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Technical Factors Affecting Electronic Medical Record System Information Use: A Case of Kakamega County Referral Hospital Outpatient Department

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Abstract: *The recent worldwide focus on healthcare quality improvement, cost containment and enhanced patient experience has led to increased need for adoption of Electronic Medical Record systems (EMR) (Waithera L, Muhia J, Songole R , 2017). This technology agitates for paperless transactions health care and would significantly reduce clinician workload and medical errors while saving the institution major expenses. Kenya is globally acclaimed as a leader for its Information Communication Telecommunications (ICT) innovations such as M-PESA (Graham, 2010). Many studies have been done in other countries to study the factors influencing adoption and usage of EMR technology, but a small number of studies exist in Kenyan situation (Ministry of Health, 2010). This study sought to examine why the application of EMR technology has not kept pace with its demand. This study therefore sought to answer two key research questions derived from the study objectives which include the influence of network infrastructure, EMR system design and staff ICT skill levels on information use of electronic medical records technology in a public health institution in Kakamega County*

The study was guided by technology acceptance model as its theoretical framework (Seok Kim, Kee-Hyuck Lee, Hee Hwang and Sooyoung Yoo, 2016). The study adopted a cross-sectional survey design with a target population of 80 respondents working in Kakamega county referral hospital. A descriptive survey research design was used. Stratified random sampling was embraced to divide the population into homogeneous subgroups as per the professional cadres then did simple random sampling in proportion to their number in the population. A questionnaire with a 5-point Likert scale was constructed and used. Data was collected using structured questionnaires and analyzed using SPSS version 23. Both content and construct validity were used to ensure validity of the research instrument's while reliability was determined by using the Cronbach-Alpha Coefficient. Pilot testing to pre-test and validate the research instruments was done prior to the main study. One of the two hypothesis was rejected, there seemed to exist no significant differences among professionals with regards to EMR information use $F(9,62) = 1.745$, $p > 0.05$, *one hypothesis was accepted, there seemed to exist a significant relationship between technical factors and EMR information use* ($r = 0.583$, $p < 0.05$).

The study recommends that health facilities should increase infrastructure and resources that support EMR use, employees should be supported for further training on EMR operation and suppliers should regularly support and train health staff on how to use EMR effectively. The study results may be useful to hospitals as they gear towards integrating all their process by using technology.

Keywords*: Electronic medical record (EMR), Technology Acceptance Model, Hospital Information, Kenya, Healthcare professionals.*

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I. Background

Electronic medical record systems in hospitals have significant benefits and impact (Waithera L, Muhia J, Songole R , 2017). Electronic Medical Record systems in Kenya have been instrumental in mitigating challenges such as reducing preventable errors; improve communication among health care workers and facilities and reducing medical costs (Ministry of Health, 2010). Other benefits include significant reduction of errors, elimination of legibility issues (Raymond et al 2015), easier billing methods and having a data repository for future research and quality improvement (Jensen et al 2012). Essentially, an EMR has the ability to facilitate the continuity of care. The functions of electronic medical records (EMR) include patient billing, electronic ordering of investigations and receiving investigation results, electronic prescribing, recording of clinical information and in some circumstances, decision support software (Jones et al 2012). Evidence in the

international literature suggests that EMRs are associated with a positive return on investment. In a Canadian study, most practices were found to recoup their investments in an average of 10 months, with a range from 1 to 37 months. 14 of 17 primary care clinics in the study had a positive return on investment (Jang et al, 2014).

Despite these great effects, there are shortcomings that influence adoption and use of EMR systems like lack of computer proficiency, insecurity and inadequate funding to facilitate acquisition of EMR infrastructure (Waithera L, Muhia J, Songole R , 2017). Aqil *et al.,* (2009) indicates significant number of physicians in developing countries have insufficient skills and technical knowledge in dealing with EMRs resulting in resistance to EMRs adoption. (Mugo & Nzuki, 2014) in their study attributes low adoption of e-Health among developing countries due to lack of computer skills amongst clinicians. (Qureshi *et al.,* 2013), in their study similarly opines that sluggish internet use among doctors in Pakistan was due to unavailability of proper technology and lack of training. Other studies show that the implementation of EMR can also pose many challenges (Fatt, 2016). One of the challenge is, it is expensive to develop EMR. Apart from this, the functionality of each system may differ from one another and this can contribute to time consumption, slow processing, and not being user friendly. Lack or poor interoperability between the electronic medical records (EMR) systems can hinder other providers to communicate effectively. The information in the EMR needs to be accurate and reliable. Otherwise, the quality of care will be compromised (Fatt, 2016).Fernández-Alemán, Señor, Lozoya, & Toval, (2013), points out that an effective EMR system design does need security to ensure ease of access to patient data by authorized personnel in real time.Bowman, (2013) highlights that poor electronic health record system design and improper use can cause health information-related errors that affect its integrity, leading to errors that endanger patient safety or decrease the quality of care. Computer infrastructure forms the backbone to e-health care services implementation. Sufficient quantity of hardware is needed in order to use the EMR systems. These include phone lines, computers and internet connections (Vishwanath & Scamurra, 2007), indicates that lack of computer resources/facilities hampers widespread adoption of EMR system.(Qureshi *et al.*, 2013) pointed out that several factors have been discovered as the important variables in defining the successful implementation of e Health. However, the research indicates that infrastructural arrangements' play central role and it becomes extremely important in the context of the developing states like Pakistan (Qureshi *et al.*, 2013). In Kenya, the Division of Health Information Systems (HIS) has recognized the need to improve the use of ICT in health. Under Strategic Objective Five of the HIS Strategic Plan 2009-2014, the HIS aims to strengthen the ―…use and application of information and communication technology, in data management‖ Tethered to this objective is the need to have standardized and interoperable ICT applications, including EMRs. It is with this objective in mind that the Ministries of Health, through the HIS, embarked on a process of standardization of EMRs in Kenya. Kenya's Ministries of Health, through the Division of Health Information System (HIS), envisions a health information enterprise that has, as one of its components, EMR systems. Fundamental to this vision is the need to have systems that can: maintain the validity, integrity nd confidentiality of health information, ensure security through integrated system checks that prevent access and misuse of data and validate the accuracy of captured data (GoK, 2009). Standards and Guidelines for EMR systems in Kenya document emphasizes that the single most feature of EMR is the facilitation of information sharing between different users. The Guidelines further reiterates that such inter-operability and data exchange is vital for the success of Health information system. Additionally, patient management Information systems should provide degree of support that would help clinicians improve quality of patient care (Ministry of Health, 2010). HIS performance should provide information that meet wide range of needs from the data for delivery of services, planning and management of health services, and data relevant to health policy formulation and evaluation (WHO, 2006).However, the benefits of an effective EMR system lie heavily in its successful implementation. Although a lot of research has been done on the factors that affect the healthcare professional's intention to adopt a new system and technology, the past studies have only been theoretical and do not evaluate the factors that directly affect the use of information. As a developing country, Kenya is trying to keep pace with the developments and technologies in order to improve the health and quality of care of its citizens. The purpose of the current study was to examine the influence of technical factors on information use.

II. Theoretical Framework

This research applied the Technology Acceptance Model(TAM). Davis (1989), proposed an analytical model to predict user acceptance to use computer technology called the Technology Acceptance Model (TAM). It is considered as one of the most widely used and fit models to examine the behavioral and social intentions that influence the acceptance of technology (Shen et al 2008). This study examines the technical factors affecting the attitudes of the healthcare professionals towards the implementation and usage of EMR information. According to TAM, the behavior of adopting information system technology is linked to the intent of using a specified system, which is determined by the perceived usefulness from the user's point of view and by perceived ease-of-use. Therefore, Davis developed and validated two distinct variables; perceived usefulness

and perceived ease of use. Perceived usefulness referred to the level of belief in people about the fact that using the system will help them in achieving better work performance and whether they will use such technology or not. Perceived ease of use refers to the level or degree to which the user considers or believes that the information system is easy to use and effortless. In terms of predicting the factors influencing the acceptance of technology across many contexts such as health care, TAM has proven to be the most favorable model in that regards (Chow et al 2012, Vathanopas & Pacharapha, 2010)

III. Methods

The study was conducted as part ofM.Sc. attainment requirement and ethics approval was obtained from Kenya Methodist University ethics board. Researcher further sought research permits from National commission for science and technology and from Kakamega county referral hospital (KCRH) respectively. No further approval was needed since the project did not require access to patients or personal data.

IV. Research Design

A descriptive cross-sectional research design was adopted.

Study setting

The study was carried out in Kakamega County Referral Hospital (KCRH)outpatient/Casualty department. The hospital is a county General referral hospital in western Kenya and it serves two County hospitals and seven sub county hospitals providing acute care and surgical services to patients, primary care and community services. It offers a complete range of medical services and its medical faculty has a National reputation for cutting edge research. It is a 500-bed capacity hospital. The scale and complexity of the hospital makes it a particularly appropriate study setting. The choice of this hospital also reflected its suitability for a wider comparative study examining the implementation of the same vendor's EMR system at other hospitals.

Participants

The target population in this study were 80 individuals working in the KCRH .Stratified random sampling was embraced to divide the population into homogeneous subgroups as per the professional cadres then did simple random sampling in proportion to their number in the population.

V. Questionnaire

This study utilized a questionnaire as a tool for data collection. The questionnaire contained five sections.Section A captured questions on demographic characteristics of respondents; Section B had questions on to EMR system design, Section C of the questionnaire captured questions on level of ICT skills performance, while section D contained questions on availability of computer infrastructure. Lastly, section E entailed questions on (EMR) electronic medical records technology information use in the public health institution. A five-point Likert scale was used with meanings as shown: (1) Strongly Agree (SA), (2) Agree (A), (3) Uncertain (U) (4) Disagree (DA) and (5) Strongly Disagree (SD). The strongly agreed responses were scored at 5 for direct positive responses while those of strongly disagreed responses were scored at 1. Questionnaire items were influenced by items used in the AAP survey (Leu et al. 2012; Lehrman et al. 2015) and the researcher pretested in the KCRH comprehensive care center and modified in light of their comments.

VI. Data Analysis

Data analysis was done using the statistical program for social sciences (SPSS) version 22. Inferential and descriptive statistics were used to analyze data. Descriptive analysis of data was done using the mean, frequencies and percentages. In this study association between the study variables were assessed by a two-tailed probability value of $p<0.05$ for significance. The data was tested for assumptions of normality using the Shapiro Wilk test, Skewness and Kurtosis were also checked. Homogeneity of variance was checked using the Levene test. All assumption for conducting the above parametric tests were met before undertaking the test. ANOVA was used to asses' differences in information use amongst various demographics. In case of observing significant differences Bonferroni post-hoc test was used. Alpha level for all the computations was considered $p<0.05$

VII. Results

Out of the 80 questionnaires distributed, 74 were correctly filled and returned which represents a response rate of 92.5 percent. According to Mugenda and Mugenda (2003) a response rate of 50 percent is adequate, a response rate of 60 percent is good, and a response rate of 70 percent is very good. Therefore, the 92.5 percent response rate reported for this study formed an acceptable basis for drawing conclusions. While we should not expect full response in studies where responding is voluntary, scholars utilizing questionnaires

should aim for a high response rate (Baruch & Holtom, 2008). Out of the 74 questionnaires 4 were incomplete in some of the survey questions. According to Burns & Grove (2011), subjects must be excluded from the analysis when data considered essential to that analysis are missing. Therefore the 4 subjects were excluded from analysis were the information missing was needed. The results indicate that the questionnaire used in this study had a high level of reliability (Cronbach = 0.845). According to (Gliem, 2003) a reliability coefficient over 0.65 is acceptable.

Table 1 shows the descriptive analysis of the demographics of the study participants. Among the respondents, majority of respondents were females (64.9%) and only 35.1% were male. The age of the participants was widely distributed which ranged from 20 to 30 years (60.8%) to more than 50 years (5.4%). Analysis of the health professional's educational level revealed that, 54.1% had completed diploma, 12.2% had a certificate, 28.4% had a bachelor's degree and 5.4% had attained a post graduate degree. Work experience in among the healthcare providers ranged from less than five to more than 20 years.

Table 1: Demographic characteristics

Characteristic	N	%
Gender (N=74)		
Male	26	35.1
Female	48	64.9
Age group (N=74)		
20-30 years	45	60.8
31-40 years	16	21.6
41-50 years	9	12.2
Over 50 years	4	5.4
Level of education (N=74)		
Certificate	9	12.2
Diploma	40	54.1
Graduate	21	28.4
Post Graduate	4	5.4
Professional cadre (N=74)		
Nursing	10	13.5
Laboratory Technologist	5	6.8
Pharmacist	4	5.4
Pharmaceutical Technologist	3	4.1
Nutritionist	10	13.5
Medical Officer	2	2.7
Clinical Officer	24	32.4
Physiotherapist	3	4.1
Health Records Officer	12	16.2
Consultant	1	1.4
Years of experience (N=74)		
Less than 5 years	58	78.4
6-10 years	12	16.2
11-15 years	1	1.4
16-20 years	2	2.7
Over 20 years	1	1.4

The largest proportion of the health professionals (78.4%) had practiced less than 5 years followed by 6-10 years of experience (16.2%). The health profession with the largest proportion (32.4%) was clinical officers, 16.2% was health records officers, 13.5% was nutritionists followed by laboratory technologists at 6.8%. Consultants were the lowest with 1.4%.

Health professionals' perception on level of ICT skills

Table 2 highlights the distribution of respondents on level of ICT skills.

Table 2: Distribution of the respondents on level of ICT skills

Items	SD	D	U	A	SA
I have been trained in use on basic computer skills	5(6.8%)	7(9.5%)	3(4.1%)	33(44.6%)	26(35.1%)
The management often provides short training on ICT skills	17(23%)	20(27%)	8(10.8%)	23(31.1%)	6(8.1%)
I have sufficient computer skills on use of the EMR	7(9.5%)	11(14.9%)	9(12.2%)	33(44.6%)	14(18.9)
I would appreciate the opportunity for additional training on the EMR	4(5.4%)	3(4.1%)	5(6.8%)	19(25.7%)	43(58.1%)

44.6% of the 74 respondents agreed to having been trained in use on basic computer skills while only 4.1% were uncertain, 31.1%(agreed) and 6%(strongly agreed) reported that management often provides short training on ICT skills, 44.6%(agreed) and 18.9%(strongly agreed) reported that they had sufficient computer skills on use of

the EMR while 12.2% were uncertain about the same. In addition, 25.7% and 58.1% of the 74 respondents reported that they would appreciate the opportunity for additional training on the EMR. From this analysis it shows that majority of the health care practitioners had good ICT skills.

Health professionals' perception on system design

The results showed that 23 %(agreed) and 16.2%(strongly agreed) of the 74 respondents reported that the management always seeks their opinion in designing the current EMR system while 24.3% disagreed and 10.8% were uncertain. The results were as shown in Table 3

Table 3: Distribution of the respondents by response on system design

Items	SD	D	U	A	SA
The management always seeks our opinion in designing the current EMR system	19(25.7%)	18(24.3%)	8(10.8%)	17(23%)	12(16.2%)
The EMR system adequately responds to the needs of our hospital	9(12.2%)	15(20.3%)	10(13.5%)	32(43.2%)	8(10.8%)
The EMR system is easy to use	4(5.4%)	14(18.9%)	7(9.5%)	34(45.9%)	15(20.3%)
The EMR system is unnecessarily complex	14(18.9%)	31(41.9%)	9(12.2%)	14(18.9%)	6(8.1%)
I always need technical help to use the system	7(9.5%)	36(48.6%)	10(13.5%)	18(23.4%)	3(4.1%)
The various function of the system are integrated	7(9.5%)	11(14.9%)	6(8.1%)	38(51.4%)	12(16.2%)
NB: SD-Strongly Disagree, D-Disagree, U-Uncertain, A-Agree, SA-strongly agree					

43.2%(agreed) and 10.8%(strongly agreed) reported that the EMR system adequately responded to the needs of the hospital while 12.2%(strongly disagreed) and 20.3% disagreed to the same, 45.9%(agreed) and 20.3%(strongly agreed) of the 74 respondents reported that the EMR system is easy to use, while 18.9% disagreed, 9.5% were uncertain. With regards to the EMR system being unnecessarily complex, 18.9%(strongly disagreed) and 41.9% disagreed while 18.9% agreed, however when asked if they always need technical help to use the system 9.5%(strongly agreed) and 48.6% agreed while 13.5% were uncertain. When asked if the various function of the system are integrated majority of the respondents 51.4% agreed.

Health professionals' perception on Infrastructure

The results showed that 20.3 %(agreed) and 12.2%(strongly agreed) of the 74 respondents reported that the hospital has access to high speed internet connectivity while 24.3% disagreed and 17.6% were uncertain. The distribution results are as shown in table 4

Table 4: Distribution Of The Respondents By Response On Infrastructure

Items	SA	D	U	A	SA
The hospital has access to high speed internet connectivity	18(24.3%)	19(25.7%)	13(17.6%)	15(20.3%)	9(12.2%)
The hospital hardware supporting the EMR is reliable both in terms of availability and accessibility	11(14.9%)	17(23%)	12(16.2%)	26(35.1%)	8(10.8%)
The hospital network supporting the EMR is reliable both in terms of availability and accessibility(Uptime) and speed	11(14.9%)	18(24.3%)	12(16.2%)	25(33.8%)	8(10.8%)
I feel the device used to access the EMR at the facility enables an efficient workflow	8(10.8%)	14(18.9%)	10(13.5%)	35(47.3%)	7(9.5%)
The hospital has the right number and types of IT resources to support my use of the EMR	7(9.5%)	22(29.7%)	19(25.7%)	17(23%)	9(12.2%)

35.1% (agreed) and 10.8% (strongly agreed) reported that the hospital hardware supporting the EMR is reliable both in terms of availability and accessibility while, 14.9% (strongly disagreed) and 23.0% disagreed to the same, 33.8%(agreed) and 10.8%(strongly agreed) of the 74 respondents reported that the hospital network supporting the EMR is reliable both in terms of availability and accessibility (Uptime) and speed, while 24.3% disagreed, 16.2% were uncertain. With regards to their opinion on how they feel if the device used to access the EMR at the facility enables an efficient workflow, 10.8%(strongly disagreed) and 18.9% disagreed while 47.3% agreed, however when asked if the hospital has the right number and types of IT resources to support the use of the EMR, 12.2%(strongly agreed) and 23.0% agreed while 25.7% were uncertain.

EMR Information use by healthcare providers

In this section the respondents were asked questions addressing aspects related to their ability to key data into the system, reports generation, Data retrieval, Interoperability.

Table 5: EMR Information use by healthcare providers

Items	SA	D	U	A	SA
I use EMR to seek specific information on patient care	9(12.2%)	11(14.9%)	11(14.9%)	34(45.9%)	9(12.2%)
The EMR allows me to always follow patients' management plan	6(8.1%)	16(21.6%)	10(13.5%)	33(44.6%)	9(12.2%)
Using EMR I can always order relevant tests/give relevant support to the patient.	4(5.4%)	10(13.5%)	13(17.6%)	36(48.6%)	10(13.5%)
I am able to generate reports from electronic medical reports system	7(9.5%)	12(16.2%)	12(16.2%)	32(43.2%)	11(14.9%)
It is easy to access or retrieve information in the EMR system to guide clinical decision making in real time	5(6.8%)	11(14.9%)	12(16.2%)	33(44.6%)	13(17.6%)
EMR data is able to guide in establishing costs of health care	6(8.1%)	8(10.8%)	11(14.9%)	38(51.4%)	11(14.9%)
EMR is used as a reference to order supplies, medicines and health products	4(5.4%)	5(6.8%)	12(16.2%)	34(45.9%)	18(24.3%)
EMR data generated is used to establish health trends of clients and ensure continuity of care	4(5.4%)	8(10.8%)	14(18.9%)	35(47.3%)	13(17.6%)
EMR data captured is used in making decisions about staffing and infrastructure	5(6.8%)	12(16.2%)	17(23%)	30(40.5%)	10(13.5%)

The results from the study found that 58.1% of the 74 respondents agreed that they use EMR to seek specific information on patient care while 27.1% disagreed,56.8% agreed that the EMR allows them to always follow patients management plan while 29.7% disagreed, 63% agreed that using EMR they can always order relevant tests/give relevant support to the patient while 19.2% disagreed,58.1% agreed that they are able to generate reports from electronic medical reports system while 25.7% disagreed,60.8% of the respondents agreed that it was easy to access or retrieve information in the EMR system to guide clinical decision making in real time while 21.7% disagreed,66.3% agreed that EMR data is able to guide in establishing costs of health care while 18.9% disagreed on the same,63% of the healthcare providers agreed that EMR is used as a reference to order supplies, medicines and health products, while 12.3% disagreed,66.2% agreed that EMR data generated is used to establish health trends of clients and ensure continuity of care, while only 16.2% disagreed, in addition, 63.5% agreed that EMR data captured is used in making decisions about staffing and infrastructure, while 23% disagreed.

Influence of Technical factors on Information use

Pearson's correlation analysis was used to examine the association between professionals' perceptions of technical factors (Infrastructure, system design and level of ICT skills) and Information use of EMR. To identify the predictive technical factors of professionals ' information use Infrastructure, system design and level of ICT skills were computed assigned as independent variable while information use as the dependent variable in the analysis. A high positive significant correlation was found between technical factors and information use $r = 0.583, p < 0.05$ (Table 6)

The coefficient of determination showed that 34% of the variability in the Information use could be explained by technical factors $r^2 = 0.340$. The ANOVA table which tests the null hypothesis that the slope is equals to zero showed that the prediction model was significant $F(1,70) = 36.108, p < 0.05$. The coefficients table showed that technical factors unstandardized coefficient was a significant contributor in the prediction model $t(74) = 6.009, p < 0.05$ as shown in the table 6 below:

Table 6: Regression Table of influence of Technical factors on information use

					t	Sig.	95.0% Confidence Interval for Coefficients	
	Regression Coefficients	Std. Error		Pearson correlation Coefficient			Lower Bound	Upper Bound
	8.353	3.885			2.150	.035	.605	16.102
Technical factors	.480	.080		**.583**	6.009	**.000**	.321	.640

Differences in Information use amongst various demographics

The ANOVA results showed that there were no significant differences amongst the different professional cadre's $F(9,62) = 1.745, p > 0.05$ with regards to information use. The partial eta squared showed

that only 20.2% of the variability in the behavioral factors could be attributed to the professional cadre $\eta^2 = 0.202$. The results also showed that there were no significant differences in years of experience ($F(4,67) = 1.943, p > 0.05$), level of education($F(4,67) = 0.401, p > 0.05$) and age groups($F(3,68) = 0.954, p > 0.05$) with regards to information use as shown in table 7 below.

Table 7: Differences in Information use among different demographics

Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Years of Experience	455.744	4,67	113.936	1.943	.114	.104
Education	102.574	4,67	25.643	.401	.807	.023
Age group	177.061	3,68	59.020	.954	.420	.040
Profession	886.211	9,62	98.468	1.745	.098	.202

VIII. Discussion

This study has been developed with the aim of exploring technical factors influence on use of EMR in Kakamega county referral hospital. Our results showed a remarkable positive correlation between healthcare providers' perception on technical factors and information use. These findings were inconsistent with earlier findings from other scholars who indicated that one reason attributing to the low adoption of eHealth among developing countries is lack of computer skills amongst the clinicians as asserted by (Omary et al, 2010). For a successful implementation of e-healthcare in the world, computer skills to all healthcare professionals and staff involved in the process is a must. (Omary et al., 2010). This study also clearly shows that interconnectivity and lack of 'basic' facilities/hardware is a major obstacle to the wide adoption of EMR systems as asserted by (Menachemi, Langley, & Brooks, 2007). Ludwick et al (2009) similarly note that physicians struggle to get appropriate technical training and support for the systems from the vendor. Other studies show that sufficient quantity of hardware is required in order to use the EMR systems, which includes phone lines, computers and internet connections. Our studies shows that theirs limited infrastructure to support EMR ,this is consistent with a study done that shows lack of these 'basic' facilities/hardware blocks the widespread adoption of EMR system as they needed to support EMR implementation (Vishwanath & Scamurra, 2007).A study done by Chebole (2015) shows that as much as majority of the healthcare providers have access to a computer and printer which is one of the minimum specifications given to have an EMR system, other 'basic' facilities/hardware required are still missing(Chebole, 2015). Muchangi and Nzioka (2014) established that transmission of health information between health institutions, health institutions and patients, health institution and third parties such as insurance companies, patients and health institutions is negatively affected if telecommunication and internet penetration is low. The findings are in agreement with OECD (2013) findings that" showed that in developing countries, high internet penetration and bandwidth is still a challenge that is limiting the adoption of telemedicine and other internet-based application. This limited infrastructure could have an effect on the perception of other healthcare provider where the system has not yet been implemented as said by Kemper et al (2006) who indicated that more than half (58.1%) of the physicians without an EMR have doubts that EMRs can improve clinical outcomes. This perception is an issue as asserted by other researchers, those who are not willing to use the EMR system are skeptical about claims that the system will successfully improve the quality of medical practices (Jha et al., 2009). As stated by (Walter & Lopez, 2008) physicians' perceptions are very important in their reaction to EMR. With regards to training majority of the health providers reported to have limited training in EMR this is inconsistent with other studies that show majority of the healthcare workers had the basic knowledge in computer applications and use the internet a lot and therefore could understand and embrace the new technology(Chebole, 2015). In another study Meade et al, (2009) observes in this context that most of the current generation of physicians in Ireland received their qualifications before IT programs were introduced. EMR providers appear to underestimate the level of computer skills required from physicians, while the system is not only seen as but in practice actually is very complex to use by these physicians. In consistence with this study is a recommendation put forth by Singh &Muthuswamy (2013) that training programs should be conducted for nurses in order to use electronic health record comfortably. Proper training leads to successful implementation of electronic health record(Singh & Muthuswamy, 2013). Shachak et al (2009) found that EMR use introduces a new type of medical errors: typos. Further, it is not only the physicians but also other staff at medical practices who lack adequate computer skills. Randeree (2007) emphasized that when people become customized to new systems, they would adopt EMR in hospitals. Randeree suggested the vendors to continuously provide support programmes to health workers on EMR use. In our finding majority of the healthcare provider were confident in the information relayed by the EMR system however this is inconsistent with other studies like one done by Wamae (2015) where over 65% confirmed EMRs ability to compile statistics and support for general enquiries while EMRs ability to store and dispose medical records was rated

low by majority of the respondents, Majority of the nurses catering for over 80% indicated low reliability of EMR as a source of vital nursing care information(Wamae, 2015).

IX. Conclusion

This study identified and established that health providers had a positive attitude towards information use of EMR. The use of EMRs within a healthcare facility helps in ensuring clinical care efficiency and safety of patients. A significant number of health care providers possessed basic computer skills which enabled them use EMR.Formal EMR training was lacking among health care workers in the outpatient department. The study established the EMR design embraced was user friendly though health care workers utilizing EMR reported minimal involvement in EMR set up. The study also established the challenge of limited EMR infrastructure for instance internet connectivity & limited number of persons to oversee, champion EMR use. For proper efficiency, technical factors need to be addressed. There is no doubt that the use of electronic health record will increase the efficiency of healthcare but on the other hand there are many factors like cost, time, training, fear, security and privacy, lack of standards that stops healthcare practitioners to adopt electronic records.

The findings from this study may guide hospital management, system designers, installers, users and non-users on aspects of technological factors to address in order to improve the use of the EMRs which will in turn improve health service delivery.

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