

Evaluating the Impact of Electronic Medical Records on Patient Management and Service Integration in Mombasa County, Kenya

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Abstract

The implementation of the Electronic Medical Record (EMR) patient system in Kenyan health facilities was aimed at enhancing the management of individuals living with HIV. The implementation of the Electronic Medical Record (EMR) patient system in many hospitals at the Comprehensive Care Clinics (CCC) in Mombasa County in 2013 aimed to enhance the management of individuals infected with HIV. Nevertheless, a comprehensive study of the impact of Electronic Medical Records (EMR) on patient management in Mombasa County health facilities has not yet been conducted. Therefore, the purpose of this research is to examine the consequences of establishing an EMR system on patient management in Mombasa County, Kenya. The research primarily concentrated on the empirical data obtained from three healthcare facilities, namely the hospital, Kongowea Health Centre, and Kingorani Dispensary. The analysis was conducted with the explicit objectives of examining the impact of the Electronic Medical Record (EMR) system on patient waiting time. This study aimed to investigate the impact of an Electronic Medical Records (EMR) system on patient scheduling, service integration, and data analysis in Mombasa County, Kenya. The study revealed that the implementation of Electronic Medical Records (EMR) had a significant impact on several aspects of healthcare services. Specifically, it was observed that EMR led to a notable reduction in waiting time for clients by 13.2%. Additionally, it facilitated the ease of information sharing among health workers, reduced the need for record keeping stationeries, and improved appointment scheduling, as reported by 12.6% of the respondents. The EMR system demonstrated a level of integration of services provided to patients, with only the CCC category above the 50% threshold, achieving a fully integrated rate of 79.3%. The results indicate that electronic medical records (EMR) exert a significant impact on the aforementioned parameters. Patient-centered treatment is a prominent objective in numerous high-quality healthcare systems. Healthcare systems nationwide have increasingly embraced the utilization of electronic health records (EHRs) as a means to enhance the quality of care delivered. This study will provide a valuable contribution to the advancement of a standardized electronic medical record (EMR) framework in Kenya. Additionally, it will provide valuable insights for healthcare policy creation and decision-making processes pertaining to the installation and utilization of EMR systems within the country. Furthermore, this study will yield valuable insights on the requisite degree of training and competence necessary for practitioners to effectively deploy and utilize electronic medical record (EMR) systems. These findings can subsequently inform the formulation of training programs and policies tailored to healthcare providers.

Key Words: *Electronic Medical Records (EMR), Patient Management, Healthcare Service Integration, Mombasa County, Kenya*

Introduction

While IQ-Care is a system for capturing and documenting information and generating reports within the tools employed by clients' organizations that are specifically designed to assess the outcomes of clients, an electronic medical record is a computerized compilation of the health-related data of both clients and individuals within a computerized framework. The ultimate objective of an EMR is the capacity to examine data and employ the findings of the analysis to provide improved medical care. EMR possesses all the fundamental components necessary for the assimilation, organization, and execution of analysis and reporting regarding clients and facilities.

In recent years, both European and American health institutions have adopted technology to a larger level to overcome inefficiencies including lengthy waiting and throughput times (Bain, 2015). Management could comprehend how the EMR may be used to better

their hospital service delivery objectives by determining how Electronic Medical Records (EMR) affect operational efficiency in hospital service delivery (Bologva et al., 2016). IQCare, Comprehensive Patient Application Database (CPAD), Care 2000, Funsoft, Compact, Open Medical Record System (OpenMRS), and others have been utilized in Kenyan commercial and state hospitals, respectively. EMR systems were initially created to keep track of patient data. (Reviews of medicine and surgery).

Bowman (2013) emphasizes the significance of preserving the accuracy and comprehensiveness of patient information within the healthcare field, as it can have an impact on patient care and safety. The author also acknowledges that the transition from paper-based medical records to electronic health record (EHR) systems has presented new obstacles in maintaining the integrity of information, such as errors in data entry, missing information, and issues with software design. The author contends that EHR systems have the potential to enhance information integrity and improve patient care, but this can only be achieved through effective design and implementation. The author offers recommendations for ensuring information integrity in EHR systems, which include conducting regular data audits, implementing algorithms for detecting errors, and involving clinical staff in the design and implementation process. Additionally, the author emphasizes the importance of continuous education and training for clinical staff to ensure the proficient utilization of EHR systems and the preservation of information integrity. In conclusion, the author asserts that healthcare organizations must consider the quality and safety implications of EHR systems on information integrity, and emphasizes that effective design, implementation, and ongoing monitoring are indispensable in realizing the benefits of these systems.

Kenya's current provision of client care services has been established upon a comprehensive approach to client management (Ministry of Health, 2014). This approach is grounded on the premise that there exist sound principles governing service standards, as well as service inputs encompassing infrastructure, equipment, and personnel, alongside inter-service collaboration across various levels of care (Ministry of Health, 2014). The resultant hospital processes are advantageous in that they ensure consistent delivery of services, thereby enabling predictability and the provision of safety measures (Steinwachs & Hughes, 2008).

One of the most important parts of these frameworks is how well the services each hospital offers work. According to the WHO (2011), a health information management system is an "integrated effort to collect, process, report, and apply health information and knowledge to inform program action, policy making, and research." The five main components of the HIS in Kenya are information generation, validation, analysis, distribution, and utilization, according to KHSSP 2013. Utilizing information is the process of making sure that the decision-making process is informed by the information that is accessible.

Policy Orientation 5 of the Kenya Health Policy 2014–2030, says that information needs to be made and managed so that decisions about health and related services at the national and county levels are based on facts. The goal of the policy is to give enough health information to help people make decisions based on facts. As a result, all healthcare providers will have to report information about their work through official channels and in a way that meets safety and privacy rules and is in line with the policies, rules, and standards for health research and information that was made in collaboration with the national government and other important parties. The target consumers are health managers, policymakers, clients, and everyone else in the health sector who needs information to help them make decisions.

In 2015, only about 23% of Kenya's 9249 healthcare facilities' staff members had access to either computers or the internet. (MFL, 2013) This shows that Kenya's healthcare system still lacks enough digitization. Working systems in the healthcare industry guarantee the prompt application of knowledge for wise decision-making. Kenya is a developing nation, therefore the allocation of resources for affordable, effective healthcare is far from ideal.

The objective of achieving improved efficiency in the management of patients has been significantly influenced by the scarcity of resources (Mayberry, Nicewander, Qin, & Ballard, 2006). One of the initial systems implemented in medical institutions, aiming to enhance the effectiveness and efficiency of delivering healthcare services, was the Electronic Medical Record System (EMRS) (William & Boren, 2008). The objective of this investigation is to ascertain whether there exists a correlation between the operational effectiveness of patient management at the Hospital, Kongowea Health Center, and Kingorani Dispensary, and the utilization of the EMR system.

As a result of the benefits obtained by early adopters of Electronic Medical Record Systems (EMRS) in the early 2000s, governments were compelled to enforce the swift implementation of this system in a substantial number of healthcare institutions (Fox, et al., 2010). Although this phenomenon continues to occur in the present day, experts express concern because the adoption of inadequately selected technology may result in becoming a burden (Fox, et al., 2010). One of the primary challenges that has contributed to the fragmentation and delayed provision of patient care in developed nations is the integration of technology (Samson, et al., 2007).

Although not all healthcare facilities and not all service areas at the hospitals that do utilize it, the usage of electronic medical records has become widespread. "Generating information for use in the health sector is the primary goal of a health information management system. Therefore, the effectiveness of such a system should be evaluated not only based on the data quality produced but also based on evidence about the continuous use of these data for enhancing the performance of health systems and health status." (WHO, 2013). In 2015, only about 23% of Kenya's 9249 healthcare facilities' staff members had access to either computers or the internet. Only 33% of these facilities, out of the 85% that provide monthly reports, really use the data as they receive comments (MFL,2013).

Literature Review

In many respects, EMR systems are advantageous and helpful for medical practitioners (Lorenzi et al 2008). They save money and time by swiftly accessing a large number of clinical publications. By utilizing instruments like alerts and additional information, they can also occasionally lessen human error (Jha et al., 2009). Therefore, there is much room for developing hospital practices. Despite having many benefits, these clinical and managerial methods have not been widely adopted. Albagni (2021) thinks that electronic medical records (EMRs) have helped cut down on mistakes in paperwork, such as mistakes in patient information, evaluation, and treatment. Nevertheless, it is important to highlight that a significant proportion of participants, specifically 30%, indicated that the amount of time needed for documenting information in an Electronic Medical Record (EMR) is comparable to or even less than that necessary in a conventional paper-based system. The aforementioned discovery implies that the utilization of electronic medical records (EMRs) may not necessarily lead to enhanced efficiency in the context of provider-patient interaction (Pizziferri et al., 2005). Despite its perceived inevitability, the increasing prevalence of computerization in healthcare facilities has given rise to novel challenges. In an extensive research study aimed at evaluating the caliber of physicians' contacts with patients, participants expressed a level of satisfaction with the Electronic Medical Record (EMR) that can be classified as moderate. However, despite the availability of alternative methods, medical professionals exhibited a preference for utilizing the computerized system (Claret et al., 2012).

According to Thompson et al. (1996), throughput refers to the speed at which admissions are converted into discharges. Services form the fundamental basis of the medical industry. The duration of the waiting period for patients to receive treatment is a significant concern that has a direct impact on their satisfaction levels. It's not good for patients or the hospital when they have to wait in the emergency room for too long because the inpatient systems aren't ready for the number or speed of new admissions (C.-Y. Lee & Johnson, 2013). In order to optimize patient throughput, hospitals must consider multiple factors including the entire continuum of care, including the initial admission procedure, inpatient care, as well as the discharge process and transitions to home (Cowing, Davino, Ramaya, and Szmerkovsky, 2009). Inpatient and emergency department processes and procedures are thoroughly examined, including through staff, management, and doctor interviews, data analysis of performance indicators, a study of reporting systems, and in-person patient observation of workflow and patient experience (Leu, Lee, & Huang, 2016).

According to Varroud-Vial (2011), empirical investigations indicate that the utilization of disease-specific electronic medical records (EMRs), such as those developed by the French Group of Physicians, enhances the attainment of prescribed benchmarks for diabetic treatment and intermediate results. Kumar and Aldrich's observe that the introduction of an electronic medical record (EMR) system can exert a substantial influence on the scheduling procedure. This is due to the shift from traditional paper-based methods to digital systems, which can result in alterations in the manner appointments are generated and supervised. Zao et al. (2010) present a solution that combines a smartphone-based scheduler, reminder, and monitor for tracking patients' medication intake. The system is designed to improve patient compliance with medication schedules and reduce the risk of medication errors. Paré et al. (2021) indicate that the utilization of medical appointment scheduling systems has improved the accessibility of fundamental healthcare services for patients. The integration of these technologies has streamlined the procedure of making appointments for patients, concurrently improving the capacity of healthcare professionals to efficiently organize their schedules. Manca (2015) says that EMR systems can also cut down on the time patients have to wait and the number of missed appointments. Williams and Boren (2008), contend it has become clear over the past few years that EMR systems could change how health is done in developing countries. Srinivas and Salah (2021) found that consultation length was a key factor in determining no-shows and that predicting no-shows could improve appointment scheduling efficiency.

The World Health Organization (2010) identified a significant factor contributing to substandard treatment as a deficiency in knowledge and skills, exacerbated by broader systemic issues and a shortage of personnel. There is an increasing focus on the competencies of healthcare professionals, their motivation, and the organizational factors that impact their job performance. According to Pai, Ganiga, Pai, and Sinha (2021), the implementation of an Electronic Health Record (EHR) system in India is crucial in order to enhance the standard of healthcare, mitigate errors, and enhance operational effectiveness. According to Lee (2012), new developments in digitalized medical equipment have made it possible for doctors to monitor a patient's pulse without having to physically touch them in the domain of digital medical device integration with EMRs. The measured data might also be

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recorded and kept in a database as an electronic record of the obligation. Hydari, Telang, and Marella (2019) assert that the adoption of sophisticated EMRs has the capacity to augment patient safety by decreasing medical errors and promoting enhanced communication among healthcare practitioners. Jung et al., (2014) conclude that the mobile healthcare application has the potential to enhance patient outcomes and experiences by improving access to patient information and enabling more effective patient-provider communication. Dubovitskaya et al. (2020) focus on a patient-centric electronic health record (EHR) management system for cancer care using blockchain technology, "ACTION-EHR" Results showed that the ACTION-EHR system was able to securely store and manage EHR data and provide efficient access to the data for authorized users.

According to Tavakoli et al., (2011) there are a variety of possible benefits to information technology over paper for the storage and retrieval of patient data. All patient records will eventually be kept and accessible online, claim proponents of EMR. Safran & Goldberg (2000) claim that a true EMR must enable paperless practice for 39 medical specialists. They go on to claim that because Internet technologies are so widely used, it should be simple to share patient data widely across conventional organizational boundaries. An EMR should offer a collaborative environment in this situation that supports workflow, promotes new care paradigms, and allows for secure access to dispersed health data. Electronic access to health information also provides your business with access to developments that could save turnaround times and reduce healthcare expenditures (Drazen & Rhoads, 2011). According to Chaudhry et al. (2006), the implementation of Electronic Medical Record Systems (EMRS) has the capacity to substantially improve clinical decision support by a notable percentage of 24%. This improvement can have a substantial impact on prescribing practices, leading to cost savings for hospitals. EMRS achieve this by providing clinicians with alternative therapeutic options that are both equally effective and less costly. This makes sure that expensive treatment options are only used when they are more effective than less expensive ones (Bolova et al., 2016).

When the achievement of improved access to healthcare is facilitated through a decentralized approach to healthcare delivery, a deficiency in the provision of care and treatment arises. This phenomenon can be observed by considering the disparities in healthcare accessibility resulting from variations in geographical location, social level, and cultural factors (Compton, Ganjiang, Reid, & Grossman, 2005). According to Cleven et al. (2016), telemedicine has the potential to effectively tackle a range of challenges, such as the scarcity of healthcare professionals and the sometimes-imbalanced geographic distribution of doctors, particularly specialists, between rural and urban regions. The benefits of electronic medical records (EMR) are contingent upon the system's ability to deliver accurate, reliable, and prompt data.

Methods

The study used Diffusion Theory. According to Stuart (2000), diffusion theory has been the basis for study in many fields for more than 30 years. These include political science, communication, economics, technology, education, and health research. Health studies from the past show that industrialized countries use this method for EMR research (Tucker, 2009).

Sahin (2006), in his criticism of Rogers' theory, says that Rogers used the words "innovation" and "technology" to mean the same thing because his theory was used so often to study new technologies. Rogers (2003) adds that technology is made up of hardware, software, and a plan for successful action that makes it easier to figure out the cause-and-effect connections that are needed to get a certain result. Software is what the tool knows how to do, while hardware is the tool that makes technology seem like a real thing.

The study was carried out at the Tudor Sub- County Hospital, Kongowea Health Center, and Kingorani Dispensary in Mombasa County. Each of these facilities has 10, 5, and 6 functional departments, and each employ about 104 healthcare professionals. The hospitals are situated in Mvita and Nyalali sub-counties, two of the larger Mombasa county's six sub-counties (other sub-counties are; (Changamwe, Jomvu, Likoni, and Kisauni). 100 employees are directly involved in program development and management making up the study's overall target group, together with senior management and technical staff. These play a direct role in managing, planning, designing, overseeing, reporting, evaluating, and managing knowledge of programs and projects. Based on the Human Resource Directory of EMR as of 15 June 2021, the entire target population is used. Saunders et al. (2016) suggest that the concept of research technique pertains to the theoretical framework that guides the appropriate methodology for doing scientific research. A quantitative and qualitative descriptive design was used in this investigation. As a result of this methodology, data on the variables impacting gender-responsive program management in non-governmental organizations may be collected both quantitatively and qualitatively. The research strategy employed in this study was descriptive in nature, incorporating a combination of quantitative and qualitative data gathering methods, along with the utilization of secondary data. Data collection occurred on a single occasion. The implementation of this approach will facilitate the utilization of several data gathering techniques, diverse data analysis methods, and a variety of data sources in order to achieve triangulation. Pre-analysis data cleaning was conducted to address issues such as inconsistent entries, poorly entered data, missing data, outliers, and duplicates. The data underwent analysis using SPSS version 21. The study employed descriptive analysis techniques, such as frequencies, proportions, cross-tabulation, and the chi-

square test, to validate the independent variables. In March 2020, the qualitative data analysis software NVIVO was utilized to investigate the qualitative data in order to identify novel patterns and relationships among variables

Results

Effect(s) On the Outcome of Using the IQ Care System as You Offer Services

The aim of this study was to examine the effects of implementing the IQ Care system on a range of outcomes. These outcomes included the reduction of waiting time for clients, improved access to patient information, enhanced commodity management, facilitated information sharing among health workers, decreased reliance on record keeping stationeries, reduced errors on patient records, and improved appointment scheduling. According to the data shown in Table 4.10, it is evident that the respondents attributed the greatest impact on the outcome of utilizing the IQ Care system to the expedited access of patient information, with a proportion of 15.6%. The participants in the study also identified additional factors that appeared to influence the impact of implementing the IQ Care system in hospital service delivery. These factors included a decrease in waiting time for clients (13.2%), enhanced ease of information sharing among healthcare professionals, reduced reliance on record-keeping materials, and improved appointment scheduling (12.6%). The proportions were determined by calculating the percentage of the total selections.

Table 4.10: Effect(s) on outcome of using IQ Care system as you offer services

Effect(s) on the outcome of using the IQ Care system as you offer services	Total	% of Total
Reduction of waiting time for clients	44	13.2%
Faster access to patient information	52	15.6%
Improvement of commodity management	38	11.4%
Ease of information sharing among health workers	42	12.6%
Reduction of record keeping stationeries	42	12.6%
Reduction of errors in patient records	33	9.9%
Improvement of appointment scheduling	41	12.3%
Timely decision support mechanism for patient management	42	12.6%
Valid N (list-wise)	334	100.0%

Table 4.11 illustrates the manner in which participants were requested to evaluate the impact of utilizing the IQ Care system, specifically in the context of providing hospital services. The rating scale ranged from 1 to 5, with 5 representing the highest level of success and 1 indicating the lowest level of success. The mean ratings for various aspects of improvement in healthcare management are as follows: commodity management (3.35), faster access to patient information (3.43), appointment scheduling improvement (3.36), reduction of waiting time for clients, and reduction of record keeping stationeries (3.33), ease of information sharing among health workers (3.31), timely decision support mechanism for patient management (3.29), and reduction of errors on patient records (2.91). The mean and standard error of the ratings were calculated and found to be as follows: the average mean was 3.31, and the average standard error was 0.122. The IQ Care system has demonstrated significant impact in various areas, including the reduction of waiting times for clients, expedited access to patient information, enhanced management of commodities, streamlined information sharing among healthcare professionals, decreased reliance on record-keeping materials, minimized errors in patient records, and improved outcomes in appointment scheduling within healthcare facilities.

Table 1: Effect(s) on the outcome of using IQ Care system as you offer services

Effect(s) on the outcome of using the IQ Care system as you offer services	N	Mean	
	Statistic	Statistic	Std. Error
Reduction of waiting time for clients	78	3.33	0.124
Faster access to patient information	78	3.43	0.105
Improvement of commodity management	78	3.53	0.150
Ease of information sharing among health workers	78	3.31	0.118
Reduction of record keeping stationeries	78	3.33	0.121
Reduction of errors in patient records	78	2.91	0.126

EMRS Operations	Not Integrated		Partially Integrated		Fully Integrated		Mean	Std. Error
Patient Registration	4	6.90%	35	60.34%	19	32.76%	2.259	0.076
Triage	9	15.52%	24	41.38%	25	43.10%	2.276	0.095
CCC	1	1.72%	11	18.97%	46	79.31%	2.776	0.060
Nutrition	14	24.14%	29	50.00%	15	25.86%	2.017	0.094
MCH	15	25.86%	28	48.28%	15	25.86%	2.000	0.095
Lab	14	24.14%	25	43.10%	19	32.76%	2.086	0.099
Pharmacy	10	17.24%	23	39.66%	25	43.10%	2.259	0.097
Consultation	11	18.97%	22	37.93%	25	43.10%	2.241	0.099
Billing/Accounts	31	53.45%	17	29.31%	10	17.24%	1.638	0.101
Average							2.172	0.091
Improvement of appointment scheduling					78	3.36	0.112	
Timely decision support mechanism for patient management					78	3.29	0.123	
AVERAGE						3.31	0.122	

EMR System on Scheduling of Patients

The study sought to find out how the IQ Care system affects patient scheduling at the facilities within Mombasa County. The study analyzed different variables. The results indicated that; 100% (78) of respondents justified that the EMR system can help health care workers be able to estimate the number of clients scheduled per day, 98.7% of respondents indicated that the EMR system helps with patient data entry for appointments, and health care workers can prepare patients clinic days using EMR system and 87.2% indicated that EMR system can send bulk appointment reminder SMS to client's mobile phones. The results are presented in Table 4.12 below.

Table 4.12 EMR System on Scheduling Of Patients

	Yes	No
Does the EMR system have an entry for appointment	77(98.7%)	1(1.7%)
Healthcare workers can prepare patients' clinic days using the EMR system	77(98.7%)	1(1.7%)
Healthcare workers can be able to estimate the number of clients scheduled per day	78(100.0%)	0 (0.0%)
EMR system can send bulk appointment reminder SMS to client's mobile phones	68(87.2%)	10(12.8%)

EMR System on Integration of Services Given to the Patients

The study gathered data on the integration of services in various departments for patients' services. The results are presented in Table 4.13 below.

Table 4.13 EMR System on Integration of Services Given to the Patients

The study results in the respondents indicated that patient registration is 60.34% partially integrated, 32.76 % fully integrated and 6.90% not integrated. On patient triaging 4.10% is fully integrated, 41.38% partially integrated and 15.52% not integrated. It indicated that CCC 79.31% is fully integrated, 18.97% is partially integrated and 1.72% is not integrated. In the nutrition department, the respondents indicated that 50.00% are partially integrated, 25.86% fully integrated, and 24.14 not integrated. The MCH is 48.28% partially integrated, and 25.86% fully and not integrated. The Lab is 43.10% partially integrated 32.76% fully integrated

and 24.14% not integrated. The pharmacy is 43.10% fully integrated 39.66% partially integrated and 17.24% not integrated. The Consultation is 43.10% fully integrated 37.93% partially integrated and 18.97% not integrated. The Billing/Accounts department is 53.45% not integrated 29.31% partially integrated and 17.24% fully integrated. The results presented in Table 4.13 above show that the CCC department has the biggest percentage of the services fully integrated 79.31% and billing/accounts have the highest percentages of the services not integrated.

EMR System on Patient Data Analysis

The objective of the study was to examine the impact of the Electronic Medical Records (EMR) system on patient data analysis. Participants were requested to indicate the degree to which the EMR system has influenced several aspects, including the enhancement of patient record management and subsequent improvement in healthcare delivery, reduction in turnaround time for obtaining laboratory results, facilitation of timely clinical decision-making, ease of generating and reviewing diverse reports with a single click, and improvement in data accuracy compared to manual systems. Participants were instructed to express their responses using a numerical scale. They were asked to indicate using the scale; 1: Strongly disagree 2: Disagree 3: Neither Agree nor disagree 4: Agree 5: Strongly agree. The results of the findings are presented in Table 4.14 below

Table 4.14. EMR System on Patient Data Analysis

Statements	N	Mean	
	Statistic	Statistic	Std. Error
The use of the EMR system has improved the management of patients' records thus improving the health care provided to the patient	78	3.96551724	0.1667553
The use of the EMR system has improved the turnaround time for obtaining laboratory clients' results	78	3.5862069	0.15168839
The use of the EMR system has improved on timely clinical decision process	78	3.75862069	0.14821043
The use of the EMR system has made it easy to create and review various types of reports at the click of a button	78	4.18965517	0.14437821
The use of an EMR system has improved data accuracy compared to the use of a manual system	78	4.05172414	0.13566268
Average		3.91034483	0.149339

Table 4.14 presents the findings indicating that the implementation of the Electronic Medical Records (EMR) system has facilitated the efficient generation and examination of diverse reports with a mean score of 4.190. This is followed by the observation that the use of the EMR system has enhanced the accuracy of data in comparison to the manual system, as evidenced by a mean score of 4.052. Furthermore, the utilization of the EMR system has demonstrated improvements in the management of patient records, consequently enhancing the quality of healthcare provided, as indicated by a mean score of 3.966. Lastly, the implementation of the EMR system has positively impacted the timeliness of clinical decision-making processes, with a mean score of 3.759. The mean and standard error of the ratings were calculated, resulting in an average mean of 3.910 and an average standard error of 0.149. This statement demonstrates that enhancing the management of patients' records leads to an improvement in the healthcare provided to patients. It becomes easier to generate and assess different types of reports with a simple click. Furthermore, the utilization of electronic medical record systems (EMRS) significantly enhances data accuracy compared to manual systems. The implementation of EMRS has a substantial impact on hospital operations, surpassing the average performance.

Conclusion and Recommendation

The primary aim of this study was to investigate the impact of Electronic Medical Record Systems (EMRS) on patient management within hospitals located in Mombasa County, Kenya. Based on the aforementioned findings pertaining to the primary purpose of investigating the impact of the Electronic Medical Record (EMR) system on patient waiting times in Mombasa County, Kenya, it is evident that certain elements exerted a more significant influence on the duration of waiting. The study examined the impact of the IQ Care system on general patients' inquiries, registration time, service care, appointment scheduling, and discharge or patient transfer. The findings revealed that, on average, a significant proportion of clients spent 3-5 minutes on each of these processes. Specifically, 41.4% of clients spent 3-5 minutes on general inquiries, 46.6% spent 3-5 minutes on registration, 51.7% spent 3-5 minutes on service care using the EMR system, 50.0% spent 3-5 minutes on appointment scheduling using the EMR system, and a higher number of clients (44.8%) spent between 0-2 minutes on discharge or patient transfer. Based on the aforementioned information, it can be concluded that the implementation of Electronic Medical Records (EMR) has a significant influence on the reduction of patients' waiting time. Regarding the second aim, this pertains to the impact(s) on the outcome resulting from the utilization of the IQ Care system in the provision of hospital services. Based on the aforementioned facts, it can be inferred that the utilization of Electronic Medical Record Systems (EMRS) yields enhanced delivery of hospital services and heightened operational efficacy. Various effects were seen that influenced service delivery. Notably, the most significant impact, accounting for 15.6% of the overall outcome, was the expedited access to patient information facilitated by the implementation of the IQ Care system during service provision. The participants in the study also identified additional factors that appeared to influence the impact of implementing the IQ Care system on the delivery of healthcare services in hospitals. The findings indicate that a significant percentage of respondents (13.2%) expressed a desire for a reduction in waiting time for clients. Additionally, there was a notable preference for enhanced information exchange among health workers and a decrease in the reliance on record keeping stationeries. Furthermore, a considerable proportion of respondents (12.6%) emphasized the importance of improving appointment scheduling. The EMR system demonstrated a level of integration in the provision of services to patients, with only the CCC service above a 50% threshold, achieving a completely integrated rate of 79.3%. The results indicate that electronic medical records (EMR) exert a significant impact on the aforementioned parameters.

To drastically cut down on patient wait times, hospital administrations should give top priority to the thorough integration of Electronic Medical Record (EMR) systems throughout all departments of healthcare institutions. This entails both the technical deployment of EMR systems and a deliberate commitment to enhance the health workforce's ability to use these systems efficiently. In order to succeed in this attempt, management support is essential. Comprehensive training on EMRs and the designation of EMR champions within hospitals to spearhead and support training initiatives are also essential. These advocates have the potential to be extremely important in developing an efficient and technologically advanced culture. Hospital administrators also need to take the initiative in encouraging the shift to paperless operations by outlining the purposes and advantages of EMR systems in detail. It is also critical that hospital staff members actively adopt new technologies, realizing the substantial benefits Electronic Medical Record Systems (EMRS) provide in improving patient care. This means having the flexibility to adjust to the evolving demands of healthcare management as well as being open to embracing new technologies. Hospital administrators and their employees may guarantee that EMR systems are not only put into place but also efficiently used to enhance patient care and operational effectiveness by taking these steps.

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