

Electronic Medical Record: Exploring Benefits and Barriers Perceived by Mental Health Providers

Yaritza M. López-Robledo, PhD

Ponce School of Medicine and Health Sciences
Ponce, Puerto Rico

Diana M. López-Robledo, DBA

University of Puerto Rico in Ponce
Ponce, Puerto Rico

Vanessa Torres-García

Michelle Santiago-Medina

Ponce School of Medicine and Health Sciences
Ponce, Puerto Rico

Abstract

Previous studies of Electronic Health Records (EHR) have not clearly contemplated the perspective of mental health care professionals, particularly Latino Psychologists. A research was performed in order to study the use of an Electronic Medical Record (EMR) in a Mental Health Clinic Facility in Puerto Rico. This exploratory case study addressed the following objectives: (a) identify possible benefits and barriers during and after the implementation of an EMR in a Mental Health Clinic, and (b) offer recommendations to ensure more benefits and higher expansion of the system. A semi-structured questionnaire was administrated to the clinical personnel (n=18). Some of the benefits identified are that the system: facilitates, speeds and simplifies the registration of general information, improves the quality of data entry, and keeps records organized. Some barriers identified included: limited permission to modify records and equipment capabilities and performance. In conclusion, there were more benefits than barriers identified.

Keywords: electronic health record, mental health, Puerto Rico, psychology, EMR, information system, benefits, case study

1. Introduction

Recent legislation from Medicare health insurance is stimulating health care providers to the adoption of Electronic Health Records (EHR) as their primary information system to keep up information from its patients, physicians, providers, among others. Any health care provider who doesn't fulfill the requirements of this new legislation will no longer be able to bill Medicare for the services provided to their patients.

The use of EHR is not a requisite to small clinics that do not bill Medicare or any of its providers as they take care of patients without health insurance or privates. Some studies made on different countries had shown that EHR speed up administrative processes and suggests advantages after using those systems. The use of an EHR may positively impact the quality of service given to the patient, as data collected by the system may be more reliable because the system itself verifies invalid data entered by the user; important fields cannot be left blanks, and so on. The use of a system like this may also encourage the clinical practice based on evidence (EBT), giving as a result a benefit for the patient. This study explored if such an EHR system can benefit a small clinic even if it is not going to bill Medicare for any services. In other words, can it be seen more than a benefit rather than a requisite?

1.1 Research Questions

To extend previous research work on Electronic Medical Record and develop a more customized idea of the use of this type of systems in Puerto Rico, an exploratory (qualitative) study was conducted.

The following questions were explored: Which are the benefits and risks identified by the administrative and clinical personnel of the Clinic after the implementation of an EMR in a Clinic of Psychological Services? Which are some recommendations that can be given to the Clinic and other mental health providers about the implementation of an EMR in Puerto Rico?

1.2 Objectives of the Study

The objectives of the study was (1) to identify possible benefits and barriers that mental health providers can face up after the implementation of an EMR in a small Clinic in Puerto Rico, and (2) to offer some recommendations on future changes that the Clinic can adopt to ensure more benefits and higher expansion of the System. After reviewing the results on this case study, other mental health clinics in Puerto Rico will be able to consider the possibility of implementing this system.

2. Background

Over the last years, the incorporation of electronic systems and devices throughout daily living had been the norm. From the use of a cell phone which storages huge amounts of data, through the use of electronic devices to perform many tasks which were previously carried out by people. This transformation had made several impacts over the way health services are been delivered; and mental health is not an exception. Computers were first used for administrative functions in hospital settings around the 1960's, after its use in business and research settings (Berner, Detmer, & Simborg, 2005). Several years later, specifically from 1980's information technology suffered significant changes, showing an increased interest in policies that had potential to further the development of electronic medical record (Berner, Detmer, & Simborg, 2005). In fact, recent legislation in the United States seeks to computerize medical records by 2014 (Hoffman & Podgurski, 2011).

As described by Puskar & colleagues (2004), the electronic medical record includes all components of the patient's medical records and enables any member of a patient's treatment team to access the patient's progress notes, treatment plans, medications, and other patient information from a variety of locations. There are several terms used to refer to an electronic record, including Electronic Medical Record (EMR) which is an electronic record of health-related information on an individual that can be created, gathered, managed, and consulted by authorized clinicians and staff within one health care organization; Electronic Health Record (EHR), an electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization; and Personal Health Record (PHR), an electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be drawn from multiple sources while being managed, shared, and controlled by the individual. One main difference between these terms is the accessibility that has the administrative personal, clinicians, individual or patient and other health institutions.

As mentioned before, some legislation advocated for the use of EHR as early as 2001, called the American Recovery and Reinvestment Act (Institute of Medicine; Committee on Quality of Health Care in America, 1999). This legislation provides financial incentives to physicians who adopt and use Electronic Health Record technology; in fact, those who haven't adopted certified EHR systems by 2014 will have their Medicare reimbursements reduced by up to 3% beginning in 2015 (Ledue, 2009). The main reasons behind this huge effort made by the government of the United States relates to improve the quality of care delivered, as well as reducing the costs associated with paper medical records.

Implementations of EHR had been made, showing significant results and benefits for different clinical settings over several countries. Some researchers evaluated the results of the implementation of several computer-based patient record systems on medical practice, founding a favorable perception by physicians, with user satisfaction being mainly positive (Delpierre, Cuzin, Fillaux, Alvarez, Massip, & Lang, 2004). Results showed that as once exposed, physicians felt a need for an information system, pointing to potential identified benefits on its use. Another study, examining the impact of computer-based documentation in an examination room during routine pediatric visits, found that it improved the use of open-ended questions, and promoted more dialogue about anticipatory guidance (Johnson, Serwint, Fagan, Thompson, Wilson, & Roter, 2008).

Another case example of the potential benefits of implementing EHRs in a medical clinical setting was examined by Xiao and colleagues (2011).

These authors studied the impact of implementing an EHR for methadone treatment on the HRB Centre for Primary Care in Ireland. Among others, they pointed to the continuity and follow-up given to the treatment offered to each patient. Other researchers had concluded that implementing an ambulatory electronic medical record system can yield a positive return on investment to health care organizations (Wang, Middleton, & Prosser, et al., 2003), suggesting economic benefits through its implementation. Some of the advantages that have seen developing this type of program are facilitating the data entry, provide data collection and auditory for clinical authorities (Xiao, L., Cousins, G., Courtney, B., Hederman, L., Fahey, T., & Dimitrov, B., 2011). Hoffman, S. and Podgurski, A. (2011) that this type of program provide a ready access to clinical documentation, these systems transmit diagnostic test images and results to physicians so that the data can be quickly reviewed and shared with patients. It is widely believed that broad adoption of electronic medical record (EMR) systems will lead to major health care savings, reduce medical errors, and improve health (Hillestad R., Bigelow J., Bower A., Girosi F., Meili R., Scoville R. & Taylor R., 2005).

However, despite the evidence pointing to the benefits of implementing EHR on medical settings, and the amounts of money invested in health information technology research (Berner, Detmer, & Simborg, 2005), it is widely known that its use is actually still low. Among other limitations described in some studies performed to evaluate the implementation of EHR, economic factors had been constantly listed as a main limitation. Both the design and implementation of such a system involves high cost. In fact, according to some authors, without full upfront funding, EHR adoption would not be feasible for practices in large cities of the U.S.A. with extremely limited resources and minimal staffing (Samantaray, Njoku, Brunner, Raghavan, Kendall, & Shih, 2011).

2.1 Mental Health Clinic Using EMR

The implementation of EMR has been shown to have potential for psychologists in an integrated mental health setting. EMR can help clinicians to provide quality service, based on effective documentation, coordination and communication. EMR contains tools, such as smart phrases, that can enhance assessment in mental health conditions, specific evidenced-based treatment interventions and facilitate health documentation with structured templates. This program also assists health providers with symptom measurement and tracking patient progress over time. In addition, EMR can heighten communication between mental health providers with case consultation, treatment planning and coordination, by means of e-mail or staff messages of the program (Steinfeld & Keyes, 2011).

Another study evaluated an opinion poll of health care providers in relation to the implementation of EMR in a Psychiatric hospital setting (Boyer, Samuelian, Fieschi & Lancon, 2010). Boyer et al., interviewed health care professionals (psychiatrists, psychologists, nurses and administrative professionals), on the opportunities and barriers concerning the implementation and use of the EMR. Among the opportunities of EMR, 70% of professionals established possible improvement when accessing to current patient information and quality care. They also, identified that the strategy used for EMR implementation is of great importance to explain high levels of satisfaction in the hospital. Meanwhile the main barrier faced by 73% of professionals upon implementation of EMR, was reduction in work efficiency. Other barriers identified, were economic issues and production of care.

2.2 Mental Health Clinic using EMR in Puerto Rico

Electronic medical record had been an issue during various years, but in Puerto Rico Mental Health Clinics has not yet implemented this type of systems. At least, at the time this study was performed, no article had been found on academic or professional journals about implementations on Puerto Rico. In this regard, this study is the first one carried out in Puerto Rico in mental health and the results will open new perspectives on the academic area. The study presents a high degree of innovation within the mental health publications in Puerto Rico.

We assume that the costs involved by the new regulation on Health Care Industry to implement an Electronic Record System to be able to bill Medicare or Advantages Health Insurance can be afforded by full-size healthcare organizations but there is no evidence that small Mental Health Clinics are really going to seek for them. For this reason, it is necessary that mental health providers in P.R. identify potential benefits rather than limitations that could make them open to implement an EMR.

3. Methodology

3.1 Setting, Population and Participants

The present study was conducted at Clinic of Psychological Services (CSP, acronym in Spanish) in Puerto Rico. This clinic is responsible of providing a variety of mental health services to the community of different towns located in the southern area of Puerto Rico. CSP provides services to a population starting at the age of 6 years old. These services included several types of psychotherapies, such as: Individual Therapy, Couple Therapy, Family Therapy and Group Therapy. The therapists that offer services in the Clinic are interns and practitioners in the doctoral program (Ph.D.) of the school. CSP has been offering services to the community for 10 years, during which most of the documentation related to the patients have been collected manually (paper-based). The clinic annually attends approximately 600 patients.

The EMR was introduced to the Clinic as a new complementary system for the patients. It was developed specifically for the clinic and called INSESI, as part of a pilot project. INSESI is an in-house windows-desktop application implemented in July 2011. Each of the screens of the system were mainly transferred from paper to computer, as they are practically the same information previously completed on paper. However, some changes were made to reduce duplication of patient's data collection process.

On the phase 1 of the pilot project, the main purpose of INSESI was to speed up the process of interpretation and analysis of statistical data at the end of each month and at the end of the year. After testing the system, it was implemented and available for all of the professionals working at the clinic. All of the users were able to begin an interaction with the system within 1 month and provided feedback on improvements and other general suggestions.

The sample of the study was selected from professionals working at the Clinic. It was comprised of 18 participants (2 males and 16 females). The age range from 21 to 24 years old was 16.7%, from 25 to 34 years old was 66.7%, from 35 to 44 years old was 11.1% and from 45 to 54 years old 5.6%. Most of the sample had completed a bachelor's degree (77.8%), a 16.7% completed a master's degree and 5.6% had a doctorate degree. Half (50%) of the participants were Interns, 27.8% were Practitioner Students, 5.6% were Chief of Interns and 5.6% were classified as Administrative Personnel. Most of the participants, except for administrative personnel, were enrolled in Ph.D. program at the time of the research.

3.2 Instrument and Procedure

A questionnaire was elaborated according to literature found on important factors that may affect the acceptance of an electronic medical record. The questionnaire examined user's opinion on the EMR benefits, opportunities and barriers on the implementation. Personal data from the participants (gender, education, position in the clinic) and experience with computers was also recorded. The instrument had closed questions with a Likert-type scale and four additional open questions about achievements of the system, experience with it and perspective of future phases of the project. The internal consistency of the questionnaire was assessed with a Cronbach's coefficient alpha. The value of the Cronbach's coefficient alpha was .83.

The study protocol was approved by the Institutional Review Board of Ponce School of Medicine on February 2012 (120214-YL). The data collection process was completed using drop-off/pick-up method. The drop-off/pick-up is a data-gathering method using self-administered questionnaire (Rojas-Méndez and Davies, 2001). The questionnaire was handed to the professionals and completed in period of two days. Data collection process was during March 2012, 8 months after the implementation of the system. Results were analyzed utilizing SPSS version 18.0, and statistical descriptive analysis.

4. Results and Discussion

Some benefits of the implementation of the system identified by the participants are discussed in this section. Participants were asked if the system facilitates the registration of the patient's health record with demographic information, in which 66.7% responded 'strongly agree' and 33.3% responded 'agree'. Participants were asked if the system speeds the registration of general information of the patient, where 61.1% responded 'strongly agree' and 27.8% responded 'agree'. Also, 33.3% of the participants responded 'strongly agree' with the statement that the system improves the quality of data entry and 44.4% responded 'agree'. Another item states that the quality of the treatment offered to patients has not diminished by the use of the system.

In this item, 77.8% responded 'strongly agree' and 16.7% responded 'agree'. In general, the system maintains patient's record organized, as 66.7% of the participants responded 'strongly agree' and 27.8% responded 'agree'.

Results showed that 47.1% of the sample perceived the EMR as a substitute for the paper record and 52.9% perceived it as a complement. However, 94% consider the use of the electronic system to be beneficial, 66.7% of the participants agreed that the system should include more documents in the electronic system and 94.4% agreed that if they had a private office they would implement an electronic record system. Most of the participants are at their final stage of their Doctorate program, so in a near future they will be working as psychologists, either in a private office or in a Clinic. Having the experience at this time to become familiar with an EMR had positively influenced their general perception of it, and this was confirmed with the study as 94.4% agreed they are willing to use it in their private offices. Therefore, this pilot project is also helping the future psychologists interact with electronic records and understand the importance and benefits of an EMR system to provide a better health care for their patients.

4.1 Specific Benefits Identified by the Participants

In general terms, benefits are: the time reduction of performing simple tasks, validation of data entered into the system which reduce errors, organization of the patient's record and improvement of communication among providers and patients because the system facilitates and simplifies the general information of the patient. All of these benefits summarize additional benefits related to them. For example, if the quality of data entry is improved by the system it means that fewer errors are kept on the patient's record and also it will positively affect later decisions based on that data. It will finally have an effect on the quality of the patient's treatment. Also, if the system keeps the archives organized it may be assumed that it helps with search of documents needed and professionals will be able to locate easily what they need in the future. Treatment plan notes can also improve communication between different members of the staff. If the documents are in the system, the communication will be improved as mental health professionals do not need to deal with understanding the handwriting of other professionals who previously worked on the record. This will also increase the quality of the patient's treatment.

Regarding the design of the system, 100% answered that system screens are user friendly and 94.4% agreed that the general appearance of the system is pleasant which may have positively affected their perception and attitude toward the system. Also, 77.8% of the participants feel confident working with the system and 94.5% agreed that as they increment the use of the system, they have more understanding of it. In terms of the participant's ability or relationship with computers and technology, 94.4% feel confident of working with a computer, 77.8% consider themselves familiar with technology and 100% consider computers as an effective instrument on their work areas.

Reports produced by the system provide the administrative professionals with statistics about patient's demographic information (gender, age, among others), patient's appointments by therapist, diagnostics of patients treated in the Clinic, type of treatment (individual, couple, group), among other important statistics to evaluate the interns and practitioners performance and the annual treatments provided by the Clinic in general. In the case of the administrative professionals, psychologist and director of the Clinic, 100% agreed on three affirmations: the time it takes to obtain statistics at the end of the month is less time consuming than the manual way, reports that the system displays the necessary information required for decision making and the system make them feel more confident with the reports and/or statistics at the end of the month than if they would have done it manually.

4.2 Key Points for Improvement

Some key points were identified in the results as an important points for improvement in the system or facts that affect the user's attitude toward an EMR. First, 27.8% of the sample remained neutral to the statement that the system informs them of the errors found in a simple way. Although 66.7% agreed with this statement, the 27.8% who remained neutral seems considerable and needs some attention. Second, 27.8% remained neutral to the statement that the training received in the use of the system was important to understand and manage it.

4.3 Additional Perceived Achievements from the Participant's Perspective

The instrument used for the study included four open questions. On these questions, all responses were explicitly reviewed to find similarities on their answers and some categories were found to address the majority of their opinions. The first question asked for the participant's perspective on the achievements of the system. There were several achievements perceived by the participants. From 17 participants who gave different comments, 52.94% agreed that organization of the file was a major achievement.

In addition, a 35.29% of the participants mentioned the schedule register of patients that is clear and concise, as they can easily record a new appointment, manage previous appointments and follow up patient's appointment.

A 29.41% also mentioned administrative statistics as an achievement, as they can have access to this type of reports quickly (most of the reports with statistics on demographic and intern's performance are available only to administrative personnel of the Clinic). Also, 35.29% agreed that the system speeds tasks, when having to access their patient's record, reports, manage petition of services, check record status, among other similar tasks.

A better control on case assignment was mentioned by a 23.53% of the participants, as they can easily assign cases to different interns and check who is in charge of each patient at any time. Almost 41.18% agreed that the system facilitates tasks, 11.76% mentioned there is less manual work and less paper documentation and 11.76% agreed the system reduce paper use on the Clinic. One of the participants made a comment that there is an advantage with the system in case a paper is missing then you can print it again from the system.

4.4 Additional Perceived Barriers from the Participant's Perspective

The second question asks for the limitations that the system had and what should be corrected. There are three main barriers identified by the participants. The first barrier was limited permission to modify records, which was identified by 41.17% of them. The second barrier was data loss, which was identified by 23.53%. The third barrier was equipment capabilities and performance, which was identified by 17.65%.

The system allows only the Director of the Clinic to be responsible for deleting anything that has been entered by error. Any other user, including chief of interns, is not allowed to delete any information on the system. This strategy was implemented in order to have control over who can delete records to reduce the possibility of any user deleting some important data from the system that might not be recovered later. Giving users the permission to delete would take away this limitation on their perception but may add some other concerns at the same time. Future recommendations could address this comment by providing permission to modify information that belongs to their patients in the next phase of the system.

Some of their comments were that "there is some data in the system that has been entered but not registered", "not always appointments are saved on the system". There is a need to address this situation and must be solved directly with the participants, evaluating their unique experiences on this to be able to solve software bugs, if there are any. Also, they stated "computers are too slow", "there are few computers available". In the case of this limitation, it is important to recall it might not be a limitation of the system but a limitation of the Clinic where it is implemented. Additional limitations mentioned that should be corrected in next phases of the system are the option to look-up patients always by their file number instead of their name. Some of the participants suggested adding a schedule for the offices available for the patient's appointment, so they may assign an office to a patient at a specific time. By having this office-appointment feature they may be able to see at what time there are still offices available to evaluate their patient's.

4.5 Adaptation and Perceived Need for Continuing to Next Phases

The third question asks how easy or difficult it was to adapt to the new system. On this question, 76.92% agreed the adaptation was easy, 15.38% said it was regular and 7.69% stated it was hard at the beginning. Most of them commented that the system was simple, user friendly and that by practicing they had a better performance. Also, they said computer skills helped them in the process.

The fourth question asks for the participant's opinion about continuing with next phases of the pilot project so that the system can be converted to an electronic medical record system in its totality. Most of the participants, representing 81.25%, agreed that the Clinic should continue to the next phase so the system can be converted to an electronic medical record in its totality. One of the participants mention the Clinic must continue in current phase to fix errors and another participant said the Clinic must not continue with the next phase. Important comments and recommendations were made on this question. Participants suggested "the system must continue until a total digitalization is achieved", "it is a good support for the Clinic and investigation using data on the system", "I agreed and consider that advantages are huge and it has facilitated processes", among others.

5. Conclusions

This research reveals that implementing an EMR in a Mental Health Clinic brings more benefits than limitations. Despite the initial difficulties presented by users, in general, file organization and communication among mental health professionals are key benefits from EMR. Training users is definitely a recommendation, as difficulties with technologies was mentioned by some of the participants. In this regard, the adoption of an EMR has to deal with change and administration of the Clinic must give the personnel an appropriate training on the system. The general appearance of the system is as important as the confidence in the system, which may positively affect the user's perception and attitude towards the system. The time it takes to obtain statistics reports is less time consuming than the manual way, reports provides information required for decision making and the system makes them feel confident with the reports and statistics. Finally, in the case study presented, participants agreed to be more open to use them at their private clinic in a near future.

6. Limitations and Suggestions for Future Work

The research presented was a case study in one Clinic in Puerto Rico. However, it explored the benefits and barriers identified that can be addressed in the future. After considering the literature on EMR and EHR in other disciplines, we found that the perspective of psychologists and other mental health providers has not been highly investigated. Mental health providers have the challenge of taking important decisions related to the treatment and record keeping of patients' information. In addition, Latino psychologists have not been specifically represented in previous studies and there is a challenge for this cluster of professionals in addressing specific barriers and benefits of the implementation of new technology in their practices. More studies are suggested in this area to address barriers and benefits in the implementation of EMR systems in Puerto Rico.

8. References

- Berner, E., Detmer, D., & Simborg, D. (2005). Will the Wave Finally Break? A Brief View of the Adoption of Electronic Medical Records in the United States. *Journal of the American Medical Informatics Association*, 12, 1, 3-7.
- Delpierre, C., Cuzin, L., Fillaux, J., Alvarez, M., Massip, P. & Lang, T. (2004). A systematic review of computer-based patient record systems and quality of care: more randomized clinical trials or a broader approach? *International Journal for Quality in Health Care*, 16, 407-416.
- Developing an electronic health record (EHR) for methadone treatment recording and decision support. *BMC Medical Informatics and Decision Making*, 11, 1-10.
- Fetter, Marilyn S. (2009). Electronic Health Records and Privacy. *Health Information Technology and Literacy Column, Issues in Mental Health Nursing*, 30:408-409.
- Haux, R. (2006). Health information systems – past, present, future. *International Journal of Medical Informatics* 75: 268-281.
- Hillestad R., Bigelow J., Bower A., Girosi F., Meili R., Scoville R. & Taylor R. (2005). Economics Of Health Information Technology: Can Electronic Medical Record Systems Transform Health Care? Potential Health Benefits, Savings and Costs. *Health Aff* 24:51103-1117; doi:10.1377/hlthaff.24.5.1103
- Hoffman, S., & Podgurski, A. (2011). Meaningful Use and Certification of Health Information Hoffman, S., & Podgurski, A. (2011). Meaningful Use and Certification of Health Information Technology: What about Safety?. *Journal Of Law, Medicine & Ethics*, 39:77-80. doi:10.1111/j.1748-720X.2011.00572.x
- Institute of Medicine; Committee on Quality of Health Care in America: To err is human: Building a safer health system. Washington, D.C.: National Academies Press 1999.
- Johnson, K., Serwint, J., Fagan, L., Thompson, R., Wilson, M., & Roter, D. (2008). Computer-Based Documentation: Effects on Parent-Provider Communication During Pediatric Health Maintenance Encounters. *Official Journal of the American Academy of Pediatrics*, 122, 3, 590-596.
- Khin Than, W. (2005). A review of security of electronic health records. *Health Information Management Journal*, 34(1), 13-18.
- Practices. *The American Journal of Managed Care*, 17, 5, 353-358. Promoting Electronic Health Record Adoption Among Small Independent Primary Care.
- Ray, Amy W., Wong, Wilson, Newell, Susan, and Dillard Jesse. (June 2010). Beyond Privacy and Security: Ethical Dilemmas Resulting From Emergent Uses of Electronic Health Information. 7th International Conference on Enterprise Systems, Accounting and Logistics. Rhodes Island, Greece.
- Richards, M. (2009). Electronic Medical Records: Confidentiality Issues in the Time of HIPAA. *Professional Psychology: Research and Practice*, 40, 6, 550-556.
- Rojas-Méndez, J. and Davies, G. (2001). 'Drop-off/pick-up as a method of maximizing response rates in self-administered surveys'. Working Paper No. 434, Manchester Business School, Manchester, UK.
- Samantaray, R., Njoku, V., Brunner, J., Raghavan, V., Kendall, M., & Shih, S. (2011). Technology: What about safety? *Journal of Law, Medicine & Ethics*, 77-80.
- Wang, S., Middleton, B., Prosser, L., Bardon, C., Spurr, C., Carchidi, P., Kittler, A., Goldszer, R., Fairchild, D., Sussman, A., Kuperman, G., & Bates, D. (2003). A Cost-Benefit Analysis of Electronic Mendical Records in Primary Care. *The American Journal of Medicine*, 114, 397-403.
- Xiao, L., Cousins, G., Courtney, B., Hederman, L., Fahey, T., & Dimitrov, B. (2011). Developing an electronic health record (EHR) for methadone treatment recording and decision support. *BMC Medical Informatics and Decision Making*, 115.