandated content requirements may more readily lead to miscommunication where key information or "headlines" are buried ("interoperababble"), if they are transmitted at all.[33]

In conjunction with MU payments that create larger rewards for reporting and improving on meaningful quality measures, ONC should focus its efforts within its new Interoperability Roadmap[34] on the timely, accurate and actionable information most needed in each area of care. ONC should prioritize identifying and highlighting standards to support exchange of these key data elements and best practices for the exchange and use of these data for improving care and reporting on meaningful performance measures. As a result, ONC would facilitate efficient and effective information liquidity as a means to an end (in support of better quality and value), rather than mandate interoperable data liquidity as the end.

For example, the current Interoperability Roadmap emphasizes quality and efficiency as being achievable only through the incorporation or sharing of data via a defined interoperability pathway.[35] This may be consistent with care delivery for a primary care doctor whose patients see many different specialists and lab testing is performed via external reference labs; however, it may not be relevant for providers who are primarily proceduralists, such as surgeons. It also could result in providers and patients accepting definitions for quality and efficiency that are removed from clinical priorities; or providers inserting unnecessary and redundant workflows just to satisfy mandated minimum interoperability process measures.

This shift toward implementing high-priority standards for interoperability to support value-based payment is likely to involve a greater emphasis on information about cost and health care coverage, in addition to critical clinical information. One example of this would be to prioritize steps to embed more accurate and actionable medication information into e-prescribing formularies. This would not only allow for more informed decisions about the value of care delivered, which will matter more under reformed payment systems, but it may also preempt the need for many prior authorizations. Additionally, where prior authorizations cannot be avoided, ONC could promote development and adoption of standards to facilitate extraction from existing information from certified EHR systems, rather than either the current duplicative fax and telephone approach or the planned digital approach that may also be repetitive. By encouraging information re-use wherever possible, and by starting with applications like prior authorization where duplication is particularly burdensome to providers, this approach could significantly improve the efficiency of care in the short term, improve provider satisfaction, and reduce the potential for unnecessary delays in testing and/or treatment for patients.

## Recommendations

As providers are increasingly paid for value and outcomes and less for volume, the business case for information evaluation and appropriate re-use strengthens, thus reinforcing the need for information exchange capabilities. The shift to promoting interoperability based on actual business cases in conjunction with value-based payment reform includes steps to:

a) **Focus on identifying and disseminating interoperability standards that enable high value care**, rather than on specific mandates for information exchange;
b) **Implement ONC's Interoperability Roadmap** in a manner that emphasizes interoperability driven by actual business cases, including cost and coverage data interoperability, rather than by mandate or process measures;
c) **Develop more flexible and adaptive business cases for how health IT and EHRs could further evolve** based on specialty-specific and scope of practice needs and increasingly linked to better health and value outcomes;
d) **Increase efforts to support standards and methods to enable reporting of outcome and value measures directly from EHRs,** which would be more directly aligned with effective higher value;[36]
e) **Support more rapid progress toward the timely availability of accurate and actionable information regarding cost and coverage of health IT across the care continuum**, particularly before and at the point-of-care, to support more informed and timely shared-decision making and to support prior authorization avoidance.

# Conclusion

Current federal policy, including ONC's MU program, have led to significant progress on health IT adoption amongst providers and hospitals. However, there is concern within the health care community that existing health IT policy may fail to incent and even hinder health IT innovations and evolution necessary to enable a value-based payment system. Our policy recommendations should enable more progress in achieving an adaptable health IT infrastructure by helping existing policy transition from one that is too narrow and prescriptive to one that can give MU more practical meaning that resonates with providers and patients by more directly supporting improved outcomes, administrative efficiency, and value.

# Notes

[1] Kuhn T, Basch P, Barr M, Yackel T. Clinical Documentation in the 21st Century: Executive Summary of a Policy Position Paper From the American College of Physicians Clinical Documentation in the 21st Century. *Annals of Internal Medicine*. 2015;162(4):301-3. http://annals.org/article.aspx?articleid=2089368#ACPPositionStatementsandRecommendations

[2] Redesign EHRs to Fit Clinical Workflows, ACP Says. *Medscape*. Jan 12, 2015. http://www.medscape.com/viewarticle/838019

[3] Sequist TD. Clinical Documentation to Improve Patient Care Clinical Documentation to Improve Patient Care. *Annals of Internal Medicine*. 2015;162(4):315-6. http://annals.org/article.aspx?articleid=2089369

[4] Office of the Inspector General. Coding Trends of Medicare Evaluation and Management Services. Washington, DC: U.S. Department of Health and Human Services; 2012. Accessed on February 21, 2015. http://oig.hhs.gov/oei/reports/oei-04-10-00180.asp

[5] Health Information Technology for Economic and Clinical Health (HITECH) Act, Title XIII of Division A and Title IV of Division B of the American Recovery and Reinvestment Act of 2009 (ARRA), Pub. L. No. 111-5, 123 Stat. 226 (Feb. 17, 2009), codified at 42 U.S.C. §§300jj et seq.; §§17901 et seq.

[6] Blumenthal D, Tavenner M. The "Meaningful Use" Regulation for Electronic Health Records. New England Journal of Medicine. 2010;363(6):501-4. http://www.nejm.org/doi/full/10.1056/NEJMp1006114

[7] Medicare & Medicaid EHR Incentive Program Meaningful Use Stage 1 Requirements Overview. Presentation. Centers for Medicare and Medicaid Services. 2010. https://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/downloads/MU_Stage1_ReqOverview.pdf

[8] Health Care IT Innovation: The Best is Yet to Come. *Hospital and Health Networks Daily*. American Hospital Association. February 12, 2015. http://www.hhnmag.com/display/HHN-news-article.dhtml?dcrPath=/templatedata/HF_Common/NewsArticle/data/HHN/Daily/2015/February/healthcare-IT-innovation-glaser-article

[9] Hsiao C-J, Hing E. Use and Characteristics of Electronic Health Record Systems Among Office-based Physician Practices, United States, 2001-2013. US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; 2014. http://www.cdc.gov/nchs/data/databriefs/db143.pdf

[10] Charles D, King J, Patel V, Furukawa MF. Adoption of Electronic Health Record Systems Among US Non-Federal Acute Care Hospitals: 2008-2013. Office of the National Coordinator for Health Information Technology; 2013. http://www.healthit.gov/sites/default/files/oncdatabrief16.pdf

[11] Swain T, Charles D, Furukawa MF. Health Information Exchange among U.S. Non-federal Acute Care Hospitals: 2008-2013. Office of the National Coordinator for Health Information Technology; 2013. http://www.healthit.gov/sites/default/files/oncdatabrief17_hieamonghospitals.pdf

[12] Friedberg MW, Chen PG, Van Busum KR, Aunon F, Pham C, Caloyeras J, et. al. Factors Affecting Physician Professional Satisfaction and Their Implications for Patient Care, Health Systems, and Health Policy. Rand Corporation; 2013 Verdon, D.

[13] EHRs: The Real Story – Why a National Outcry from Physicians Will Shake the Health Information Technology Sector. *Medical Economics.* 2014:91(3):18-27. http://medicaleconomics.modernmedicine.com/sites/default/files/images/MedicalEconomics/DigitalEdition/Medical-Economics-February-10-2014.pdf

[14] Challenges with Meaningful Use: EHR Satisfaction & Usability Diminishing. Presentation. American College of Physicians and American EHR Partners. 2013 HIMSS Conference & Exhibition. March 5, 2013.

[15] Unpublished Survey of AMDIS Membership conducted by P. Basch in February 2015

[16] Allen A. Doctors say data fees are blocking health reform: the fees are thwarting the goals of a push to digitize health records. Politico. February 23, 2015. http://www.politico.com/story/2015/02/data-fees-health-care-reform-115402.html

[17] Park T, Basch P. A Historic Opportunity: Wedding Health Information Technology to Care Delivery Innovation and Provider Payment Reform. Center for American Progress. May 19, 2009. https://www.americanprogress.org/issues/healthcare/report/2009/05/18/6025/a-historic-opportunity/

[18] ibid

[19] Preparing for the Inevitable: The Path to Physician Success in a Value-Based World. Deloitte. 2014. http://www2.deloitte.com/content/dam/Deloitte/us/Documents/life-sciences-health-care/us-lchs-value-based-world-121814.pdf

[20] Madera J. Letter to Administrator Tavenner and Dr. DeSalvo. American Medical Association. October 2014. http://mb.cision.com/Public/373/9661589/9185dfb838c6fe9c.pdf

[21] Tripathi M. Policy and Legislation Forces Changing the EHR. *Journal of American Health Information Management Association.* 2012:83(10):24-29. http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_049747.hcsp?dDocName=bok1_049747

[22] Verdon D. EHR Divorce: What's Driving Dissatisfaction? *Medical Economics.* 2013:90(12):23-7.

http://medicaleconomics.modernmedicine.com/medical-economics/content/tags/americanehr/ehr-divorce-whats-driving-dissatisfaction-0

[23] Friedberg M, Crosson F, and Tutty M. Physicians' Concerns About Electronic Health Records: Implications And Steps Towards Solutions. *Health Affairs Blog*. March 11, 2014. http://healthaffairs.org/blog/2014/03/11/physicians-concerns-about-electronic-health-records-implications-and-steps-towards-solutions/

[24] Jones SS, Rudin RS, Perry T, Shekelle PG. Health Information Technology: an Updated Systematic review with a Focus on Meaningful Use. *Annals of Internal medicine*. 2014;160(1):48-54. http://annals.org/article.aspx?articleid=1811028

[25] Hearing on HIPAA and ACA Administrative Simplification. Meeting of the National Committee on Vital Health Statistics, Subcommittee on Standards. Operating Rules Review Committee. Department of Health and Human Services. February 26, 2015. http://www.ncvhs.hhs.gov/meeting-calendar/agenda-of-the-february-26-2015-ncvhs-subcommittee-on-standards-hearing/

[26] Peter Basch. (Chair, Medical Informatics Committee American College of Physicians). "Testimony on Operating Rules for Prior Authorizations before the National Committee on Vital and Health Statistics, Subcommittee on Standards. Department of Health and Human Services. (Date: 2/26/2015). http://www.acponline.org/acp_policy/testimony/ncvhs_testimony_on_operating_rules_for_prior_authorizations_2015.pdf

[27] Better, Smarter, Healthier: In Historic announcement, HHS Sets Clear Goals and Timeline for Shifting Medicare Reimbursements from Volume to Value. U.S. Department of Health and Human Services. *Press Release.* January 26, 2015. http://www.hhs.gov/news/press/2015pres/01/20150126a.html

[28] National Scorecard on Payment Reform. Catalyst for Payment Reform. Press Release. September 30, 2014. http://www.catalyzepaymentreform.org/images/documents/scorecard2014release

[29] Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap Draft Version 1.0. The Office of the National Coordinator for Health Information Technology. January 2015.

[30] McClellan M, Berenson R, Chernew M, Kramer W, Lansky D, Milstein A. Health Policy Issue Brief: Medicare Physician Payment Reform: Securing the Connection Between Value and Payment. The Brookings Institution. January 27, 2015. http://www.brookings.edu/~/media/research/files/papers/2015/01/012715-medicare-physician-payment-refom-web.pdf

[31] Million Hearts® Initiative. Department of Health and Human Services. http://millionhearts.hhs.gov/ Accessed: March 5 2015.

[32] Oetgen, W, Basch, P. Reducing Risk, Click-by-Click. AHA Trustee Magazine. May 2013. http://www.trusteemag.com/display/TRU-news-article.dhtml?dcrPath=/templatedata/HF_Common/NewsArticle/data/TRU/Magazine/2013/May/1305TRU_viewpoint

[33] Kuhn T, Basch P, Barr M, Yackel T. Clinical Documentation in the 21st Century: Executive Summary of a Policy Position Paper From the American College of Physicians Clinical Documentation in the 21st Century. *Annals of Internal Medicine*. 2015;162(4):301-3. http://annals.org/article.aspx?articleid=2089368

[34] Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap Draft Version 1.0. The Office of the National Coordinator for Health Information Technology. January 2015. http://www.healthit.gov/sites/default/files/nationwide-interoperability-roadmap-draft-version-1.0.pdf

[35] ibid

[36] McClellan M, Berenson R, Chernew M, Kramer W, Lansky D, Milstein A. Health Policy Issue Brief: Medicare Physician Payment Reform: Securing the Connection Between Value and Payment. The Brookings Institution. January 27, 2015. http://www.brookings.edu/~/media/research/files/papers/2015/01/012715-medicare-physician-payment-refom-web.pdf