International Journal of
Technology and Systems
(IJTS)

INFLUENCE OF INFORMATION TECHNOLOGY ON PATIENT CARE

INFLUENCE OF INFORMATION TECHNOLOGY ON PATIENT CARE

[1*]Dr. James Kimani

[1]Postgraduate Student, Finstock Evarsity College

[*]Corresponding Author's Email: jamesmburum346@gmail.com

ABSTRACT

Purpose: The adoption and application of information technology is essential to reform healthcare and meet the needs of patients in the coming decades. By harnessing the power of information technology for the health care field, we can enhance the effectiveness of the care we provide patient safety, increase workforce productivity and satisfaction, streamline payment-billing and administrative systems, and meet consumer expectations for service and access to information. The general objective of the study was to establish the influence of information technology on patient care

Methodology: The paper used a desk study review methodology where relevant empirical literature was reviewed to identify main themes and to extract knowledge gaps.

Findings: The study found out that information technology influences patient care. Employees who understands information systems easily learn new information systems and are able to work with it with ease. The information technology must offer a better alternative to existing practices in the organization.

Recommendations: The study recommends that that healthcare facilities should train their employees on the information systems prior to their adoption. This will ensure that the staff will easily understand the functionality of information systems and will also serve to reduce resistance to information systems. The research also recommends that it is important for the government to incorporate information systems training in all courses as it is an important factor that facilitates adoption of information technology.

Keywords: *Information technology, patient care*

www.carijournals.org

INTRODUCTION

Background of the Study

Healthcare is a sector that is experiencing a significant number of internal, but also external pressures. Progress in medicine and also in information and communication technologies (ICT), are resulting in new methods and new opportunities to support or even enable new types of health care services. ICT development are not of particular breakthrough technologies, but rather those of rapid and continuous improvement in price-performance of both computing and communications, the explosion of bandwidth capacity in fixed and mobile networks, and the emergence and development of the internet and internet-based applications (Mirraz 2018). Perhaps the most important development is the convergence and or compatibility of technologies, which is opening up new possibilities in a number of fields. E.g. bioinformatics which is a branch between biology, computer science, mathematics, and engineering that develops and improves upon methods for storing, retrieving, and analyzing biological data and develops software tools to generate useful biological knowledge.

 ICT has helped to bridge the gap between the provider and seeker through telemedicine and remote consultations, enabled health knowledge management by institutions and agencies, and facilitated in the creation of networks between providers for exchange of information and experiences. In fact, globally, the e-Health or health telematics sector is fast emerging as the third industrial pillar of the health sector after the pharmaceutical and the medical (imaging) devices industries (Nishimura,2017). From a development perspective, ICTs are key instruments towards meeting the Millennium Development Goals (MDGs) related to health. In this respect, the increasing adoption of ICT in health care services of developing countries, by both public and private sectors, has been a welcome trend. All across the world, governments are pledging and pooling more and more of their resources towards developing ICT tools and systems with the ultimate aim of facilitating management, streamlining surveillance and improving health care through better delivery of preventive and curative services (Ravera , 2016).

In many developed and developing countries, health sector reforms and decentralization have brought about shifts in functions between the central and peripheral levels and generated new information needs with changing requirements for data collection, processing, analysis and dissemination that is known as health information systems (Kassebaum, 2016). Many European countries, for instance, have moved toward automation hospital information system since early 1980.This systems developed significantly until now, and it has been an integrated system and with the inner core that called electronic medical records (EMR) from one inconsistent system (Aghajani, 2018).

In the developed world there have been two key drivers for investment in health information and communication technology (ICT). The first is the ever-increasing burden from chronic disease, often with complex comorbidities, on the health care system with costs increasing significantly faster than population or gross domestic product growth. The treatment and management of such chronic disease continues over an extended period of time and is performed by multiple health care providers in multiple settings. The second key driver is the recognition of the need for greatly improved quality and safety in the delivery of the health care (West, 2018). For instance, in the

USA, it was estimated that, in hospitals alone, between 44000 and 98000 Americans die each year from medical error (AIHW, 2003).

Still in the USA, despite broad consensus on the potential benefits of electronic health records and other forms of health information technology, U.S. health care providers have been slow to adopt them (Jha 2006; Schoen, 2006). It was found that only 17% of U.S. physicians use either a minimally functional or a comprehensive electronic records system (DesRoches et al. 2008). On the basis of responses from 63.1% of hospitals surveyed, only 1.5% of U.S. hospitals have a comprehensive electronic-records system (i.e., present in all clinical units), and an additional 7.6% have a primary system (i.e., present in at least one clinical unit). Computerized provider order entry for medications has been implemented in only 17% of hospitals. Larger hospitals, those located in urban areas, and teaching hospitals were more likely to have electronic-records systems. Respondents cited capital requirements and high maintenance costs as the primary barriers to implementation, although hospitals with electronic-records systems were less likely to cite these obstacles than hospitals without such arrangements (Ashish,2009). However, despite all these, since the passage of the HITECH Act in 2009, state EHR adoption rates have increased. EHR adoption rates increased from only two states reporting rates higher than 20% to all countries reporting rates 50% or greater by 2014. Furthermore, only two states currently have adoption rates below 60%. In addition to growth in EHR adoption overall, hospital adoption of technology with advanced functionality increased significantly. While fewer hospitals used Basic EHR systems without clinician notes, considerably more adopted systems with clinician notes. Additionally, over a third of hospitals were using more advanced EHR functionality. Hospital adoption of Comprehensive EHR systems has increased more than eleven-fold in the last five years (Charles, Gabriel & Searcy, 2015).

According to Aghajani (2002), many countries including European countries have moved toward automation hospital information system since early 1980. In India, Health Information Management System (HIMS) is one of the major concerns in the country, the second highest populated country in the world. The libraries of medical colleges and health institutes need an improvement to attain a certain benchmark level in terms of infrastructure, databases, resources and services. Steps towards resource sharing and networking of these libraries help in improving the accessibility of health information (Aghazadeh and Ebrahimnezhad, 2012). Success of such developments is seen in centrally funded and financially sound research institutes and hospitals in India. However, similar expansion in health care centers in smaller cities and rural areas seems to be still far off. The treatment and management of such chronic disease continues over an extended period of time and is performed by multiple health care providers in multiple settings.

The second key driver is the recognition of the need for greatly improved quality and safety in the delivery of health care. This recognition has been driven by such things as the National Institutes of Medicine report To Error Is Human (Kohn, 2000) which estimated that in hospitals alone, between 44,000 and 98,000 Americans died each from medical error. In Canada, improving data quality and lessening the burden of data collection on health care providers has been a twin focus of the country‟s effort to address the system-wide need for better information management (Iron and Manuel, 2007). The overriding goal is to produce better information for use in health care planning, performance measurement, decision-making, and research. In most health institutions in Canada, they utilize the Data Issues and Actions Management System (DIAMS). This is a new

system designed to facilitate the management of data and the resolution of issues related to data quality. This information can then be used to prioritize issues and gaps for improvement, coordinate improvement activities and monitor progress in managing and/or resolving these issues.

Therefore, consequences of low adoption and usage rates of health information application systems at the point of care include poor quality and inaccessibility of relevant information, which have frequently been implicated for systemic problems in healthcare organizations. Thus, there is considerable interest among policy makers who wish to promote efficiency and standardization to understand the enablers and barriers to adoption and use. Because of their expertise in examining the introduction and use of Information Technology in many of the organizational, industrial and institutional settings, Information Systems (IS) researchers are in a unique position to inform the discourse in health IT (Bower, 2005).

In sub-Saharan Africa, for example, fewer than ten countries have vital registration systems that produce usable data (Akacho, 2014). There are still very limited measures of health systems performance, and major reforms, such as decentralization, and are often done in the absence of adequate data on either needs or consequences. The Health Management Information Systems in most developing countries are inefficient and are greatly affected by unreliability of data resulting from underreporting. In Tanzania the health information system is called MTUHA, which is an acronym for the Kiswahili meaning of Health Management Information System (HMIS) –"Mfumo WA Taarifa za Uendeshaji WA Huduma za Afya." The system covers all health programmes and health care services. All health facilities (Government, Private, NGOs and Parastatal organizations) use the MTUHA system (Ministry of Health Tanzania 2002). Before MTUHA came into existence in 1993, several systems were operating. Most of these systems existed in the public and nongovernmental organization (NGO) health facilities. In addition, programmes such as the Expanded Program for Immunization (EPI), tuberculosis (TB) and Leprosy and the National AIDS Control Program (NACP) had their own separate reporting systems (Rubona, 2001).

Studies such as (Rubona 2001; Akacho, 2014; and Iron and Manuel, 2007) show that there are two basic ways in which to collect data: routinely and periodically (non-routine). Periodic data collection usually means conducting surveys and these can appear to be expensive at first glance. However, they involve one-time cost, and which may be less expensive than routine data collection in the long run (Kahooei and Soleimani, 2007).

Statement of the Problem

The slag, breakdown and adverse medical outcomes on patients care of the computerized health information application system in the past three decades to replace paper records has raised more anxieties on the efficiency among health stakeholders (Dooling, 2012). In the year 2010, Moi Teaching and Referral Hospital (MTRH) in Eldoret Kenya adopted Funsoft software for management of health records. However, over the years, MTRH has faced greatest challenges in collecting, analyzing, evaluating and interpreting health data to aid patient service delivery (MoH, 2014). This is because health decision makers have little knowledge on how to improve the HIAS on patient management. Various studies such as (Horning, 2011; Njeru, 2013; Dooling, 2012; and Akacho, 2014) respectively conducted in health institutions have focused on implementing an electronic medical record with computerized prescriber order entry at a critical access hospital; influence of health information system on monitoring and evaluation on HIV/AIDS programmes.

However, despite a consensus that the use of health information technology should lead to more efficient, safer, and higher quality care, there are few reliable estimates on the efficiency in many hospitals in Kenya. Besides, while the assumption is made that the development of information management system has a positive effect in healthcare, the evidence base supporting its practical use is slender (Wootton, 2009) thus, creates a gap. The current study will bridge the gap and show the influence of information technology on patient care

Objectives of the Study

The general objective of the study was to access the influence of information technology on patient care.

Justification and Significance of the Study

The study is hypothetically vital for policy level intervention since the employed interventions and strategies have failed and blamed on inadequate information that can help to offer practical solutions to the underlying problem. Therefore, the study provides information through its recommendations that will lead to the implementation of appropriate strategies and interventions and upholding critical components of HIMS to promote its adoption and implementation in health institutions in the country. The findings of this study should, therefore, be important in advancing guidelines and strategies for improving the health sector. The conception of this study was based on the concerns about how developing countries have experienced poor health quality data and inadequate integration of the Health Management Information System. This has led to increasing burden of diseases in most of these countries as they don't have quality and evidence based data to inform their health interventions. Despite the advancement of HMIS since its inception in both developed and developing countries not much has been achieved in management of health records of patients. Therefore the result will benefit the MTRH community.

LITERATURE REVIEW

Theoretical review

Two theories were found to be relevant in influence of information technology on banking. The theories that were found to best inform the research constructs are the Kotter's Change Management Theory (Kotter, 1996) and Innovation diffusion theory (Rogers1962).

Kotter's Change Management Theory

There are many different change management models, but one that has been used successfully in health care (Clark, 2010), and specifically to address the adoption of technological innovations (Campbell, 2008), is John Kotter's eight-stage process for transformational change (Kotter, 1996). This dynamic model is comprised of eight stages that can be organized into three phases. The first phase is "creating a climate for change" and includes establishing a sense of urgency, creating a guiding coalition, and developing a vision and strategy. The second phase is "engaging and enabling the organization" and includes communicating the vision, empowering 22 action, and creating short-term wins. The final phase is "implementing and sustaining the change" and includes consolidating gains and producing more change, and anchoring new approaches in the culture.

Creating a Climate for Change

The first stage is establishing a sense of urgency. The biggest mistake in attempting change is to allow complacency (Kotter, 1996). This is a critical step because without a sense of urgency people will cling to the status quo and resist change. Creating urgency involves helping people see and feel first hand why a change needs to occur (Campbell, 2008). The second stage is creating a guiding coalition. The guiding team members need to have the knowledge, credibility, influence, and skills required to mobilize change (Kotter, 1996). The third stage is developing a vision and strategy. In this stage you need to create a clear and defining vision that is shared by all stakeholders. The result should be a compelling statement that clearly articulates what you are trying to achieve that can be explained in five minutes or less (Kotter, 1996). The vision needs to include a collective sense of what a desirable future looks like, in clear and measurable terms that all stakeholders can stand behind (Clark, 2010).

Engaging and Enabling the Organization

The first stage in this phase is communicating the vision. Once the vision has been created and agreed upon by members from all stakeholder groups, it is imperative that it be communicated frequently and convincingly to all groups. This involves communicating the vision in words and actions by leading through example. Members from all groups need to be hearing the same message from everyone in order to gain buy-in and guide them from awareness of the change to a state where they feel empowered to advocate for the change (Campbell, 2008). This involves engaging in continuous dialogue with stakeholders to build commitment and trust. The next two stages in this phase are enabling action and creating short-term wins. At this stage all parties need to work together to remove obstacles and empower all members to participate. It may involve providing incentives for embracing change, and feedback on how they can use the changes for their benefit (Campbell, 2008). Changing the culture of a workplace takes time, and as time goes on urgency drops and complacency rises (Kotter, 1996). Creating short-term wins can help keep the momentum going. Wins should be celebrated in a highly visible way that is connected to the vision and then that momentum can be used to set new achievable goals (Clark, 23 2010). After each win it is important to analyze what went right and what needs improvement.

Implementing and Sustaining the Change

The seventh and eighth stages are consolidating gains to produce more change and anchoring new approaches in the organizational culture. The warning in these stages is not to declare victory prematurely. Declaring that the change has been successfully implemented means that people lose all urgency and if the changes have not been firmly anchored into the culture, people will slip back into the „old" way of doing things (Kotter, 1996). In this phase there needs to be a continued focus on the desired vision and the strategic steps required to achieve it until the change becomes a permanent part of the organization's culture and is reflected in the shared norms and values (Clark, 2010).

Innovation diffusion theory

This theory was introduced by Rogers in 1962 to explain how new inventions are diffused among users over a period of time. This theory suggests that there are three main sources influencing the adoption and diffusion of an innovation, namely perceptions of innovation characteristics, characteristics of the adopter, and contextual factors. The theory sees innovations as being communicated through certain channels over time and within a particular social system.

www.carijournals.org

Individuals are seen as possessing different degrees of willingness to adopt innovations, and thus it is generally observed that the portion of the population adopting an innovation is approximately normally distributed over time. Breaking this normal distribution into segments leads to the segregation of individuals into the following five categories of individual innovativeness (from earliest to latest adopters): innovators, early adopters, early 22 majority, late majority, laggards (Wejnert, 2001). The innovation process in organizations is much more complex. It generally involves a number of individuals, perhaps including both supporters and opponents of the new idea, each of whom plays a role in the innovation-decision. The study by Rogers (1995) identifies five attributes upon which an innovation is judged. These are relative advantage, compatibility, complexity, triability and observability. Relative advantage refers to the degree to which an innovation is perceived as better than the practice it replaces. Relative advantage is often expressed in terms of economic, social or other benefits. Compatibility refers to the degree to which an innovation is perceived by potential adopters to be consistent with their existing values and practices. Compatibility with what is already in place makes the new practice seem less uncertain, more familiar and easier to adopt. Complexity refers to the degree to which an innovation is considered as a difficulty to understand and use. If potential adopters perceive an innovation as complex, its adoption rate is low. Triability refers to the extent to an innovation may be subjected to limited experimentation. Finally, observability refers to the degree to which the results of an innovation are visible to others. This theory has been applied to study the adoption of various information communication technologies in healthcare. However, it does not provide information on how to assess innovation characteristics. Furthermore, this theory has been criticized for its lack of specificity, Gagnon, (2010). This theory posits that innovation spreads gradually over time and among people resulting in various adopter categories. Rogers attributes this distribution of adoption to the role of information, which reduces uncertainty in the diffusion process

Empirical Review

Nyaggah (2015) did a study to establish the factors influencing adoption of ICT in public hospitals in Nairobi, Kenya, to determine the influence of training on the adoption of ICT in public hospitals in Nairobi County, to determine the influence of infrastructure on the adoption of ICT in public hospitals in Nairobi County, to determine the influence of availability of funds on the adoption of ICT in public hospitals in Nairobi County and to determine the influence of ICT staff attitude on the adoption of ICT in public hospitals in Nairobi County. The study was guided by innovation-diffusion theory, technology acceptance theory and contingency theory. The study employed a descriptive research design where it targeted 7 public hospitals. The sample consisted of ICT managers, record keepers, clerks, cashiers and laboratory technologists. The study sample size comprised of 100 staffs who were engaged in the study. The data collected was analysed using descriptive statistics (measures of central tendency and measures of variations) to achieve the objectives of the study. The quantitative data generated was analyzed using descriptive statistics with the help of Statistical Package for Social Sciences (SPSS) version 20. From the research findings, the study revealed that majority of the respondents as shown by 64.71% had served the institution for more than 9 years whereas 29.41% of the respondents had served the institution for a period of 6 to 8 years, 3.53% had served the institution for 3 to 5 years and only 2.35% of the respondents had served the institution for a period of less than 2 years. The study found that, the cost of ICT training materials is considered to be among the problems that negatively affects the

implementation of ICT in most health facilities. The study further revealed that medical equipment management involves other essential activities which ensure that equipment is effectively planned and budgeted for, procured, and operated. The study found that installation of ICT infrastructure is a major drawback to the adoption of ICT.

Abraham (2016), did a study to investigate the influence of health information systems on medical diagnosis of malaria for effective treatment in, Meru town, Imenti North constituency, Meru County. The research design was of descriptive survey research design .This was because the design was useful since it collected data from members of the population in order to determine the current status without manipulating the variables. The study consisted of a population of 30 respondents from the Karen Hospital, Aga khan Hospital, Grace Park Hospital and Meru teaching and referral hospital in Meru town .The respondents and interviewees consisted of medical officers, laboratory technologists, pharmaceutical technologists, clinical officers, nurses, radiographers, physiotherapists, accountants and hospital administrators. Quantitative data was analyzed using the SPSS version 21 and tabulated into frequency tables and percentages. This study employed correlation coefficient inferential statistics to bring out the relationship between the dependent and independent variables. Qualitative data was analyzed by organizing according to the research questions and objectives. It was implied in the study that availability of a hospital information system influenced the ease of access and management of patient data; the forms of registration were varied, attributed to difference in scope of hospital clientele. The higher the scope of hospital clientele, the more integrated the system was. The level of integration decreased with lower hospital clientele base. The study established that a reliable and effective network influenced the quality of service rendered by the hospital information system. Hospital information systems improved accessibility of medical records as well as enabled tracking and use of health data by medical personnel.

Mary, (2017) did a study aimed at establishing factors influencing eProcurement implementation among private hospitals in Kenya. It was guided by three specific objectives: to examine the extent of e-procurement implementation, establish the factors influencing implementation of e-procurement and to find out the relationship between the identified factors and eProcurement implementation among private healthcare service providers in Nairobi, Kenya. The study employed a descriptive research design. The population consisted of all the 58 private health care service providers accredited by the National Hospital Insurance Fund. Since the population was relatively small, a census was done. Primary data was collected from procurement/finance personnel using a semi-structured questionnaire. Data analysis was done using SPSS with the main analysis tools being frequencies, mean and standard deviation, factor analysis and multivariate linear regression. The study found that e-procurement had been implemented to a moderate extent by the NHIF accredited hospitals. Seven factors that influence eProcurement implementation were identified through factor analysis. These include: risk perception, end user training, existing technology, top management support, supplier systems integration, implementation strategy and vendor support. Four out of the seven variables were found to have statistically significant relationships with eProcurement implementation. These include: Risk perception which had a negative relationship with eProcurement implementation, Existing Technology, Top management support and implementation strategy all of which had positive relationships. An examination of

the joint relationship confirmed these findings and established that the seven variables jointly account for 66.3% of the variability in eProcurement implementation

Kiiru (2018) conducted a study to find out the role of information technology in strategic management at Aga Khan University hospital, Nairobi. The research design adopted the case study approach as its research design, in this case Aga Khan University Hospital, Nairobi (AKUH, N) with a view to study the role of IT in the hospital's strategic management. Primary data was collected by conducting focused interviews with middle level management from IT, Budgeting and planning, Medical services, Finance, Security, Marketing and Audit. While the primary data was analyzed qualitatively, secondary data provided additional information that was not practically possible to obtain from the primary sources due to the time frame within which this research has to be carried out and hence reaching the outreach centers across the country was not possible. Content analysis was used to analyses the data since the study seeks to solicit for data that is qualitative in nature. The findings support the RBV theory which attributes improvement in firm performance to valuable resource bundles. From the RBV, one lens through which to look at IT value creation is "an indirect role for IT in firm performance. It was established that strategic management at Aga Khan University Hospital, Nairobi had been influenced by advances and developments in IT. On the one hand IT is directly responsible for the development of some strategic goals, while on the other hand investment in the use of IT is required in the execution and attainment of the laid down goals. From the research findings, the researcher recommends an evaluation of the existing IT investments and the exploration of avenues for their modernization, improvement and enhancement to be institutionalized in the strategic management process at AKUH, N. The second recommendation is for AKUH, N's management to continually acquire knowledge, and remain current, on available and emerging IT technologies, their application as well as business capabilities.

Elijah (2016) did a study to assess the influence of strategic success factors on implementation of ICT projects in Kenyan commercial banks. This study was guided by the following objectives; to assess the influence of the project mission on implementation of ICT; to establish the influence of top management support on effective ICT project implementation; to determine the influence of project schedule on ICT project implementation and to establish the influence of user involvement on ICT project implementation. The findings of this study would also be of importance to the ICT project management policy makers, would also contribute to the body of knowledge on ICT project management and the results of the study would form a base upon which future research. The study assumed that the respondents are knowledgeable on ICT project implementation and assumed that the respondents filled out the questionnaires correctly. The researcher adopted the descriptive approach to research design. The study was in form of a census survey as all the commercial banks in Kenya were studied. The target population was 86 ICT project team members from different commercial banks. Data was then analyzed using excel and Statistical Program for Social Scientist version 22 (SPSS) as the basic computer method for data analysis. Descriptive statistics was used mainly to summarize the data. Measures of central tendency including mean, standard deviation and percentages were used for quantitative variables. Tables were used as appropriate to present the data collected for ease of understanding and analysis. The study found out that bank's ICT project executive team was clear on their organizational objectives and expected benefits to be derived from successful implementation of the project, organizational objectives were documented

and signed off by the Executive Team before any ICT project commenced, bank's top management team was supportive to project managers and teams and were readily available for decision making. The study established that commercial banks undertakes baselines for each ICT project undertaken, there was proper well structure and documentation in the ICT projects in the banks and ICT project product end users were always involved at all stages of the ICT projects in the Banks, users' expectations were managed during ICT project implementation in the banks. The study concludes that top management support needs to be focused on the initiation and realization of success of ICT projects implementation, for any success in ICT project implementation, effective project management which includes; planning, budgetary, monitoring and evaluation are critical and helps in achieving project goals and the involvement of user participation in early stages of system development was of great importance.

Macharia (2017) did a study on the purpose of this study was to investigate the factors influencing the adoption of information system (IS) in service delivery at all departments in hospitals. The objectives of this study are; to examine the influence of the staff Information and Communication Technology literacy on the adoption of information system in healthcare service delivery in private hospitals in Kiambu County ,to establish the influence of information system characteristics on the adoption of information system in healthcare service delivery in private hospitals in Kiambu County, to establish the influence of the external pressure on the adoption of information system in healthcare service delivery in private hospitals in Kiambu County and to establish the influence of the Top management innovativeness on the adoption of information systems in healthcare service delivery in private hospitals in Kiambu County. Based on theories from the technology adoption literature, a conceptual framework for the adoption of information systems in healthcare service delivery has been developed. This study was conducted In Kiambu County. Questionnaires were distributed through drop and pick method and post office mail to all the participants in the study. The result of this study revealed that the staff information and communication technology literacy significantly influences adoption of information system.

2.5 Research gaps

Geographical gap is a knowledge gap that considers, the untapped potential or missing/limited research literature, in the geographical area that has not yet been explored or is under-explored. For instance Macharia (2017) did a study on the purpose of this study was to investigate the factors influencing the adoption of information system (IS) in service delivery at all departments in hospitals in Kiambu County, Kenya. The result of this study revealed that the staff information and communication technology literacy significantly influences adoption of information system Moreover, Kiiru (2018) conducted a study to find out the role of information technology in strategic management at Aga Khan University hospital, Nairobi. The studies presented a geographical gap as they were conducted in Kenya while our current study focused on of information technology on patient care.

Methodological gap is the gap that is presented as a result in limitations in the methods and techniques used in the research (explains the situation as it is, avoids bias, positivism, etc.). Mary, (2017) did a study aimed at establishing factors influencing eProcurement implementation among private hospitals in Kenya. It was guided by three specific objectives: to examine the extent of e-procurement implementation, establish the factors influencing implementation of e-procurement

and to find out the relationship between the identified factors and eProcurement implementation among private healthcare service providers in Nairobi, Kenya. The study employed a descriptive research design. The study found that e-procurement had been implemented to a moderate extent by the NHIF accredited hospitals. Seven factors that influence eProcurement implementation were identified through factor analysis. The study presented a methodological gap as it employed descriptive research design while our current study employed desktop literature review method

Conceptual gap arises because of some difference between the user's mental model of the application and how the application actually works. Elijah (2016) did a study to assess the influence of strategic success factors on implementation of ICT projects in Kenyan commercial banks. This study was guided by the following objectives; to assess the influence of the project mission on implementation of ICT; to establish the influence of top management support on effective ICT project implementation; to determine the influence of project schedule on ICT project implementation and to establish the influence of user involvement on ICT project implementation. The study focused on ICT in the education sector while our study focused on influence of information technology on patient care. To bridge this gaps, this study examined the on influence of information technology on patient care.

METHODOLOGY

The study adopted a desktop literature review method (desk study). This involved an in-depth review of studies related to on influence of information technology on patient care. Three sorting stages were implemented on the subject under study in order to determine the viability of the subject for research. This is the first stage that comprised the initial identification of all articles that were based on influence of information technology on patient care from various data bases. The search was done generally by searching the articles in the article title, abstract, keywords. A second search involved fully available publications on the subject on influence of information technology on patient care. The third step involved the selection of fully accessible publications. Reduction of the literature to only fully accessible publications yielded specificity and allowed the researcher to focus on the articles that related to influence of information technology on patient care which was split into top key words. After an in-depth search into the top key words (influence, information technology, patient care), the researcher arrived at 6 articles that were suitable for analysis. The 6 articles were findings from Elijah (2016) who did a study to assess the influence of strategic success factors on implementation of ICT projects in Kenyan commercial banks. The study found out that bank's ICT project executive team was clear on their organizational objectives and expected benefits to be derived from successful implementation of the project, organizational objectives were documented and signed off by the executive team before any ICT project commenced, bank's top management team was supportive to project managers and teams and were readily available for decision making.

Macharia (2017) who did a study on the purpose of this study was to investigate the factors influencing the adoption of information system (IS) in service delivery at all departments in hospitals in Kiambu County, Kenya. The result of this study revealed that the staff information and communication technology literacy significantly influences adoption of information system .Moreover , Kiiru (2018) who conducted a study to find out the role of information technology in strategic management at Aga Khan university hospital, Nairobi. The study established that

strategic management at Aga Khan University Hospital, Nairobi had been influenced by advances and developments in IT.
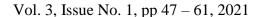
Mary, (2017) who did a study aimed at establishing factors influencing eProcurement implementation among private hospitals in Kenya. It was guided by three specific objectives: to examine the extent of e-procurement implementation, establish the factors influencing implementation of e-procurement and to find out the relationship between the identified factors and eProcurement implementation among private healthcare service providers in Nairobi, Kenya. The study employed a descriptive research design. The study found that e-procurement had been implemented to a moderate extent by the NHIF accredited hospitals. Seven factors that influence eProcurement implementation were identified through factor analysis.

Elijah (2016) who did a study to assess the influence of strategic success factors on implementation of ICT projects in Kenyan commercial banks. This study was guided by the following objectives; to assess the influence of the project mission on implementation of ICT; to establish the influence of top management support on effective ICT project implementation; to determine the influence of project schedule on ICT project implementation and to establish the influence of user involvement on ICT project implementation. The study concludes that top management support needs to be focused on the initiation and realization of success of ICT projects implementation, for any success in ICT project implementation, effective project management which includes; planning, budgetary, monitoring and evaluation are critical and helps in achieving project goals and the involvement of user participation in early stages of system development was of great importance

Nyaggah who (2015) did a study to establish the factors influencing adoption of ICT in public hospitals in Nairobi, Kenya, to determine the influence of training on the adoption of ICT in public hospitals in Nairobi County, to determine the influence of infrastructure on the adoption of ICT in public hospitals in Nairobi County, to determine the influence of availability of funds on the adoption of ICT in public hospitals in Nairobi County and to determine the influence of ICT staff attitude on the adoption of ICT in public hospitals in Nairobi County. The study found that, the cost of ICT training materials is considered to be among the problems that negatively affects the implementation of ICT in most health facilities. Abraham who (2016), did a study to investigate the influence of health information systems on medical diagnosis of malaria for effective treatment in, Meru town, Imenti North constituency, Meru County. The study established that a reliable and effective network influenced the quality of service rendered by the hospital information system

SUMMARY, CONCLUSION AND POLICY IMPLICATION FOR FURTHER STUDY

Summary

Information and communications technology development are not of particular breakthrough technologies, but rather those of rapid and continuous improvement in price-performance of both computing and communications, the explosion of bandwidth capacity in fixed and mobile networks, and the emergence and development of the internet and internet-based applications. Information systems are being embraced as tools of better service delivery, efficiency and

accountability in many sectors including healthcare. Medical diagnostic reports are crucial in treatment and prognosis of diseases, thus the importance of precise and accurate medical data.

Conclusion

Employees who understands information systems easily learn new information systems and are able to work with it with ease. The information technology must offer a better alternative to existing practices in the organization. If the information system is not perceived as beneficial in hospitals, there is no reason to adopt them. Having innovative and information technology knowledgeable top management is key to any hospital. An organization whose top managements understands the benefits of information systems adoption and is willing to invest scarce resources in the information systems project will be able to take advantage of the promised benefits of information systems adoption

Recommendations

The study recommends that that healthcare facilities should train their employees on the information systems prior to their adoption. This will ensure that the staff will easily understand the functionality of information systems and will also serve to reduce resistance to information systems. The research also recommends that it is important for the government to incorporate information systems training in all courses as it is an important factor that facilitates adoption of information technology. The study also recommends that the government formulates a policy of assisting small healthcare facilities who may not have adequate finances for adopting information systems, this will go down well in improving the quality of healthcare service delivery to all citizens.

REFERENCES

Aghajani, M., Graham, S., McCafferty, C., Shaheed, C. A., Roberts, T., DeSouza, P., ... & Niles, N. (2018). Clinicopathologic and prognostic significance of programmed cell death ligand 1 expression in patients with non-medullary thyroid cancer: a systematic review and meta-analysis. *Thyroid*, *28*(3), 349-361.

Gobbi, G. (2016, September). The troubled life of the banking industry. In *Wolpertinger Conference*.

Kassebaum, N. J., Barber, R. M., Bhutta, Z. A., Dandona, L., Gething, P. W., Hay, S. I., ... & Ding, E. L. (2016). Global, regional, and national levels of maternal mortality, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*, *388*(10053), 1775-1812.

Kobia, R. (2018). *Inventory Management Practices and Operational Performance of Government Hospitals in Kenya* (Doctoral dissertation, University of Nairobi).

Miraz, M. H., Ali, M., & Excell, P. S. (2018). Cross-cultural Usability Issues in E/M-Learning. *arXiv preprint arXiv:1804.02329*.

Ngunjiri, P. M. (2019). *An Assessment Of Successful E-Procurement System Implementation In Murang'a County Government, Kenya* (Doctoral dissertation).

Nishimura, R. A., Otto, C. M., Bonow, R. O., Carabello, B. A., Erwin, J. P., Fleisher, L. A., ... & Thompson, A. (2017). 2017 AHA/ACC focused update of the 2014 AHA/ACC guideline for the management of patients with valvular heart disease: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Journal of the American College of Cardiology*, *70*(2), 252-289.

Nyaggah, H. K. (2015). *Factors influencing adoption of information and communications technology in public hospitals in Nairobi County, Kenya* (Doctoral dissertation, University of Nairobi).

Nyasetia, F. (2019). *E-Procurement And Supply Chain Performance Of Public Hospitals In Kiambu County* (Doctoral dissertation, UoN).

Ravera, Alice, Valentina Carubelli, Edoardo Sciatti, Ivano Bonadei, Elio Gorga, Dario Cani, Enrico Vizzardi, Marco Metra, and Carlo Lombardi. "Nutrition and cardiovascular disease: finding the perfect recipe for cardiovascular health." *Nutrients* 8, no. 6 (2016): 363.

Venkatesh, V., Shaw, J. D., Sykes, T. A., Wamba, S. F., & Macharia, M. (2017). Networks, technology, and entrepreneurship: a field quasi-experiment among women in rural India. *Academy of Management Journal*, *60*(5), 1709-1740.

Wekesa, E. W. (2016). *Influence Of Strategic Success Factors On Implementation Of Information Communication Technology Projects In Kenyan Commercial Banks* (Doctoral dissertation, University of Nairobi).

West, C. P., Dyrbye, L. N., & Shanafelt, T. D. (2018). Physician burnout: contributors, consequences and solutions. *Journal of internal medicine*, *283*(6), 516-529.