Global Journals LaTeX JournalKaleidoscope™
Artificial Intelligence formulated this projection for compatibility purposes from the original article published at Global Journals. However, this technology is currently in beta. *Therefore, kindly ignore odd layouts, missed formulae, text, tables, or figures.*

Reluctance of US Doctors in Adopting EHR Technology

Ms. Sarooj Noor[1], Sarooj Noor[2] and Mr. Saeed ul Mahmood[3]

[1] MTBC

Received: 10 February 2012 Accepted: 2 March 2012 Published: 15 March 2012

Abstract

The purpose of this research is to identify the major barriers which are confronted by physicians and doctors in the adoption of Electronic Health Records (EHRs). This study will lead to various relative dimensions of Health Information Technology (HIT) with the involvement of Meaningful Use, Generic Role of the Government, and Technology evaluation. These selected variables will help us to develop a composite view on this study. The proposed theoretical framework evaluates the degree of reluctance in physicians along with imminent challenges, possibilities and plans that will streamline future incentives too.

Index terms— Doctors, Providers, Electronic Health Records (EHRs), Focus groups, Role of the Government, Meaningful Use, Technology Evaluation, USA.

1 Introduction

he main purpose of this study is to identify the overall role of US government with its influence on the behavior of doctors and physicians. The implementation of Electronic Health Records (EHR) has increased in light of the many, since there are many pivotal consequences related to it. With such progressive changes, there have been many perceived barriers and problems in the adoption of EHR. Proposed facts are generic role of the US Government, meaningful use, and technology evaluation which affects the development of EHR, and makes the physicians hesitant to adopt it. We cannot ignore the new adoptions in medical technology since every practitioner/doctor wants accuracy in his/her work.

For better health outcomes and more effective chronic care management, extra effort will hold great potential (Phrma Executive Summary, 2011). Electronic health record is now a fundamental component of healthcare **??**Hung, 2004). Healthcare systems have been improved by E-Health EHR as they provide confirmed healthcare with enhanced medical practice efficiency (Li, et al., 2010). Progress and technological advancement are key features to cope up with better and intended results in the field of Health. Isolated clinical information composed from computer-based tools would divest clinicians of most benefits that customized technology can confer, so the builders of EMR must continue to develop new ideas and the clinicians must continue to insist on products with utmost functionality (Sujansky, 1998).

This paper will detail the standard needs and responsibilities to create a balance between new incentive programs in EHR and complexities of the product. More complications in the adoption of EHR will surely disturb the level of Care. Results of this study will provide defined results for future modifications to the EHR system with revised standards of medicine.

2 II.

3 Literature Review

An extensive literature review was done to inculcate refined data for EHR and HIT adoption with summarized barriers as well. Health information technology (HIT) has become fundamental to healthcare development due to its potential to improve efficiency and amplify the quality of healthcare in the United States (DesRoches & Stalley, 2012). If the U.S wants to attain the goal of execution of EHRs within a decade, HIT facilities will need to put great exertion to speed up the process **??**Houser & Johnson, 2008). The purpose of this literature

review is to demonstrate the extensive adoption of electronic health records (EHR) in the medical industry, with perceived barriers that bring reluctance-related issues.

4 Role of the Government

The Government role is always demanding and complex (Google search, 2012) and it should stand upon exceptional principles (Benson, 1968). Role of the government in a market synchronizes all the legal responsibilities to govern a strategic regime. The Government should be very concerned to accelerate EHR adoption. Many government initiatives were visualized in the adoption of the universal electronic health record (EHR) by all the affiliated health maintenance organizations (HMO) by the year 2014 (Goldschmidt, 2005;Appari & Johnson, 2008). To accelerate EHR adoption in USA is one of the top concerns of the government (Ford, et al., 2009).

The Government has announced financial incentives for physicians who adopt EMR/EHR systems, within the specific period. Those who will meet the criteria will be paid an incentive up to $44,000 under the Medicare plan or $64,000 under the Medicaid plan over a period of five years starting from 2011. Using an example by Mason (2004), Australia Health Connect is the major national EHR initiative made up of territory, state, and federal governments. Shores, et al., (2010) claimed that changes in the industry and the government policies, force the providers to review their current systems and assemble the most efficient ways of accessing the government incentives, offered over the coming decades.

Recent studies revealed that the government policies play an active role in shaping and facilitating a country's health IT adoption and use (Castro, 2009). According to HFMA Survey Report (2006), the Government plays an important role to play in promoting EHR adoption. Government should play a vital role to speed up the development of additional standards for domains such as medications and clinical knowledge because this will really accelerate the adoption of standards for clinical data with their high rates (Bates, 2005). The future of EHR & EMR markets will be fundamentally dependent on authoritarian standards, the government support and future trends affecting domestic healthcare systems (Accenture Survey, 2010). E-Health Systems mainly depends on the success of EHR systems and the EHR system will be successful only if readiness and acceptance rate is high (Li, et al., 2010).

In spite of the fact that many practitioners/doctors are still reluctant to adopt the technology. The Government is trying to stimulate the creation of healthcare networks that use HIT (Blumenthal, et al., 2006) and has also been trying to get doctors to use EHR systems for a while now, but many physicians remain doubtful (Reece, 2011). The Government activities to promote EHR were extremely low, before 2004 (Ford, et al., 2009). HFMA Survey Report (2006) believes that the government is an imperative character in facilitating the universal adoption of EHR systems. To the reluctance among doctors, the government should make a huge investment in the development of healthcare IT, particularly in EMR and EHR software (John [a], 2009), which will definitely stimulate the EHR program affecting its rate of adoption as well (Shank, 2011).

H-1 : The lack of definitive healthcare standards from the US Government increases the reluctance of Doctors in adopting EHR.

5 Meaningful Use

Meaningful use requires that a physician should use a certified EHR in a meaningful manner. To be eligible for the EMR stimulus program, doctors are required to achieve the "meaningful use" standard, showing that their EHR benefits accomplishes the complete quality of healthcare they offer (Stayner, 2012). For defined results in EHR usability, the most appropriate task is to access the functionality of the EHR system in the framework of user-meaningful operations (Zhang & Walji, 2011).

Surprisingly Recent studies proved that achieving meaningful use of health information technology for improved quality of healthcare is critical (Kuhn, et al., 2010). The majority of EHR vendors are in the list of implementing Stage 1 Meaningful Use (MU) certified products (Underwood, et al., 2011), but providers/doctors need to meet all 15 of the core measures to be eligible for the incentives.

One of the prominent goals of The American Reinvestment & Recovery Act (ARRA or "the Stimulus Package"), is to amplify the "meaningful" use of Electronic Health Record (EHR) systems among medical providers (NCIRD, 2012). Many physicians find it difficult to meet the different criteria of "meaningful use" including e-prescribing, electronic exchange of patient health information, and reporting on clinical data. They think that purchasing an EHR system will be a waste of money, as they cannot implement EHR meaningfully. While John [b] (2009) & Mevis (2009) said that doctors or physicians who do not show "meaningful use" will be strictly punished in the form of declining Medicare payments. They must attest to "meaningful use" of certified EHR technology to be eligible for any financial incentive (Web Search [c], 2012). According to Terry (2009), physicians who are not using qualified EHRs meaningfully by 2015 will lose 1 percent of their Medicare reimbursement; in 2016, they will face a penalty of 2 percent and in 2017, 3 percent each year after that.

Apart from the financial implications of adopting EHR technology, there are numerous operational and workflow improvements that they have the potential to bring. EHR systems bring the promise of increased care (*Stages 2 and 3 will be defined in future by CMS rulemaking) quality, competence and security if used meaningfully (Zhang & Walji, 2011). At present the EHR integration and adoption within U.S. hospital

communities has become a widely recognized objective with the incentive programs for meeting stage 1, stage 2 and stage 3 the Meaningful Use criteria **??**Zywiak & Draze, 2010). Physicians who utilize EMRs and meet the criteria of meaningful use can take advantage of millions of dollars in incentives (Marcus, et al., 2009). These incentives motivate many doctors to go for the EHR implementation. These incentives started in 2011 and will be available over the next 5 years for a physician who will show "meaningful use" of an EHR system (John [b], 2009). Some physicians have found meaningful-use standards easy to carry out, however some have not (Carroll, et al., 2012). According to the Regional Extension Centers (RECs), physicians still encounter many problems in meeting the Meaningful Use requirements (Hirsch, 2012). Many physicians/doctors are hesitant to adopt new initiatives like meaningful use, which are costly to handle and may even have a negative impact on their productivity (Meaningful Use Blog, 2012). Some physicians still express reluctance as they believe that their workflows will be hindered and their data will be at risk (Harrell, 2012). A study by **??**oney [b] (2012) concluded 6 Biggest Meaningful Use Challenges for Rural Hospitals, where he identified that if rural hospitals are struggling to adopt EHR systems, it is possible that they are also struggling to meet meaningful use criteria. Halamka (2010) wrote in one of his blogs about, "The Top 10 Barriers to EHR Implementation" where he said that the stimulus money (cost) does not flow until meaningful use is accomplished. Who will pay in this time period? These are some critical conditions which brings reluctance among physicians/doctors to implement EHR in their organizations achieving meaningful use.

6 Technology Evaluation

Information technology (IT) has permeated every important aspect of daily life in the 2lst century (Hung, 2004) and doctors are the key factor in the creation of an online healthcare system (Woody, 1999). Aggressive use of information technology (IT) in the healthcare industry is strategically fruitful (Castro, 2009). Miller and Sim (2004) verified slow but steady progress in the adoption of new technology for quick technological improvements. Electronic medical record (EMR) is an essential new technology in healthcare with its universal acceptance and improvement in Health Industries (Samoutis, et al., 2007).

Adoption is recommended for better healthcare results as well as a reduction in healthcare costs. Technology evaluation and its acceptance is one of the most mature research areas found in contemporary information systems literature (Shank, 2011). Previous studies have found that the majority of doctors are frustrated and overwhelmed by paperwork, which leaves less time to tend their patients (Woody, 1999). Many physicians or doctors are not comfortable with new technology Halamka (2010).

Undoubtedly, lack of resources is a huge barrier in the implementation of EHR practices (Mason, 2004). A major reason for incomplete EHR implementation in rural hospitals is a lack of financial and operational resources; in addition there is a lack of knowledge and support for medical staff (Houser & Johnson, 2008). Poorly intended word-processed EMRs will convey limited promises of digital healthcare revolution (Sujansky, 1998). A lack of understanding of the design of EHR systems with the confrontation of new change invites many preliminary difficulties, while implementation of this program with new features are considered to be the major technological barriers to adopt EHR. Doctors who are reluctant to adopt EHRs with their patients are scared that the improved connectivity will increase spending more time in answering the questions (Medefile, 2011).

To stimulate technological progression, the new features of EHR will surely be supportive and helpful. A growing view of healthcare information and communication infrastructure is a key to fix the crisis in the U.S improving the healthcare quality, control cost and access (Stead, et al., 2005; HFMA Survey Report, 2006). Shores, et al., (2010) said that using potential technologies of EHR and e-prescribing, benefits like saving lives, preventing patient harm by access to complete medical history and saving billions of dollars in annual healthcare expenditures can be achieved whereas Carayon, et al., (2011) concluded that further implementation of EHR technology will increase various issues related to hospitals by the staff caring for ill patients. According to Reece (2011) EHRs won't be functional and physician-friendly until or unless physicians themselves have more input into their design.

There are a variety of dimensions that can be easily used to minimize the level of technological obstacles to HIT adoption (Blumenthal, et al., 2006). Brownlee & Pandey (2010) derived various provisions in encouraging doctors, hospitals, and other medical providers to adopt the latest facility of Electronic Health Records (EHR) for improved advancement of healthcare. Certain challenges covering data entry, data privacy, information secrecy and security of health information in the hands of authorized users, cover the technological problems in general (Mason, 2004). Barriers do include the general cost, complexity and technical issues of IT implementation **??**Health Report, 2004).

7 III. THEORETICAL FRAMEWORK

The above shown theoretical framework is a conceptual model of this current study which details the whole literature in a diagrammatic form. To realize the flow of EHRs, it is vital to evaluate not simply whether a practice has an EHR but all the capabilities of the EHR (Kemper et al., 2012). This paper explains the major dimensions for the EHR adoption since the implementation of EHR is highly supported in many healthcare systems of different countries (Gagnon, et al., 2010). A research model by Healthcare Financial Management Association, Westchester III (**??**006) is added, manipulating this current study. Another study by Sabogal

(2004) titled "EHR Adoption: A Barrier Analysis" additionally directed the same theme with many other factors. Discussion & Implications

Previous literature and research has clearly examined the importance of EHR practice. To get valuable data, it is fairly imperative to accomplish the purpose of the paper by both primary and secondary data **??**Johansson, 2003).

Analysis done by Byers in 2008 concluded that there has been an overall efficiency in EHR adoption rate of 45.6%, up from 40.4% from the past period. According to him, the EHR adoption rises as the number of physicians practicing rises and offices with three to five practicing doctors had 54.9% adoption, while offices with more than 26 practicing doctors had 77.2% adoption rate. 6,000 physicians surveyed in seven different countries showed that very high percentages of physicians use EMRs, 98% physicians in the Netherlands and 89% in the U.K (Smelcer, et al., 2009). However Ford, et al., (2009) concluded that less than half of the physicians working in small practices will implement EHR by 2014 (47.3%), based on existing levels of adoption of EHR, comparing with the adoption rates before and after 2004 **??**2001-2004 and 2001-2007 respectively).

The foremost important step towards implementing EMR/EHR adoption is to change the psyche of a user from "reluctant" to "willing" (Brownlee & Pandey, 2010). EHR adoption is relying on careful circumstances and positively trying its acceptance among doctors & physicians. The Government role is additionally important for engaging new tactics in medical billing. One of the pivotal implementations by the Government is to build capital accessibility to facilitate and offer a virtual linkage to small providers so that they can easily access EHR systems at a very reasonable price (Bates, 2005), which will surely reduce the reluctance level among doctors. Houser & Johnson (2008) conducted a survey but with a limited selfreporting data. They achieved a 69% response rate and of those who did not respond, the implementation of EHR in their hospitals was not detected.

More innovative and latest government incentives, merged with technological advances, are exclusively providing more progressive reasons for physicians to implement Health IT & EHR (AMA Report). Although there is a small number of hospitals that have realized the importance of these tools, more are beginning to achieve their patients' greater savings and improved customer satisfaction indeed **??**Hammer, 2006). EHR adoption is simple, more handy, and cost effective with reference to knowledge management and new learning technologies (Brownlee & Pandey, 2010) whereas Smelcer, et al., (2009) said that 30% of EMR system implementation failed unluckily, because physicians cannot use the EHRs/EMRs competently. Initial adopters that begin the transition to an EHR will instantly demonstrate the importance of 'meaningful use' realizing the highest possible financial incentive through the stimulus, with this the providers who implement and are "meaningfully using" a certified EHR system by the year 2011 and 2012 will realize the highest Medicare incentive of $44,000 (Web Search [b], 2012). Kuhn, et al., (2010) emphasized that we cannot generate vigorous indicators of meaningful use of HIT or cannot provide correct, relevant and trusted clinical guidance to inform healthcare delivery, until or unless we have remote consistency of capturing, organizing, and reporting information from EHRs as well as exchanging information between healthcare systems.

It's understood that if patients are provided with an easier channel of access to speak with their doctor typically through email, they'll make more requests to the physician (Medefile, 2011). Technological complications can be one of the important facets, but the induced results are predominant. Doctors should also support and dedicate in developing the complete infrastructure to sustain their IT applications **??**Health Report, 2004).

So the detailed variables of this study clearly demonstrate the overall importance of EHR implementation, with its strong and valid consequences. Physicians or doctors in medical practices that decide not to utilize an EHR system by the year 2015 may probably see Medicare/Medicaid reimbursement penalties starting from 1% to 5% and 2% in 2016, and 3% in 2017 (DesRoches & Stalley, 2012; Blumenthal, 2009). By the year 2020, approximately 50% of healthcare practitioners/doctors will be using a functional EHR (Goldschmidt, 2005).

V.

8 Limitations

EHR is highly affected by the role of the government, Meaningful Use and technological evaluations. The designed theoretical framework entertains the noteworthy factors affecting the reluctance of doctors in US. Biasness was avoided to be on one track. Although this present study comprised very limited number of determinants that might not be appropriate for other attitudes and perspectives related to EHR. Methodologically, the secondary data supported the developed hypotheses. This paper may have widened up the contextual framework among the doctors, physicians, patients. Doctors should confirm that they meet all the government requirements for meaningful use of EHR technology which will definitely develop all the 3 "Stages" from 2011 through 2015 (Clinician's Guide, 2011). We should accomplish all the incentives related to EHR programs with time. The Government should also apply realistic policies to make capital handy to provider group and virtual aid linkage for small providers so that they can access EHR systems at a sound price (Bates, 2005). Many problems are related to technology indeed, having minimum broadband communication networks, insufficiency of a standard code of generally accepted practices and protocols, meager user interface design and lack of suitable vocabulary and data transmission standards (Mason, 2004).

Quick actions must be taken to resolve all the technical issues, which will surely increase the adoption of EHR. There has been noteworthy progress in EHR adoption among the doctors and hospitals in US). Medicare and Medicaid increased the reimbursements policy for the doctors, making it an attractive offer. Electronic health

records (EHR) benefits are all apparent to its users, but considering it faultily only on the perceived consequences is noteworthy so with the right information, doctors must start EHR implementation (Gluck, 2011). [1] [2] [3] [4]

Figure 1: Global

Figure 2:

[1] © 2012 Global Journals Inc. (US)
[2] © 2012 Global Journals Inc. (US) www.mtbc.com
[3] © 2012 Global Journals Inc. (US) www.mtbc.com c c
[4] www.mtbc.com

2

Figure 3: H- 2 :

313

Figure 4: Figure 3 . 1 :Figure 3

Figure 5: Conclusion

Figure 6:

.1 Acknowledgements

The authors of this paper would like to thank MTBC for continuous support throughout this project.

.2 Year

Reluctance of US Doctors in Adopting EHR Technology 18. Hammer, D. C., **??**2006)

[Medical Informatics] , *Medical Informatics*

[Muhammad and Walji@uth] , F Muhammad , Walji@uth . (tmc.edu)

[Marcus et al. ()] , D D Marcus , J Lubrano , J Murray . 2009.

[Carroll et al. ()] , S S Carroll , J N Edward , D Rodin . 2012.

[Kemper et al. ()] , A R Kemper , R L Uren , S J Clark . 2012.

[Wikipedia ()] , Wikipedia . 2012.

[/why-are-some-physicians-reluctant-to-adopt-phrs] */why-are-some-physicians-reluctant-to-adopt-phrs*,

[Roney ()] *6 Biggest Meaningful Use Challenges for Rural Hospitals*, K Roney . http://is.gd/z2cuTo 2012.

[Shores et al. ()] 'Achievable Steps toward Building a National Health Information Infrastructure in the United States'. T Shores , T Obey , R Boal , W W Stead , B J Kelly , R M Kolodner . *Journal of the American Medical Informatics Association* 2010. 2005. 48 (2) p. . (The evolving e-prescribing landscape Challenges)

[Adoption of Electronic Health Records in Primary Care Pediatric Practices Official journal of The American Academy of Pediatr 'Adoption of Electronic Health Records in Primary Care Pediatric Practices'. http://is.gd/yjbIl2 *Official journal of The American Academy of Pediatrics* 118 (1) p. .

[Shank ()] *Behavioral Health Providers and Electronic Health Records: An Exploratory Beliefs Elicitation and Segmentation Study*, N C Shank . 2011. University of Nebraska Public Policy Center (nshank@nebraska.edu)

[Medefile ()] *Click for more information*, Medefile . http://www.medefile.com/blog/index.php/2011/11/1 2011.

[Clinician's Guide to e-Prescribing ()] *Clinician's Guide to e-Prescribing*, 2011.

[Contact: info@theCIMM.org] www.thecimm.org *Contact: info@theCIMM.org*,

[Roney ()] 'Despite Benefits'. K Roney . http://is.gd/cW8R29 *Physicians May Be Frustrated With Meaningful Use Stage 2*, 2012.

[John ()] *Detail's of Obama's EMR Stimulus Package. An Open Forum for EMR, EHR, HIT and HIPAA Related Information*, John . http://www.emrandhipaa.com/emr-and-hipaa/2009/01/24/details-of-obamas-emr-stimulus-package/ 2009.

[Doctor's Office Quality (DOQ) -Information Technology] *Doctor's Office Quality (DOQ) -Information Technology*, /4/2004.

[Li et al. ()] 'E-Health Readiness Framework from Electronic Health Records Perspective'. J H Li , L P W Land , S Chattopadhyay , P Ray . *International Journal of Internet and Enterprise Management (IJIEM)* 2010. 6 (4) p. .

[John ()] *Economic Stimulus Bill Simplified*, John . http://www.emrandhipaa.com/emr-and-hipaa/2009/02/17/economic-stimulus-bill-simplified/ 2009.

[Kuhn et al. ()] *EHR -Based Quality Measurement & Reporting: Critical for Meaningful Use and Health Care Improvement*, T M Kuhn , M S Barr , L A Gardner , D W Baker . 2010. (A Policy Paper of the American College of Physicians)

[Sabogal ()] *EHR Adoption: A Barrier Analysis, Senior Health Care Information Specialist*, F Sabogal . 2004.

[EHR/EMR Software Stimulus Package. Electronic Health Record Incentives HITECH Act ()] *EHR/EMR Software Stimulus Package. Electronic Health Record Incentives HITECH Act*, http://is.gd/BCjmRS 2012.

[Gluck ()] 'Electronic Health Records: Time to Take the Plunge'. P A Gluck . *Follow The Female Patient on and The Female Patient*, 2011. All. 36 p. .

[Electronic Medical Record: The Link to a Better Future Texas, Medical Association. The Physicians Foundation] *Electronic Medical Record: The Link to a Better Future Texas, Medical Association. The Physicians Foundation*, www.physiciansfoundation.org

[Stayner ()] *EMR (Electronic Medical Records) Incentives, Deadlines & Regulations. Click for more information*, M Stayner . http://is.gd/iUIsbK 2012.

[Castro ()] *Explaining international IT application leadership. The information technology and innovation foundation*, D Castro . 2009.

[Mevis ()] *Government stimulus package includes EHR funding. mevis@aaos.org; Click for more information*, H Mevis . http://www.aaos.org/news/ 2009.

[Desroches and Stalley ()] 'Health Information Technology in the United States: Driving Toward Delivery System Change'. C M Desroches , S Stalley . *Progress on Adoption of Electronic Health Records: Mathematica Policy Research*, 2012. Robert Wood Johnson Foundation; and Harvard School of Public Health.

[Blumenthal et al. ()] *Health Information Technology in the United States: The Information Base for Progress*, D Blumenthal , C Desroches , K Donelan , T Ferris , A Jha , R Kaushal , S Rao , S Rosenbaum , A Shield . www.rwjf.org.RobertWoodJohnsonFoundation 2006.

[Goldschmidt ()] 'HIT and MIS: Implications of Health Information Technology and Medical Information Systems'. P T Goldschmidt . *Communications of the ACM* 2005. 2012. 48 (10) p. . (pgg@has.com 16. Google Search)

[Carayon et al. ()] 'ICU nurses' acceptance of electronic health records'. P Carayon , R Cartmill , M A Blosky , R Brown , M Hackenberg , P Hoonakker , A Hundt , S Norfolk , E Wetterneck , T , B Walker , J , M . www.jamia.bmj.com *J Am Med Inform Association* 2011. 18 p. .

[Samoutis et al. ()] 'Implementation of an Electronic Medical Record System in previously computer-naive primary care centres: a pilot study from Cyprus'. G Samoutis , E S Soteriades , D K Kounalakis , T Zachariadou , A Philalithis , C Lionis . george.samoutis@gmail.com *Informatics in Primary Care* 2007. British Computer Society. 15 p. .

[Appari (ed.) ()] *Information Security and Privacy in Healthcare: Current State of Research*, A Appari , Johnson , ME . Ajit.Appari@Tuck.Dartmouth.edu and M.Eric.Johnson@Tuck (ed.) 2008. (Dartmouth.edu)

[Zywiak and Drazen ()] 'Integrating EHRs: Hospital trends and strategies for initiating integrated EHRs within their communities'. W Zywiak , E Drazen . NYSE: CSC). *Computer Sciences Corporation* 2010.

[Meaningful Use Definition Objectives ()] *Meaningful Use Definition & Objectives*, http://is.gd/aRY3Xk 2013.

[Medicare and Medicaid Electronic Health Record (EHR) Incentive Payment Programs ()] *Medicare and Medicaid Electronic Health Record (EHR) Incentive Payment Programs*, http://is.gd/JE8S3j 2012.

[Gagnon et al. ()] *Multi-level analysis of electronic health record adoption by health care professionals: A study protocol*, M P Gagnon , M Ouimet , G Godin , M Rousseau , M Labrecque , Y Leduc , A B Abdeljelil . http:// 2010.

[Ncird ()] Ncird . http://www.cdc.gov/vaccines/programs/iis/meaningful-use/index.html; iisinfo@cdc.gov *Immunization Information Systems (IIS) Web Search*, 2012.

[Woody ()] *New study finds doctors reluctant to adopt Web*, T Woody . http://is.gd/BVw5Sf 1999.

[Overcoming Barriers to Electronic Health Record Adoption. Results of Survey and Roundtable Discussions Conducted by the He 'Overcoming Barriers to Electronic Health Record Adoption. Results of Survey and Roundtable Discussions Conducted by the Healthcare Financial Management Association'. Accenturewww.accenture.com Google Search 2006. August, 2010. (Overview of International EMR/EHR Markets Results from a Survey of Leading Health Care Companies. Google search)

[Physician Engagement Series: Meaningful Use Meaningful Use Blog ()] 'Physician Engagement Series: Meaningful Use'. http://is.gd/3peQMd *Meaningful Use Blog*, 2012.

[Bates ()] *Physicians and Ambulatory Electronic Health Records*, D W Bates . 2005. Health Affairs. 24 p. .

[Miller and Sim ()] 'Physicians' Use of Electronic Medical Records: Barriers and Solutions: pages: 116-126. A survey of physician practices shows slow but steady progress in adopting this new technology'. R H Miller , I Sim . *Health Affairs* 2004. (23) .

[Ford et al. ()] 'Resistance Is Futile: But It Is Slowing the Pace of EHR Adoption Nonetheless'. E W Ford , N Menachemi , L T Peterson , T R Huerta . *Journal of the American Medical Informatics Association* 2009. (3) p. .

[Blumenthal ()] 'Stimulating the Adoption of Health Information Technology'. D Blumenthal . *The New England Journal of Medicine* 2009. p. .

[Byers ()] *Study: Small med offices fastestgrowing segment for EHR adoption*, J Byers . http://is.gd/8Xeo5C 2008.

[Terry ()] T Terry . http://is.gd/rfeeDy *The EHR Stimulus: A Complete Primer*, 2009.

[Sujansky ()] 'The Benefits and Challenges of an Electronic Medical Record: Much More than a "Word-Processed'. W V Sujansky . *Patient Chart* 1998.

[Underwood et al. ()] *The Correlation of Training Duration with EHR Usability and Satisfaction: Implications for Meaningful Use*, W S Underwood , A J Brookstone , M S Barr . www.americanehr.com 2011. American EHR Partners.

[Benson ()] *The Proper Role of Government*, E T Benson . http://laissez-fairerepublic.com/benson.htm 1968.

[Brownlee and Pandey ()] 'The Significance of EMR Adoption in Achieving Meaningful Use'. M Brownlee , S Pandey . *Healthcare Information Management and Communications* 2010. HCIM&C. (3rd Quarter)

[Zhang and Walji ()] 'TURF: Toward a Unified Framework of EHR Usability'. J Zhang , M Walji . *Journal of Biomedical Informatics. Jiajie.Zhang@uth.tmc* 2011.

[Smelcer et al. ()] 'Usability of Electronic Medical Records'. J B Smelcer , H M Jacobs , L Kantrovich . *Journal Of Usability Studies* 2009. 4 (2) p. .

[Using Electronic Health Records to Improve Quality and Efficiency: The Experiences of Leading Hospital] *Using Electronic Health Records to Improve Quality and Efficiency: The Experiences of Leading Hospital*, ssilowcarroll@healthmanagement.com

[Mason ()] *What Can We Learn from the Rest of the World? A Look at International Electronic Health Record Best Practices*, M K Mason . http://www.moyak.com/papers/best-practices-ehr.html 2004. (Canada He alth Infoway Report)

[Reece ()] *Why Doctors Don't Like Electronic Health Records*, R Reece . http://is.gd/hIk5wZ 2011.