

# Research proposal electronic health records

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## Effects of Technological Experience on Adoption and Usage of

ElectronicHealthRecords Introduction The integration of electronic health records in the IT infrastructures supporting medical facilities enables improved access to and recording of patient data, enhanced ability to make more informed and more-timely decisions, and decreased errors. Despite these benefits, there are mixed results as to the use of EHR.

The aim of this research is to determine if medical health professionals who lack experience with technology are slower to adopt and use electronic health records (EHR). Research has shown that the healthcare industry is plagued by rapidly increasing costs and poor quality. The United States medical care is the world's most costly, but its outcomes are mediocre compared with other industrialized, and some non-industrialized, nations. Medical errors are a major problem resulting in upwards of 98000 deaths a year; as a result, patient safety has become a top priority.

The healthcare system has been slow to take advantage of EHR and realize the benefits of computerization: that is, to improve access to records and patient data, to reduce incorrect dose errors, avoid drug interactions, and ensure the right patient is in the operating room (Noteboom 2012). Despite the obvious benefits a 2007 survey by the American Hospital Association reported that only 11% of hospitals had fully implemented EHR. Another study by Vishwanath & Scamurra reported less than 10% of physicians in different practices and settings in the US use EHR. Blumenthal (2009) cites only 1.5% of US hospitals have comprehensive EHR systems.

A similar 2009 study by the American Hospital Association shows less than 2% of hospitals use comprehensive EHR and about 8% use a basic EHR in at

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least one care unit. These findings indicate the adoption of HER continues to be low in US hospitals (Manos, 2009). Understanding the reason for the lack of technological integration is pivotal to securing quality and affordable medical care. Education expert Mark Prensky (2001) defined two terms, digital natives and digital immigrants, which he used to describe those who have an innate ability for technology from an early age (native) and those who are slower to learn and adopt it (immigrant).

This disparity is suggested to play a key role in the ability and desire of professional to use technological solutions in their day-to-day activities. Our intent is to expand this possibility to medical health professionals' use of electronic health records. Our research will attempt to determine if being native to technology has any impact on a practitioner's desire to incorporate information technology in to their work routine. We will also see if natives have perform better in health information settings as has been shown in other areas.

Previous Research A 2008 study by DesRoches et al. attempted to discern barriers to the adoption of electronic health records. The authors conducted a survey of physicians registered in the masterfile of the American Medical Association, excluding Doctors of Osteopathy. The authors listed 4 basic reasons the respondents could choose from; financial barriers, organizational barriers, legal barriers, and barriers from the state of the technology. Respondents could further clarify their responses base on subgroups.

Financial barriers could include initial capital to implement the systems or uncertainty about the return on investment. Organizational barriers were sub-divided in to physician didn't want to, the physicians did not have the <https://assignbuster.com/research-proposal-electronic-health-records/>

capacity to, or they feared there would be a loss of productivity during implementation. Legal barriers included fears of breaches of confidentiality, hackers, and legal liability. State of technology included failure to locate an EHR that could meet their needs or that the system would become obsolete to quickly.

Their results show that 66% of physicians without EHR's cited capital costs as a reason. They also responded with not finding a system to meet their needs, 54%, uncertainty about their return on the investment, 50%, and concern that a system would become obsolete, 44%. Physicians working in locations with EHRs tended to highlight the same barriers, though less frequently. The authors concluded that financial limitations are the greatest barrier to the adoption of electronic health records. They do admit that their study, like all surveys, could be subject to response bias.

Burt (2005) also surveyed physicians, this time from the National Ambulatory Medical Care Survey, a yearly survey conducted by the US census bureau. The authors were attempting to find correlations between EHR implementation and other statistics, such as age, practice size, and ownership (physician, physician group, or HMO). They used regression modeling and bivariate analysis of three years of survey data. They found that practices owned by HMOs were three times more likely to adopt EHR as single physician or group owned practices.

Also, large physician group owned practices (20 or more) had an increased usage of EHR over small group and single physician owned. The authors reported that there were no variations due to practice size in the different ownership groups. Physicians' age did not have any effect on EHR usage.

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The authors concluded that the ability of larger practices to spread the sizable investment required to purchase and implement the technology over more physicians and services was the largest factor in implementation EHR. Laerum (2001) was the first to look at how individual Physicians interact and use EHRs on an everyday basis.

The conducted surveys and telephone interviews with physician in 32 units of 19 hospitals in Norway, because a much higher percentage of Norwegian hospitals use EHR, about 73%. The authors selected 23 possible common tasks a physician that could be assisted by or completed by an EHR. The also collected computer literacy data, respondent age and sex and overall satisfaction with the system. The authors found that very few of the possible tasks were being utilized in the EHR. The found that on average physicians were using EHR for 2 to 7 of the possible 23 tasks.

Most of the tasks used related to reading patient data. The also found that the computer literacy rate was high (72. 2/100) and there was no correlation with respondents age or sex. They gave the users satisfaction as a generally positive rating. Though demonstrating that physicians use EHR less than they could they gave no explanation as to why. Simon (2009) followed the same path as Laerum mentioned above, surveying physicians usage of EHR in practices that have systems deployed. The authors identified ten main functions available in EHR systems deployed in hospitals in Massachusetts.

They attempted to determine if these ten functions were actually being utilized or if the physicians were still using paper. The authors deployed mail based surveys, in 2005 and 2007, to physician in Massachusetts. The surveys asked the practitioners if they had an EHR deployed in their hospital,  
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if and how they used the EHR for the ten predetermined tasks, and simple demographic information. The authors found that while EHR deployment grew by 12% (from 23% to 35% of hospitals), the amount of usage self reported didn't change.

EHRs were still mostly being used for reading patient data, but there was a small increase in the use of electronic prescribing, with 19.9% of physicians with this function available in 2005 using it most of the time, compared to 42.6% in 2007. Linder (2006) expanded on this by asking why physicians aren't using EHRs. The authors also conducted a survey of Partners Healthcare; which supports an internally developed, web based, fully functioning EHR called Longitudinal Medical Record. They also expanded their base to include nurses, nurse practitioners, and physicians.

The survey contained basic demographic information, self-reporting skill level with the EHR, how often they used the EHR, and what they felt were barriers to their use of the system. Since this survey was contained to a system that had already implemented the EHR, the authors had removed the typical barriers of capital as reported above, but they still found that 25% never or rarely used the system, and less than 15% used the system exclusively every time, i. e. never took paper notes or wrote paper prescriptions.

They found no correlation of EHR usage to age or gender, but did find that nurses were slightly less likely to use the system. The most uprising data was why practitioners said they didn't use the EHR with 62% of respondents saying they didn't want to suffer a loss of eye contact with the patients and 31% of respondents saying that they thought it was rude to use a computer

in front of a patient. Other notable reasons were falling behind schedule at 52%, computer being too slow (49%), typing skill (32%), and preferring to write "long prose notes" (28%).

This was the first study to identify social barriers to the adoption of EHR in professional settings. Since the majority of the research had been unable to identify simple solutions a series of workshops consisting of industry leaders were formed to study the problem. Kaplan (2009) reports that participants convened and discussed current issues and challenges with widespread adoption of EHR. The workshops conclude that while there are still some technical issues with Information technology in the health sector the main focus needs to shift to revealing sociological and cultural problems.

Noteboom (2012) took a different method to determine barriers to EHR adoption; eschewing all previous research in to problems with the usage of EHRs. The authors decide to use an approach more commonly seen in social sciences called open coding, a type of grounded theory. This method is almost the complete reverse of traditional research in that it starts with data collection. From this data, key points of text, in this case transcripts from case studies, are marked with a series of codes.

These codes are anchors that allow key points of data to be gathered. The researcher can then use these key points to construct a theory or hypothesis. Noteboom started with simple interviews with physician, attempting to elicit "perceptions, meanings, feelings, reasons, and comments" about their interaction with EHRs. The interviewed physician at the Research Medical Center, Kansas City, and labeled the transcripts of

these interviews. From these interviews the authors discovered that users of EHR fall victim to positive and negative work cycles.

Positive cycles are ways in which the system helps the physician, i. e. quicker reading of patient data or mining historical data. Negative cycles are tasks that take longer like data entry, which was done by nurses prior to EHR implementation, or lack of specific functions for specialists, calculate rad dosage for radiation therapy. Design Our research methodology will consist of a case study of medical health professional, preferably physicians, physician assistants, nurses, and nurse practitioners, currently employed in an institute running EHRs.

The primary data will be gathered through interviews to elicit perceptions on ability to adapt to and use new technology, feelings on the implementation of the technology, comments about the systems, and history of their technology use (to determine natives and immigrants). Secondary data will be collected by having competent users observing participants interaction with the system and evaluating their efficacy. Once the data has been collected it will be analyzed to determine if there is any correlation between digital natives and digital immigrants as it pertains to their use of EHR.

Special attention will be paid to how often the system is used compared to the theoretical maximum and how efficient the practitioner is compared to how efficient they perceive they are. Requirements to conduct this study are small. All that is required are willing hospitals that have EHR systems installed, hopefully with a diverse staff spanning many age groups and experience levels. We would also require around 5 interviewers who are well



versed in assessing software efficacy to conduct the interviews and gauge practitioners' abilities on the EHR system.

Statistical data will be calculated on IBM SPSS or similar. ? References Bates, D. W. , Ebell, M. , Gotlieb, E. , Zapp, J. , & Mullins, H. C. (2003). A proposal for electronic medical records in US primary care. *Journal of the American Medical Informatics Association*, 10(1), 1-10. Blumenthal, D. (2009). Stimulating the adoption of health information technology. *New England Journal of Medicine*, 360(15), 1477-1479. Burt, C. W. , & Sisk, J. E. (2005). Which physicians and practices are using electronic medical records?. *Health Affairs*, 24(5), 1334-1343. DesRoches, C.

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