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Influence of Change Management Strategy on the Adoption of Electronic Medical Records Systems in Public Hospitals in Nairobi County

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Abstract: ***This study sought to determine the influence of change management strategy on the adoption of electronic medical records systems in public hospitals in Nairobi County. Despite the admirable benefits EMR systems promises, there are varied challenges facing their adoption with poor change management being the dominant one. EMR systems have however been successfully adopted in instances where specific change management strategies have been implemented. The study adopted cross-sectional, descriptive survey study design while the study population was drawn from 32 public hospitals with EMR systems in Nairobi County. The study used questionnaires addressed to the officer in-charge of the hospital to collect data. The postulated objectives were tested by employing the Pearson Correlation statistical tool which was facilitated by the statistical package for social sciences (SPSS), while the main method of data presentation was frequency distribution tables. The study findings indicated that there was low EMR hospital coverage with majority reporting that only one department was using EMR. The results of the study revealed that EMR adoption had a moderate positive relationship with participative strategy, educative strategy, and planning. The relationship between EMR adoption and directive strategy was positive but weak. Relative to other strategies, participative strategy had a stronger positive relationship with EMR adoption and was also highly significant with p=0.025. The results further indicated that on job training was the most used mode of training In addition, the study revealed that majority of the respondents had used coercions and ultimatum in bid to influence EMR use. The study recommended that staff should be fully involved in EMR projects to fully exploit the positive relationship with EMR adoption and thus enhance adoption. Secondly, measures should be put in place to guard against breach of patient privacy during on job training sessions as well as conduct train trainers who will conduct internal training on demand and long after implementation is over.***

Keywords: Change management, Electronic Medical Records (EMR), Adoption, public hospitals

1. Introduction

With the remarkable adoption of ICT in many sectors in Kenya, the health sector has a great demand for electronic medical records systems to replace the manual paper-based system in health facilities in Kenya. The government has released the Standards and Guidelines for Electronic Medical Records (EMR) in Kenya in 2010 whose aim was to provide guidance for the development of EMR systems for use in Kenya and set an environment for successful implementation and use of these systems as well as ensure quality of software, compatibility of data sharing, ease of maintenance and common understanding among workforce (Ministry of Health, 2010).

In the foreseeable future, it is likely that the familiar, paper-based patient medical files, contained in thick folders and stored on long shelves or in filing cabinets, will become a thing of the past (Hoffman & Podgurski, 2008). Msukwa (2011), further observes that EMRs are expected to replace paper based medical records as the primary source of medical history for each person seeking health care, while still complying with all clinical, legal and administrative requirements.

Implementing and adopting an EMR involves significant change that requires strategic management for it to succeed. Munyao(2013) indicates that incorporation of change management strategies, such as participation by stakeholders during the implementation process, is a critical component of effective ICT systems implementation. Since implementing an EMR create change, it is imperative that for the process to be successful, managers need to skilfully drive and navigate change while ensuring that the objectives are met. Oseni (2007) defines as a departure from an existing process or way of doing something, to a new process or a different way of doing the same thing (Oseni, 2007). McCarthy and Eastman (2010), define change management as a structured process designed to deal directly and intentionally with the human factors involved in not just planning and implementing an EMR but through behaviour change, achieving the anticipated benefits that justified the project in the first place.

1.1. Statement of the Problem

The Ministry of Health (MoH) in Kenya is keen on transforming health by way of accelerating attainment of health goals. In her second medium term plan for health from 2013 to 2017, MoH endeavours to have all counties will have at least fifty per cent of facilities using innovative IT based systems for management (Ministry of Health, 2013).

Neumeir (2013) notes that despite the potential benefits of implementing an EMR, the adoption of this technology has been slow and has faced many barriers with the most salient being poor change management. Renner (2009) indicates that nearly three-quarters of all practices purchasing EMR systems in the US are not successful when integrating the technology into their workflow but more than ninety per cent of practices who adopt specific change management techniques succeed in implementing

an EMR. Furthermore, Frisse (2009) notes that organizational culture; organizational commitment, change management, and skilled personnel are important determinants of success in EMR implementation. All these findings point to the need for change management as a key factor influencing EMR adoption. McCarthy and Eastman (2010) concur by saying "effective change management is integral to the successful implementation of an EMR". In addition, the fact that there are numerous benefits expected from EMRs and yet the adoption rate remains low points to the presence of enormous challenges facing the process. According to Meinert (2005) as cited by Boonstra and Broekhuis (2010), the slow rate of adoption suggests that resistance among physicians must be strong because physicians are the main frontline user-group of EMRs and whether or not they support and use EMRs will have a great influence on other user-groups in a medical practice, such as nurses and administrative staff.

It is against this background of: the current formal focus on change management in the medical informatics area being relatively new (Lorenzi & Riley, 2000), the low EMR adoption rate, and coupled with the potential of employing change management strategies to drive up adoption rates, that this study sought to determine how change management strategy influences adoption of EMR amongst public hospitals in Nairobi County.

1.2. Objective of the study

The general objective of this study was to determine the influence of change management strategy on the adoption of electronic medical record systems in public hospitals in Nairobi County. The specific objectives of the study were:

1. To determine the influence of directive strategy on the EMR adoption in public hospitals in Nairobi County.
2. To determine the influence of educative strategy on the EMR adoption in public hospitals in Nairobi County.
3. To establish how participative strategy influences EMR adoption in public hospitals in Nairobi County.
4. To establish the intervening influence of planning for the EMR change process on the EMR adoption in public hospitals in Nairobi County.

2. Literature Review

2.1. Theoretical Framework

Change management encompasses the effective strategies and programs to enable the change agents to achieve the new vision (Lorenzi & Riley, 2000). According to Campbell (2008) and Wolf (2006) as cited by Neumeir (2013), Kotter's Change Management Model is one of theories on change that has been used to facilitate the adoption of technology in health care organizations. Kerollos (2012), provided a one to one match between the eight steps and the actual tasks involved in an EMR implementation process making this model even more relevant in this study which sought to find out how specific strategies on change management influence EMR adoption.

Sutherland (2013), also states that many health care organizations have used Kurt Lewin's theory to understand human behaviour as it relates to change and patterns of resistance to change and that using this model can help to promote acceptance by frontline nurses by involving then in all aspects of the planning and implementation.

ADKAR is another popular model that, according to Kerollos (2012), is very suitable to manage large scale projects that can end with a reinforcement step on employees.

2.2. Conceptual Framework

Symth (2004) describes conceptual framework as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. EMR adoption is the dependent variable while directive strategy, educative strategy, and participative strategy are the independent variable. Planning for EMR change was treated as an intervening variable.

3. Methodology

3.1. Research Design

A cross-sectional survey study design was used to execute the study. A cross sectional study takes a snapshot of a population at a certain time, allowing conclusions about phenomena across a wide population to be drawn (Shuttleworth, 2010). The study used descriptive research to answer the research questions which were used to determine the influence of change management strategies on adoption of EMRs in public hospitals in Nairobi County.

3.2. Target Population

Mugenda and Mugenda (2003) define population as an entire group of individuals, events or objects with some observable characteristics. The target population in this study was thirty four hospital in-charges from each of the public hospitals in Nairobi County with an EMR system at the time of the study. The study adopted the entire population and therefore no sampling was done.

3.3. Data Collection Instruments

The study used a structured questionnaire to collect the primary data from the respondents while secondary data was collected through published reports. Mugenda and Mugenda (2003), aver that questionnaires are among the commonly used instrument in social science research. The questionnaire comprised of both open ended and closed ended questions. According to Burns and Grove (2005) a questionnaire with both closed and open ended questions allowed every possible answer to have a response.

3.4. Data Analysis and Presentation

Considering that both quantitative and qualitative data was collected through questionnaires, both the quantitative and qualitative approaches were used for data analysis. Quantitative analysis was helpful in evaluation because it provided quantifiable and easy to understand results while the qualitative data was used to reinforce the quantitative data. Data from the questionnaire was processed by editing,

classification and thereafter coded before they are entered into the computer for analysis using descriptive statistics. Descriptive statistics, which according to Mbwesa (2006) helps with the transformation of raw data into a form that will make it easy to understand and interpret, was used to describe the findings. Inferential statistics was also used in assessing relationship between variables. Results were presented in form of frequency tables, bar graphs and pie charts.

4. Results and Discussion

Out of 32 questionnaires administered to the respondents, 23 were duly received, representing a response rate of 72%. EMR hospital coverage was at 29.7% with 60% reporting that only one department used the EMR system. In total, 310 employees are affected by the EMR system with highest being 40.

4.1. Directive Strategy

The study sought to determine the influence of directive strategy on EMR adoption. On use of coercions and ultimatum, 48% reported to use them sometimes, 39% rarely, and 13% reported to have not used them at all. On use of performance targets based on EMR usage, 47.8% were neutral, 43.5% disagreed, while 8.6% agreed to have used this technique to influence adoption.

4.2. Educative Strategy

The study sought to determine how educative strategy influences EMR adoption. To determine this, the study measured the number of training sessions conducted as well as the percentage of staff trained on how to use EMR. On job training was the preferred mode of training with at 45.3% followed by class based training at 31.3%, and finally training of trainers at 23.4%. In total, 128 training sessions have been conducted. The respondents reported that majority of staff (74%) expected to be using EMR system have been trained.

4.3. Participative Strategy

The third objective of the study was to determine the extent to which participative strategy influence adoption of EMR. 43.5% of respondents agreed that staffs are involved thought the EMR change process with while 26.1% strongly agreed. On whether the participation was voluntary without compulsion and benefits, 52% agreed (SA=21.7, A=31.4), 47.83% however were noncommittal.

4.4. Planning for Change

In assessing the influence of change management strategy on adoption of EMR systems in public hospitals in Nairobi County, the study sought to determine the intervening effect of planning for the change process. The results indicate that over 90% agreed that the need for and EMR system was clearly defined and communicated to the staff. Only 4.3% per cent disagreed that the need was clearly defined. A majority of 69% agreed (SA=34.8, A=34.8) that a capacity assessment was carried out to determine the requirements, hospital capabilities and the gaps for EMR implementation. The result indicates that 61% agreed (SA=13, A=48) that facilities put in place sustainability plans and there was a project plan guiding the EMR implementation process.

4.5. Adoption of EMR System

The overall objective of the study was to determine the influence of specific change management strategies on the adoption of EMR system. Adoption of EMR system was therefore the dependent variable which was measured using two indicators: level of EMR usage, and level of staff satisfaction with the EMR system. Forty seven per cent of the respondents agreed (SA =4, A = 43) that they were satisfied by the level of EMR usage at the facility. Eighty three per cent of the respondents agreed (SA=26, A=57) that staff were satisfied, and supportive of the EMR system and preferred to use the system to paper.

4.6. Correlation Analysis

Pearson's product moment correlation analysis was used to assess the relationship between the variables. The results of the correlation analysis as presented in the matrix in Table 4.11 indicate a weak positive relationship between directive strategy and EMR adoption at 0.199. None of the variables had a strong relationship with the dependent variable. Participative strategy had a moderately positive relationship at 0.466, followed by educative strategy at 0.402, and finally planning for change had 0.382.

5. Conclusions

The study concludes that there is very low hospital coverage of EMR system given that very few departments use the system compared to the total number of departments in the hospital. Given that none of the strategies had a strong relationship with EMR adoption, the study concludes that the management at the facility level need to re-evaluate how these strategies are being executed. Directive strategy has been used through coercions and ultimatum though this strategy has very weak relationship with EMR adoption in the County. This strategy also has had negative relationship with other strategies perhaps reducing their efficacy.

6. Recommendations

The study recommends that extensive capacity assessments should be carried out prior to embarking on the implementation process so that proper interventions are developed. In order to increase hospital coverage, the researcher recommends that EMR should be introduced in more departments. Given that on job training is the most popular mode of training, proper measures need to be put in place to ensure that service delivery and patient privacy is not compromised during such training sessions. To achieve this, the researcher recommends that medical personnel who are cognizant of the privacy requirement should train the others and such sessions should be carried out during the less busy time of the day, hence the need to embrace training of trainer within the hospital. Since use ultimatums and coercions have undesired influence on adoption of EMR, the researcher recommends that alternative tactics such as use performance target based on EMR system usage should be used.

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