

User Perceptions and Expectations of the MyHealth Record: A Case Study of Australia's e-health Solution

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Abstract

The Australian government has invested heavily into the national e-health solution; namely, initially the PCEHR now MyHealth Record. A critical success factor is concerned with patients' perceptions and expectations of this solution. Further, it is important to understand the effect of the MyHealth Record on the patient-provider relationship, quality of care, and user's views toward data security and confidentiality. The primary goal of this paper is to shed light on users' perceptions and expectations and thus to predict the sustainability of the MyHealth Record. This has important implications in general as all OECD countries transition to large scale e-health solutions.

1. Introduction

Healthcare systems around the globe are facing numerous and substantial challenges. These challenges range from changing demographics of patients to presenting and developing medical technologies and their implications on the cost of service (Hartman et al., 2009), loss of lives and wastage of resources due to medical errors, inefficient and inconsistent information systems (Berwick, 2003). Demand for better healthcare services is increasing while human and fiscal resources are decreasing (Duckett & Willcox, 2011). These challenges have exposed the fragility of healthcare systems and their infrastructure further; and emphasizes the need to establish a reliable and coherent plan to deal with these challenges (Tang et al., 2013).

In response to these challenges, e-health initiatives, particularly the Electronic Health Record (EHR) is being adopted and implemented around the globe (Wickramasinghe and Schaffer 2010). The benefits of transforming healthcare information from paper-based

systems to electronic health record systems have been very well documented; however, numerous social and technical e-health adaptation and implementation barriers have been reported in literature (André et al., 2008; Avgerou, 2008; Bernstein et al., 2007; Boonstra & Broekhuis, 2010; HFMA, 2006; Kennedy, 2011; Liu et al., 2011; Tang et al., 2013; Thweatt & Kleiner, 2007; Trudel, 2010). Previous reports call for the use of an EHR for better health information sharing and for more efficient healthcare delivery with more successful healthcare outcomes (Deloitte, 2008; Fiscella & Geiger, 2006; Gill, 2010; Häyrynen et al., 2008; NHHRC, 2009; Wiljer et al., 2008). A report prepared by Deloitte (2008) suggests that meaningful improvements in the performance can only be achieved if any reform can bring about significant improvements in the way information in the healthcare sector of Australia is collected, handled, used, shared and disseminated.

Like many other countries, Australia is investing heavily in e-health initiatives namely MyHealth Record or Personally Controlled Electronic Health Record (PCEHR)¹. Specifically, in the federal budget for the fiscal year (2014-15) the government allocated an extra Australian \$146.6 million on top of its previous commitment of Australian \$466.7 million to overhaul the healthcare system of Australia. This is a significant investment in the course of transforming the healthcare delivery system in Australia. Despite this significant investment it continued struggles to implement MyHealth Record. The implementation of the MyHealth Record has raised many interesting questions concerning policy issues - such as patient privacy, security of information, identification and management of patient's consent for participation, and data collection. Technical issues concerning system complexity, user understanding of the system, lack of standards and protocols, disparate health information systems and frameworks for integration (Currell et al.,

¹ It is important to note here that the name of the e-health solution was changed from PCEHR to MyHealth Record in 2015. To be

consistent we use the name MyHealth Record throughout the paper.

2000; DoHA & NEHTA, 2011; Foo, 2012; Hall, 2010; Lehnbohm et al., 2012; Leslie, 2011; Liaw & Hannan, 2011; McDonald, 2012; Muhammad et al., 2012; Naismith, 2012; Showell, 2011; Spriggs et al., 2012; Westbrook et al., 2009). These issues are very important to investigate and research to provide data and information that will assist in a smooth and successful MyHealth Record implementation is an imperative (Bernstein et al., 2007; HFMA, 2006; Liu et al., 2011; Tang et al., 2013; Trudel, 2010).

Given the inherent complexities of healthcare operations, it has been argued that human and non-human actors' interactions are challenging and need to be evaluated with theoretically informed techniques (Wickramasinghe & Schaffer, 2010). One approach identified in the literature used to correctly and accurately capture the complexities and levels of interactions in healthcare operations is to use a Socio-Technical System (STS) perspective (Aarts et al., 2004; Wickramasinghe et al., 2009; Yusof et al., 2008). A Socio-Technical system is described as a system where technical and social dimensions of a system are interrelated (Cresswell et al., 2010). To determine the functionality of a system, it is important to understand the fit between technical and social sub-systems in an organization (Mitchell & Nault, 2008). The emphasis is then not only on studying the impact of the technology on organizations and work processes, but also on the social issues pertaining to technology and work processes (Cresswell et al., 2010). For this reason, it is also important to understand the inter relationships and interactions between the technical and social systems (Coiera, 2007). In addition, to achieve the successful implementation and adoption of MyHealth Record it is important to understand the expectations and perceptions of its users. Thus this study was conducted to understand the expectations and perceptions of MyHealth Record users through the lens of STS. This study serves to answer the key research question "Why are user expectations and perceptions critical factors for success or failure of MyHealth Record implementation adaption and use."

There are very few studies in the literature that examine user perceptions and expectations of any kind of EHR or PHR. In the Australian context, there is no study to date that has been conducted to examine user expectations and perceptions of MyHealth Record. This study has been conducted in an attempt to fill this gap.

2. Methodology

A single case study methodology was adopted for this study. The data were gathered through a survey

and, to analyze the collected data, a mixed method approach was adopted including descriptive statistical data analysis techniques and standard qualitative analysis techniques. A survey instrument was developed to collect data to answer the primary research question presented in introduction section. The survey questions were designed to evaluate the preparedness of key stakeholders of MyHealth record users to adapt and use the system. To check the reliability and validity of the survey instrument we ran a pilot study on a small group of the population from diverse demographic background. In addition, ethics approval was granted by university for this study.

2.1 User group survey questionnaires

User Groups were divided into two categories – as the success of the MyHealth Record is highly dependent on its users. User groups were divided into groups according to their role in MyHealth adoption and use.

1. General public
2. Service providers (healthcare professionals)

2.1.1 General public survey. Questionnaires were administered to the general public in Australia. Any adult aged 18 or above living permanently in Australia was asked to participate. A general public survey was published online through Qualtrics and also was distributed in printed form.

A total of 98 responses including online and printed surveys were received. 100 surveys were sent through email as a link out of those 100, 18 emailed surveys were opened and completed. 21 surveys were filled online through social networks and 59 printed surveys were completed by participants.

2.1.2 Service provider's survey. A separate questionnaire was administered to healthcare service providers (general practitioners (GPs), Nurses, Acute healthcare providers, specialist doctors.). All permanent residents of Australia and service providers who are eligible for Health Identifiers were asked to participate. This survey was published online through Qualtrics. The response rate was very low with just 5 responses received online. The researcher distributed 100 printed surveys and response again was low with 10 completed surveys received. Table below shows the distribution of survey respondents.

Table 1: Distribution of survey respondents

| Service Provider | Numbers |
|-----------------------|---------|
| General Practitioners | 7 |
| Nurses | 2 |
| Gynaecologist | 2 |
| Cardiologist | 1 |
| Dentist | 2 |
| Pharmacist | 1 |
| Total | 15 |

3. Data Analysis and Discussion

This section discusses the results of both the general public survey and service provider survey.

3.1. Communication between Consumers and Service Providers

Using different means of communication between consumers and service providers was evaluated by asking questions such as do the participants use other means of communication to interact with his/her GP. 73% indicated he/she has not used any other means to interact with his/her GP, 21% indicated he/she has interaction with his/her GP over the phone, and only 2% communicated through email. None of the participants indicated whether or not any interactions occurred with physicians on an on-line community blog or social network. The response suggests that a face-to-face consultation with a physician is a preferred communication method for health service consumers. When the participants were asked if using other communication methods would be useful for them to interact with their doctors, 15% strongly agreed, 45% agreed, 21% didn't know and 11% disagreed 8% strongly disagreed, indicating that the majority were in favor of using other means of communication.

In the event of changing his/her GPs, participants were asked how his/her health record was transferred to the new service provider. 14% were sent automatically to the new provider, 13% were responsible to obtain copies of the health record, 21% were required to make multiple inquiries including a written request, 35% were unaware of what happened to the health record, and 16% indicated that the health record never reached the new provider. The response of participants suggests that the accessibility of patient record for both patient and service provider is a complex and difficult process in the event of change of a service provider.

Participants were asked about the importance of having his/her health record accessible for both the

service provider and consumer, the results were surprisingly mixed. Results indicated that 16% felt accessibility was extremely important, 29% said that it was very important, 32% were neutral, 15% thought it was not important, and 8% said that it was not important at all for them to have electronic health records available. Thus the standard deviation (1.15) is large and Means Squared is 1.33. The results are presented in table 2 below:

Table 2: The availability of the health records electronically

| Answer | % | Response | Value |
|-----------------------------------|------|--------------------|-------|
| Not at all Important | 8% | Min Value | 1 |
| Very Unimportant | 15% | MaxValue | 5 |
| Neither Important nor Unimportant | 32% | Mean | 3.3. |
| Very Important | 29% | Means Squared | 1.33 |
| Extremely Important | 16% | Standard Deviation | 1.15 |
| Total | 100% | Total Response | 98 |

3.2. Use of Internet Based HIT for Health Monitoring and Controlling

Prior use of technology was an important factor in understanding participant's perceptions and expectations and likelihood of MyHealth record adoption. Participants were asked whether or not any internet or computer based health information system was used to monitor or control personal health. Approximately 83% indicated that there was no prior use while 17% indicated that prior use of a system had occurred. The small standard deviation indicated that the data was tightly centered around the mean. Participants that responded positively to prior use of a health information system were asked additional questions to further understand how the systems were utilized. Participants answers to questions related to e-health utilization varied widely. A common theme was identified in the use of online seminars.

3.3. Intentions to use the MyHealth Record

Intentions to use a system can effectively predict the utilization of a given system (Venkatesh & Goyal, 2010; Venkatesh et al., 2012). Participants were asked nine questions in an effort to understand the intentions to use MyHealth record. Participants were asked about

the usefulness of the summary information available in MyHealth record. Responses from the participants indicate that 82% thought it would be useful. When asked about the usefulness of health information in an emergency or while traveling, responses indicated that 57% thought it would be useful, 24% were unsure, and 19% thought that it would not be helpful. Overall respondents were in favor of using the system if the record provided the same information as his/her GP's record. Participants were asked about the influence of Internet and computer skill level on the decision to use the system and if the system needed to be adapted to his/her skill level. Participants agreed at a rate of 37%, 43% disagreed, and 20% were uncertain. The standard deviation is large in every question because of the agreement and close approximation between disagreements, the answers of the individuals creating spread from the mean and average.

3.4. Security, Privacy and Governance

The security, privacy, and governance of electronic health records were identified as critical factors for the success of e-health. Based on the findings of the literature review, the researcher developed a number of questions specifically related to security, privacy and governance. Approximately 90% of participants indicated that privacy and security of personal medical records are important and should be protected all of the time. Adoption of MyHealth record was highly dependent on the level of security and privacy of health records for 85% of participants.

Participants indicated that unauthorized and non-clinical use of medical records were a significant concern. Participants were asked if the security and privacy of medical records were more important than other types of records, such as banking, personal address, and tax return information. Responses suggested that 56% felt the health information was more important, while 26% were unsure. Participants showed mixed feelings about governance of the MyHealth Record. Trust related to the Australian government and NEHTA was adequate for 68% of the participants. Only 36% of participants felt comfortable with the laws and regulations related to the security of user information in the MyHealth record, 44% were unsure, and 20% indicated that the laws and regulations were inadequate. Participants further indicated that a log should be available to trace use of personal medical records.

Participants were asked about sharing the medical record with others. Results suggested that 86% were willing to share the information with a spouse/partner and only 2% were comfortable sharing the information with an employer.

Participants were asked about accessibility in the event of a medical emergency. Implicit responses from the participants indicated that the record should be available to physicians and staff, 95% agreed that the record should be available to emergency physicians in a hospital or private practice, and 14% indicated that the record should be available to the police.

3.5. Use of Computer and HIT in Medical Practitioners Practices

Providers were asked about the use of computers within health practices and the knowledge to use the computers effectively. All providers responded affirmatively to both questions. The majority of providers, 83% indicated that computer experience and training was primarily self-guided, while 17% indicated that training occurred during graduate studies. When asked about how comfortable a provider was using a computer, 50% indicated being a general user that was well-rounded and knowledgeable, while the other 50% indicated being advanced users with the ability to assist others, and work independently. Use of an Internet or computer based HIT systems for healthcare delivery by providers was 83%, leaving approximately 17% not using any HIT system. Perceptions from providers for using the Internet or HIT systems were mostly positive, especially for medical billings, appointments, and searching for descriptions of diseases.

Table 3: Purpose of computer or internet use

| # | Purpose of use | users |
|----|--|-------|
| 1 | Medical billing or payment | 80% |
| 2 | Fill a prescription | 40% |
| 3 | Make an appointment with patient | 80% |
| 4 | Communicate with patient | 20% |
| 5 | Search for health relating information | 100% |
| 6 | Record patients symptoms and health information | 80% |
| 7 | Record my activities or track health progress of my patient | 73% |
| 8 | Search for descriptions of disease and definitions of terms used in my treatment | 100% |
| 9 | Join disease specific or general health related chat rooms | 0% |
| 10 | On-line seminars | 40% |
| 11 | find a hospital or specialist that treat a specific disease | 20% |

Systems varied widely in the ability to generate reports with specific information. The reporting capabilities were dependent upon the capabilities within the HIT system and the abilities of the providers or staff. Perceptions of the reporting capabilities of the HIT system are presented in Table 4.

Table 4: Capabilities of current system to generate reports

| # | Capabilities | Very Difficult | Difficult | Cannot Generate | Easy | Very Easy |
|---|--|----------------|-----------|-----------------|------|-----------|
| 1 | List of patient by diagnosis Or health risk (e.g. any kind of Chronic disease) | 17% | 0% | 33% | 50% | 0% |
| 2 | List of patients by laboratory results (e.g. patients with abnormal hemoglobin levels) | 0% | 17% | 17% | 49% | 17% |
| 3 | List of patients by medication they currently take (e.g. patients on warfarin) | 16% | 0% | 18% | 44% | 22% |

3.6. Service Provider’s Expectations of Management Support and Leadership during the MyHealth Record Implementation and Adoption

Top management support and leadership are considered critical success factors for any IT based implementation and adoption. Provider's perception of the role of management in implementing MyHealth record varied widely. More than half of the respondents, 60%, were unsure if MyHealth record was a top priority for management, while 40% felt that it was a top priority. Providers had an expectation that management would effectively introduce MyHealth record 45% of the time, leaving the majority of providers, 55%, believing that management would not introduce the system effectively. Very few providers, 10%, did not feel that consultation or involvement during the implementation process of MyHealth Record was important. Although 90% of providers wanted to be involved in the process, only 30% felt that management would involve the providers in the implementation process. The majority of provider's responses indicated that training was important but only 20% thought that management would provide the necessary training. Access to the resources needed for effective implementation of MyHealth Record was a concern for providers, 35% indicated access to resources, 20% were unsure, and 45% indicated that appropriate resources to learn and use MyHealth Record would be available.

3.7. Service Provider’s Intentions to Adopt the MyHealth Record

To understand the intentions of service providers regarding the MyHealth Record adoption, several questions were asked. The responses from these questions helped the researcher to understand the key factors for the MyHealth Record adoption and implementation. The first question the participants were asked was about knowledge and awareness of the MyHealth Record. The majority of respondents were

aware of the MyHealth Record. 21% strongly disagreed that of being aware of any new e-health system, 17% neither agreed nor disagreed, whereas 62% responded were aware of the upcoming MyHealth Record and had a good understanding of the system. When the participants were asked if they see themselves adopting the MyHealth Record early after its roll-out, again results were mixed. Although the majority of the providers indicated early adoption of MyHealth Record, a number of factors influenced provider intentions. The important factors of the adoption decision process were financial cost, proper training, and the alignment between system values and user values. The providers also indicated that systematic consultation with the user at all levels of the life cycle of the system development and implementation was another consideration. It is important to note that a significant number of respondents indicated that she/he was not the part of the consultation about the MyHealth Record implementation procedures and policies. The majority of the participants responded that recommendations were not heard or implemented. Respondents indicated a number of additional factors influencing the decision to implement MyHealth Record. Complexity of the system and time consumption were reported as important factors by 80% of the respondents, 98% were in favor of user incentives such as government compensation for start-up, and 76% were influenced by continuing technical support.

Respondent's perceptions of MyHealth Record will largely determine the effectiveness of the system. The large majority of providers, 90%, indicated that Internet based eHealth systems are easy to use. Perceptions of 70% of the providers indicated that a system that can hold patient records, prepare for patient appointments, prepare online referrals, and access medication information will be useful in providing efficient and effective healthcare services. When asked an opinion about a system that includes a summary of all medical treatment and medication information and is accessible from any location at any time, 81% of providers would support the adoption of the system. All respondents indicated a willingness to encourage other providers to adopt the system. The decision to adopt a system will be based on the level of security and privacy and ability to integrate with clinical systems for 75% of the respondents. The results are presented in Table 5 below

3.8. Intentions to use the MyHealth Record

The intentions to use a system can predict the success of the system (Venkatesh & Goyal, 2010; Venkatesh et al., 2012). To understand the healthcare

service provider's intention to use the MyHealth Record, the researcher asked 17 questions. First question sought an opinion about the usefulness of the summary of patient health records available online anywhere, anytime. All respondents indicated that the system would be useful to assist in better provisioning healthcare services. Also, all respondents were in favor of using MyHealth Record if the system provided complete records comparable to current clinical records.

The respondents were asked an opinion about the usefulness of the MyHealth Record in clinical settings. The majority of the respondents, 76% strongly agreed that the system would improve the quality of service and produce improved healthcare in a clinical setting, while 34% agreed. Respondents were asked if the MyHealth Record would provide greater control over work schedules which resulted in 49% indicated being unsure, 17% agreed, and 34% strongly agreed. The general consensus among service providers was that the MyHealth Record will make their job more efficient, effective and secure.

Although 85% of the providers indicated that training will be needed, 83% indicated that adequate training would not be provided.

Table 5: Service provider's intentions to adopt the MyHealth Record

| Question | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
|--|-------------------|----------|----------------------------|-------|----------------|
| I am very well aware of the PCEHR system. | 0% | 20% | 0% | 60% | 20% |
| I can see myself adopting the PCEHR very early after its roll-out | 0% | 20% | 20% | 0% | 60% |
| The financial cost of the PCEHR is an impotent factor for my decision to adopt it | 0% | 0% | 10% | 90% | 0% |
| I will adopt the PCEHR if I will be given proper training. | 0% | 0% | 20% | 60% | 20% |
| I will adopt the PCEHR if it will align with my values | 0% | 10% | 0% | 10% | 80% |
| I will not adopt the system if I am not the part of wider consultation process | 0% | 60% | 20% | 20% | 0% |
| I will not adopt the system if as a user I will not have any involvement in the PCEHR implementation and adoption process | 0% | 60% | 20% | 20% | 0% |
| My involvement during the PCEHR implementation phase will be effective | 0% | 0% | 60% | 20% | 20% |
| The time I need to spend to use this system will have impact on my decision to adopt this system | 0% | 10% | 0% | 10% | 80% |
| I will see what incentives are there for me before I decide to adopt this system | 20% | 0% | 70% | 10% | 0% |
| Easily and freely available technical support will have positive impact on my adoption decision. | 20% | 0% | 0% | 60% | 20% |
| If system is very complex I will not adopt it. | 0% | 0% | 20% | 80% | 0% |
| Internet based medical records sound too difficult for me to use | 20% | 80% | 0% | 0% | 0% |
| A system that helps to prepare for my patients appointment or visit is not useful to me | 20% | 40% | 40% | 0% | 0% |
| A system that makes it easy for me to consult with other specialists is not useful to me | 20% | 80% | 0% | 0% | 0% |
| A system that can hold all the information about medication is very useful to me | 10% | 0% | 0% | 10% | 80% |
| A system that can hold all the information about treatments is very useful to me | 10% | 0% | 0% | 10% | 80% |
| Having a summary of all important health information saved at one place is important for me | 0% | 0% | 0% | 20% | 80% |
| The availability of health record at any time anywhere when it is needed is important to me | 0% | 0% | 0% | 10% | 90% |
| If My interaction with the PCEHR will be clear and understandable "user-friendly" I will be more inclined to adopt it. | 0% | 0% | 0% | 20% | 80% |
| If Learning to use the PCEHR will be easy for me I will adopt it. | 0% | 0% | 0% | 20% | 80% |
| I will encourage the adoption of the PCEHR among my colleagues. | 0% | 0% | 0% | 50% | 50% |
| My decision of adopting and using the PCEHR is depending on the level of satisfaction from the security and privacy of electronic health records in PCEHR. | 0% | 0% | 60% | 10% | 30% |

3.9. Physician Autonomy

Physician autonomy, the freedom to treat patients according to best judgement, has been a significant part of physician's professional identity (Yarbrough and Smith 2007). Research has shown that autonomy has been challenged through IT based healthcare interventions (Yarbrough and Smith 2007). e-health is considered one of the challengers in this respect, thus it was important to ask providers about the MyHealth Record and if the MyHealth Record poses any threat to clinical autonomy. Overall, providers disagreed that the MyHealth Record threatened or limited autonomy. Results are presented in Table 6.

Table 6: physician autonomy

| Question | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
|---|-------------------|----------|----------------------------|-------|----------------|
| Using the PCEHR will increase the hospital administration's ability to control and monitor the physicians' clinical practices and decision-making. | 34% | 0% | 0% | 45% | 21% |
| Using the PCEHR will increase Healthcare service provider's ability to control and monitor the clinical practices and decision-making. | 34% | 0% | 0% | 45% | 21% |
| Using the PCEHR may threaten the physicians' personal and professional privacy. | 45% | 21% | 17% | 17% | 0% |
| Using the PCEHR may result in legal or ethical problems for the physician. | 17% | 17% | 21% | 45% | 0% |
| Using the PCEHR may limit the physicians' autonomy in making clinical decisions or judgments. | 45% | 34% | 0% | 21% | 0% |
| Overall, the physicians' attitude about using the PCEHR may be negatively affected as a result of the increased control and monitoring of his/her clinical practices and decision-making. | 45% | 21% | 17% | 0% | 17% |
| Overall, the physicians' attitude about using the PCEHR may be negatively affected as a result of the security, legal and/or ethical concerns associated with using the PCEHR. | 15% | 17% | 17% | 34% | 17% |

3.10. Doctor Patient Relation

The current healthcare model stresses importance of the relationship between service provider and patient. The perception is that e-health can have serious impact on doctor patient relationships by minimizing the interaction between doctors and patients. Investigations to understand the service provider's perceptions about if the MyHealth Record can have any positive or negative impact on this relationship was undertaken. The participants were asked for their opinion about how patients will respond to use of the MyHealth Record instead of personal interactions. All providers indicated that interactions with the MyHealth Record will not reduce patient confidence levels. 83% strongly agreed and 17% agreed. Similar response rates were reported when providers were asked about whether the use of MyHealth Record would threaten the credibility of the provider, 83% strongly disagreed and 17% disagreed. Providers reported the same feelings about whether it

was likely that patient satisfaction with the quality of care will be reduced through the use of MyHealth Record, 83% strongly disagreed and 17% disagreed. Participants responses were slightly different when asked about improvement in the interaction between the provider and patient, 49% strongly disagreed and 17% agreed. The results indicate that the general perception of the service provider was positive about MyHealth Record.

3.11. Physician Leadership

Physician leadership was another important factor identified during data collection. When service providers were asked if peer groups have established the consensus about the MyHealth Record adoption and use, the majority (54%) responded that there is no consensus. When asked why there is no consensus, responses indicated that very little is known about MyHealth Record which has created confusion among providers.

Service providers also think that giving consumer's autonomy of their healthcare record is not a good idea and can have negative impact on health service provision. Physicians think that medical terms are difficult to understand for most individuals and can confuse patients. Furthermore, management of a health record will allow a patient to edit or hide information from providers, resulting in a significant obstacle in making informed decisions about patient treatment.

4. Conclusion

The results of this study revealed that implementation of the MyHealth Record is a complex process becoming more challenging due to increased barriers that need to be overcome. The Australian Government has been enthusiastic about the MyHealth Record's potential benefits with continuous budget investment despite the lower than expected implementation of the MyHealth Record during the first year. It is understood that the full potential benefits will not be obvious immediately and may take many years to realize the impact of the MyHealth Record. Meticulous planning has been completed in the implementation of the MyHealth Record in the system's conceptual, legal, healthcare provider's incentive and training. Different concerns have been raised in the system model and its supporting framework by stakeholders and e-health experts as indicated in the analysis. The results of this study support the argument of using theoretically rich and informed analysis techniques presented by Aarts et al.,

(2004); Cresswell et al., (2010); Wickramasinghe et al., (2009); Yusof et al., (2008).

The results of the data collection and analysis are the plan of a "satisficing" process which includes understanding the need for change and extends beyond the clinical environment to understand the strategic plans, workflows, interactions between human and non-human actors. The results were presented on the basis of user group perceptions and expectations from the MyHealth Record collected through survey questionnaires. The results have identified critical factors for the implementation and adoption of MyHealth Record through the lens of socio-technical system perspective (Aarts et al., 2004; Wickramasinghe et al, 2009; Yusof et al., 2008).

The results of this research indicate that the majority of users (service providers and general public) held positive perceptions that the system improve patient care and help service providers by providing readily available information to improve decision making and the quality of healthcare services. Even though users were mainly positive about the system, many expressed concern about legal, privacy, and security issues. Service providers showed more resilience around physician autonomy and doctor patient relations when using MyHealth Record. On the other hand, the general public perception regarding MyHealth Record was positive in terms of use and adoption, but concerns were expressed and the security of information and privacy. Another primary concern was lack of knowledge about MyHealth Record and uncertainty regarding availability.

This study also contributes to literature by highlighting the importance of the use of sociotechnical theories for the analysis of the data gathered for MyHealth Record implementation and use evaluation. The use of STS to study the healthcare IT implementation and adoption issues is contribution to the theory. In closing, the researcher contends that understanding the key facilitators and barriers to the implementation and adoption of the MyHealth Record in Australia is very important to the success of the system. The real time collection of health information followed by distribution and access is only possible if widespread adoption of the MyHealth Record is achieved. Seamless sharing of health data between clinical professionals and staff is critical to accommodate the complexity of high risk decisions that must be made based upon available information. The MyHealth Record will only succeed if the government properly supports the reform agenda, directly involves key stakeholders, and understands the perceptions and expectations of professionals and the general public. It is evident that the numerous planned eHealth solutions either fail to deliver on

promises (Kavousi, et Al., 2012; Rozenblum, et Al., 2011) or wind up closing operations due to the failure of realizing the complexities of healthcare information system implementations.

This study has also contributed to practice by identifying key constraints to MyHealth Record implementation and adoption. The results of this study can be used for other health IT implementations and adoptions, thereby paving the way for improvements to the implementation process of health IT systems which improve to quality and safety of health outcomes for patients and provides benefits to efficiency and effectiveness in the management and provision of healthcare services.

In the context of Australia's MyHealth Record, this research supports the argument of Lehnbohm et al., (2012) that the implementation and adoption of the MyHealth Record requires a realistic assessment of the e-health environment in Australia and a very clear governance policy, a committed leadership, and sustainable e-health implementation plan. Furthermore, a suitable IT governance structure is required in primary and acute healthcare facilities to better manage the MyHealth Record implementation and adoption. The concerns identified were two-fold. One; perhaps there hasn't been enough appreciation. First, the Australian government hasn't shown an appreciation of the scale of the MyHealth Record project. This has resulted in the primary focus being placed upon what is going to be at the core of the project; whereas the focus needs to include the various challenges on the periphery. The MyHealth Record is complimentary to the core of e-health reforms in Australia. To get the best outcomes from an investment in an HIT system, the Government needs to start with a very clear intention of desired business outcomes. Second, the main focus is on the technology but requires attention to critical implementation factors such as change, adoption, and engagement with the public and clinicians. Understanding work habits and cultural perspectives will be crucial factors for success of MyHealth Record. If the Government is going to invest billions of dollars in a time when budgets are limited, supporters must be very confident that the system is designed to achieve the desired benefits when MyHealth Record is fully implemented and adopted.

The study has a number of limitations since the MyHealth Record is part of the Australian National eHealth reform, the data collected did not fully represent the thoughts of all Australians. A review of a limited number of opinions and experiences of specific individuals has led to an in-depth understanding of specific settings and situations studied at specific sites. The data has provided rich

information and insights relating to the case study of the MyHealth Record, however the lack of representation from states like Tasmania and Northern Territories reduces chances of generalizability. The next step for successful implementation and adoption of the MyHealth Record and its evaluation research is to carry out more investigation to examine in greater detail the specific barriers and facilitators identified in this study in a longitudinal study where researchers can collect data before the implementation of the system and after the implementation for more rich and meaningful results. Multiple case studies carried out in different states of Australia in different settings including primary and acute healthcare settings in various hospitals should be conducted to further improve the generalizability of the findings. Given the growing significance of eHealth implementations and adoptions occurring globally to improve healthcare delivery, successful implementation and adoption of MyHealth Record warrants further study in this important area.

Overall this research serves to demonstrate the importance of e-health implementations in healthcare services and delivery settings of Australia by evaluating the case study of the MyHealth Record. It further identifies the key success factors for the successful implementation and adoption of the MyHealth Record by examining the key user's perspectives of MyHealth Record. This research also notes that a socio-technical analysis techniques need to be used for the analysis of those systems where human and non-human (technology) actors are involved. In summary, it is recommended that more longitudinal research is needed in this growing area of e-health implementation and adoption studies.

5. References

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