

## Assessment of the Quality of Health Information for Good Health Care: A Case of Kerugoya Level 4 Hospital, Kirinyaga County

Joyce Wangui Mugo<sup>1</sup> Martin G. Uimbia<sup>2</sup>

<sup>1</sup>Department of Library and Information Science, Kenyatta University, Kenya

<sup>2</sup>Department of Library and Information Studies, Kenyatta University, Kenya

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### ABSTRACT

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*Improving healthcare services has been paramount to both the national and county governments in Kenya. However, this broad national goal has failed to be achieved within the health sector in Kenya due to dilapidated systems, lack of coordination and poor quality of the health records within the industry. The current study sought to establish the influence of quality health records on improving healthcare in Kerugoya Level IV hospital. Specifically, the research focused on the creation of health information, relevance of health information, completeness and accuracy of patient's health information and accessibility of health information on the improving of health services. The research was grounded on the negativity theory. The research adopted a quantitative design with a population of 288 staff members being targeted in the study. The sample respondents were 165 staff members with both quantitative questionnaires and interview schedules being utilized in the research. The study adopted quantitative techniques in the data analysis and thematical analysis. The findings showed that 87% of the sample respondents were able to participate in the study. The research concludes that creation of health information, relevance of information and accessibility of health records are significant predictors to improved healthcare services. The research revealed that the level of management support and resource availability are positive and significant predictors of the level of improved healthcare services in Kerugoya level IV hospital. The study findings noted there is a positive but insignificant relationship between completeness and accuracy of health information and improved healthcare services within the level IV hospital. The study recommends that the hospitals should improve the digitalization of health records which will foster storage and accessibility. The hospitals should also enhance coordination with the national government to improve their health infrastructure.*

**Key Words:** Health Information, Creation Process of Information, Relevance of Information, Completeness and Accuracy of Information, Accessibility of Health Information

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### 1. Introduction

Health information is the initial communication tool between health practitioners and other health care providers, the patient health information is fundamental in provision of good patient health care and continuity of future care. Health record can also serve as legal document that has got to withstand scrutiny. Kuperman (2009) described good health information as accurate, independent and completed the information must also be realistic. Teslow (2011) in his research at Philadelphia in the United State of America affirmed that, health practitioners have mandate to create health

information and the quality of the information depends on the information recorded by the practitioners for the care. According to the researcher, quality health information must be accurate, accessible, comprehensive, relevant, precise and current. A study by McCullough (2010) in United State(US) hospitals found that, there is adoption of health information technology in most hospitals in the US as a means of creation and storage of health information. Most countries view the technology as the one tool that could effectively improve the quality, security and effectiveness of the health delivery system. According to (Donaldson, 2017) there is an increase in available and accessible health information technology (IT) applications in hospitals however, the use of such technology in recording and managing patient health information has not been fully adopted and accepted by healthcare practitioners. Many researchers have done studies investigating IT acceptance in health care facilities and other settings both individual and organizational levels of study and different hypothetical models are used. The final findings show evidence of failure on implementation of health information system since its adoption process has not yet been successful (Morton, 2008).

Al-Harbi (2011) observed that in most African state, the governments strive to ensure that there is improve in quality and safety of patient healthcare by developing practitioners' documentation policy. The researcher defined health records as complete patient information captured by a practitioner and should be accurate in providing patient health details. Different practitioners have different documentation styles, patient way of communication and his/her health condition. Inconsistency in writing case notes and diagnoses may be existent but they are dependent on the practitioners training and level of experience. Insufficient practitioner's health information could lead to lack of accurate interpretation of medical charts hence poor provision of health care to a patient (Beck 2010). Poor quality health information may cause medical errors in many ways including; in case whereby two patients sharing the same name are treated by the same practitioner in a hospital one may receive the others medicine if the unique identification number is not assured, another case is where the practitioner does not record all tests ordered, this may result in duplication of tests being ordered by another practitioner. Health information that is not recorded in a timely way may result in proceeding within treatment course other than that which the record would indicate (Al-Harbi, 2011). Access to health records in computer application-based has been noted to be more reliable in interpreting patient needs hence improving medical decisions hence their dependence has since exceeded the use of paper recording. A study in Nigeria by Paul (2012) stated that creation of health information in the region is still dependent on paper-based data collection and storage methods due to lack of adoption and poor implementation in Nigerian hospitals. In other instances, the systems are implemented on a wide-scale level to cover all patients. In manual recording health systems, the accuracy and reliability of health records is dependent on the practitioners' record keeping prowess.

In Kenya and other developing countries, the component of patient health information is lacking, and, therefore, this results in poor quality health records and inefficient utilization of the same (Ongalo, 2012). Kenya, being a developing country, is plagued with lack of quality health information and poor implementation of the use of electronic information in decision making and management of health care services resulting in the weaknesses witnessed in the country's health sector (Ongalo, 2012). The researcher also found that health facilities in Kenya that do not have computer-based patient health information are faced with problems of detecting and control of emerging and endemic health problems, monitoring patients healing progress, untimely health related information which all reduce the quality of health services. Regardless of the attempts made by governments and private health care providers in developing countries to equip the health

institutions with Information Communication Technology (ICT) in form of Health Management Information Systems (HMIS) towards improving patient health information, there has been no study that had concentrated on assessing the quality of health information for good health care in public hospitals and specifically in Kirinyaga County, hence the research gap. Further, even though there is a marked progress in many developing countries over the past decades, Kenya continues to struggle with challenging health problems and issues of wrong diagnosis in level 4 hospitals (Daniels, 2017).

## **2. Statement of the Problem**

In developed and developing world, Patients' health information is undergoing transition in order to mitigate the cases of wrong diagnosis in Kenya as has been seen in the recent past in public hospitals. Government of Kenya through the ministry of health recognizes the role of quality health information as a crucial tool to support in provision of the highest attainable standard of health care. This has seen the gradually replacement of paper-based health record by electronic record in public hospitals to improve on accuracy, completeness and accessibility of such information by physicians. While it is the duty of physicians to ensure completeness and accuracy of patient records, some records are lacking. Poor recording of patients' information has seen patients lose their lives or getting wrong diagnosis that will have an impact on their health. Patient information, therefore, impacts both patient care and outcomes. In developing countries Kenya included, majority of health practitioners do not have access to quality health records. They depend on their own opinion, and the experience gained through their practicing for successes and failures. Some important concepts are being implemented towards meeting the information needs of health practitioners, but health facilities are still struggling to achieve the recommended standards of record keeping both at the low-level healthcare facilities and at level 4 hospital providers in the developing world. Barriers to accessing quality patient health information and using it are still poorly understood, especially among healthcare providers in developing world Kenya included. Therefore, it is against this backdrop the researcher finds it necessary to assess the quality of health information captured at Kerugoya level 4 hospital.

## **3. Objectives of the Study**

The specific objectives were;

- i. To assess creation process of health information at Kerugoya Level 4 Hospital, Kirinyaga County.
- ii. To establish the relevance of health information at Kerugoya Level 4 Hospital, Kirinyaga County.
- iii. To assess the completeness and accuracy of health information at Kerugoya Level 4 Hospital, Kirinyaga County.
- iv. To establish the accessibility of health information by practitioners at Kerugoya Level 4 Hospital, Kirinyaga County.

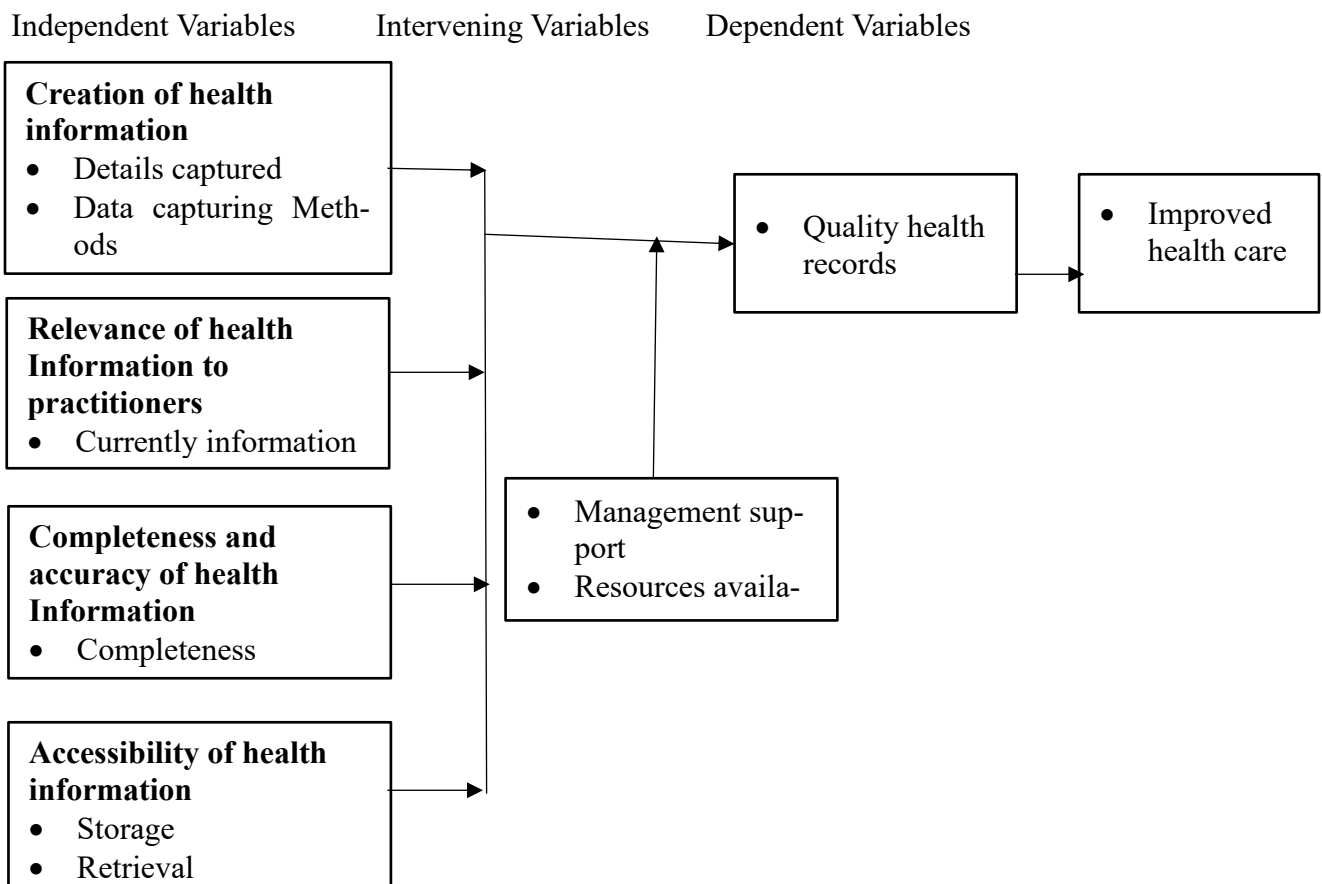
## **4. Theoretical Framework**

The negativity theory was the anchor of this study. This theory developed by Carlsmith (1963) implied that should the delivered services be below the level of expectation, the affected party will become disappointed, producing 'negative energy'. The foundations of the Negativity theory lie in the disconfirmation process. Negative theory states that when a party holds strong levels of

expectation, then any form of disconfirmation negatively affect their opinions. Additionally, the levels of dissatisfaction increase whenever perceived performance is lower than the expectations and should the perceived performance exceed expectations then leads to increased satisfaction levels. "Affective feelings toward a product or service was inversely related to the magnitude of the discrepancy." From the arguments of the negativity theory, it was expected that health practitioners should use health information of high quality in hospitals, the information obtained should be complete, reliable, high accessible and secure. Any discrepancy from the expectation is likely to disrupt individuals producing negative energy according to negativity theory. Such negative energy may affect good health care. Therefore, assessing the quality of health records is key to improving and maintaining a good health system.

## 5. Conceptual Framework

According to Mugenda and Mugenda (2003), a conceptual framework helps to simplify the proposed relationship between the variables in the study and show the same graphically or diagrammatically.



**Figure 1. Conceptual Framework**

Improved health care is determined by the quality of health information created by practitioners. Quality of health information depends on the management support and resources available to support practitioners. This health information is determined by factors such as creation, relevance, completeness, accuracy and accessibility of patients' health information. The independent variables in this study were the factors determine health information quality which includes,

creation, relevance, completeness, accuracy and accessibility of health information. All these determine health information quality which consequently led to improved health care. Management support and resources availability are intervening variables in this case. When practitioners get support and resources from management then they provided quality health records hence quality health care. For this case the dependent variable was quality health records and improved health care is the output.

## **6. Research Methodology**

The study adopted both qualitative and quantitative approaches of data collection using the case study design with a survey as the main research method. Quantitative research is about asking people for their opinion in a structured way so that the researcher can produce hard facts and statistics to guide the researcher. The research was carried out in Kerugoya level 4 hospital Kirinyaga County in Kenya. The rationale of choosing the hospital as a case study is because it has Laboratory and other diagnostic techniques appropriate to the medical, surgical, inpatient and outpatient care. The hospital has the technical staffs in place who are the target group. Finally, the hospital offers Twenty-four-hour services. The target population comprised 288 technical Kerugoya hospital staff distributed in eight thematic areas namely specialists' doctors; medial officers; nurses; pharmacists; clinical officers; laboratory technicians; radiographers and health records officers'.

Determination of sample size for this study relied on Krejcie and Morgan (1970) which determines Sample Size Determination Table for  $\pm 5\%$  precision level and 95% confidence level. Simple random stratified sampling technique was used to sample 165 technical staff who participate in all functions of health records from initial stage of creation to accessibility of health information. Questionnaire and interview schedules were the main data collecting instruments. This is because they can collect information on people's opinion, attitudes, preferences on several aspects of the topic in question. Collected data was cleaned, coded and analyzed using Statistical Package for Social Sciences (SPSS) program. Simple descriptive statistics in form of percentages mean and cross-tabulation was used to analyze quantitative data and was represented in form of frequency distribution tables and figures such as pie-charts and bar graphs. Qualitative data from the questionnaire was arranged according to themes in the objectives and presented in continuous prose.

## **7. Data Analysis Results**

### **7.1 Creation of Health Information at Kerugoya Level 4 Hospital**

The researcher sought to assess creation process of health information at Kerugoya Level 4 Hospital, Kirinyaga County. The technical staff within the hospital were asked to indicate their level of agreement with various processes that are conducted in creating health information. The findings showed agreement among two-thirds of the respondents strongly agreement that the patients at the hospital are registered by capturing demographic information. The study results revealed that more than half of the respondents strongly agreed that the hospital has a guideline /policy which articulates mandatory information required to be collected from patients. On the other hand, almost half of the participants agreed that the hospital has a guideline /policy which articulates mandatory information required to be collected from patients. The study indicated agreement among two-thirds of the participants that main source of health information originates from patients while 37% of the respondents strongly agreed to the statement. Concerning the hospital has a guideline /policy which articulates mandatory information required to be collected

from patients there was agreement among half of the respondents and 47% strong agreement. The results indicated that more than half of the respondents were in agreement that the hospital has a standardized data collection tool and integrated system to ensure data consistency. The study examined if practitioners do not experience language barriers during communication with patient treatment process, 53% of the respondents agreed, 43% strongly agreed, 2% disagreed while 1% of the respondents strongly disagreed.

These findings concur with Specialist Doctor 1 and 2 who indicated that there has been an increase in digital capturing of health records and maintenance of file registry to ensure captured data is quite accessible. This was in line with Smith (2013) asserts that capturing of health information is critical to the provision of good care and continuity of care within the health sector. Caroline (2013) also noted that capturing of health information is vital to creating reliable health records within the Kenyan health system. The participants also indicated that the hospitals recorded an improved utilization of computerized systems to categorize the patient's records, ensure a secure storage of records, sorting of medical records and ensure complete health information of the patients is accessible. Generally, the findings indicate that improving the capturing of patients' demographic information, having a clear hospital policy on information collection, having standardized data collection tool and clear communication can foster the quality of healthcare. WHO (2018) and Sharkawy (2006) in their studies concluded that improving the practitioner's skills in creation of health records is essential to standardization of health care and ensuring delivery of quality. From the study its evident that creating health information will help in improving the quality of healthcare. Having a standardized policy for creating health information such as capturing demographic information, removing language barriers, ensuring patients have identification documents can improve healthcare services.

## 7.2 Relevance of Health Information at Kerugoya Level 4 Hospital

The researcher wanted to establish the relevance of health information at Kerugoya Level 4 Hospital, Kirinyaga County. The technical staff within the hospital were asked to indicate their level of agreement with statements on relevance of health information at the hospital and the responses obtained are presented below.

**Table 1 Relevance of Health Records Results**

Relevancy of health records	Strongly agree		Agree		undecided		Disagreed		Strongly disagreed		Total	
	coun t	%	coun t	%	coun t	%	coun t	%	coun t	%	coun t	%
Demographic information	57	40%	87	60%	0	0	0	0	0	0	144	100
Medical history	63	44%	81	56%	0	0	0	0	0	0	144	100
Patient's notes	52	36%	91	63%	1	1%	0	0	0	0	144	100
Signs and symptoms of a patient	55	38%	89	62%	0	0	0	0	0	0	144	100



Patient's chronic condition	54	37 %	89	62 %	1	1 %	0	0	0	0	144	100
Allergies	45	31 %	97	67 %	1	1 %	1	1 %	0	0	144	100
Name and contact of Next of kin	55	38 %	88	61 %	1	1 %	0	0	0	0	144	100
Mode of payment is a requirement	48	33 %	89	62 %	6	4 %	1	1 %	0	0	144	100
Practitioners name, signature and date	52	36 %	88	61 %	1	1 %	3	2 %	0	0	144	100

The results indicate that 60% of respondents agreed that demographic information was relevant to health information. On the other hand, 40% strongly agreed. The findings indicated that more than half of the respondents agreed that medical history was relevant while 44% strongly agreed. The study revealed that two-thirds of the respondents were in agreement that patient notes were relevant while 36% disagreed. The study indicated agreement among more than half of the respondents that signs and symptoms of a patient was relevant. The study showed agreement among more than half of the respondents and strong agreement among 37% of respondents that patient's chronic condition was relevant. The research showed agreement among two thirds of respondents and 31% strong agreement that allergy information was relevant. The study showed agreement among 61% of the respondents that Name and contact of Next of kin was relevant. However, 1% of the participants were undecided on the relevance. The study showed strong agreement among 33% and 62% of the respondents agreed that Mode of payment is a requirement in health records. The study results indicated agreement among 61% if the respondents that practitioners name, signature and date were relevant. In contrast, 1% of the respondents were undecided and 2% disagreed on the relevance of practitioner's name, signature and date.

The study results resonate with all Specialist Doctors who stated that, the details considered relevant on patients health records include name, age, gender and residence. Specialist Doctor 4 also pointed out, "chronic diseases has become common to young and old people hence it is important to have medical history which includes patients notes when offering health care". This is in line with analysis published in the British Medical Journal (2007) stated that, patients with chronic conditions who visit health facilities regularly their health records need to be tracked every visit hence stand to benefit. In case of emergencies when the patient is unconscious, practitioner can access the patient health to get information practitioners may not have been able to obtain in short time. Specialist Doctors1 disagreed with technical staff respondents where he insisted, "how a patient will pay for the medical services is not relevant as level 4 hospitals do not charge for outpatient services". Overall, the results findings show that capturing demographic information, the medical history, signs and symptoms, patients notes and allergies can be key to enhancing quality of healthcare. This is in consistent with views of Amitai (2008) who stated that medical history and patients notes benefits practitioners from not having to collect and create health

information now and then. The history can be prepared once and made available to any subsequent health care provider.

### **7.3 Completeness and Accuracy of Health Records at Kerugoya Level 4 Hospital**

The respondents were asked to assess the completeness and accuracy of health information at Kerugoya Level 4 Hospital, Kirinyaga County. The technical staff within the hospital were asked to indicate their level of agreement with the completeness and accuracy of health records. The results were as illustrated below. Regarding practitioner's record facts and actual events rather than patients' impressions the results showed agreement among two-thirds of the respondents and a third strongly agreed. The findings indicated that half of the respondents agreed, 45% strongly agreed that there is production of timely information for evidence-based decision making within the hospital. The research indicated agreement among more than half of the respondent and strong agreement among 41% of the respondents that all the fields on data collection tool are filled accurately. The findings show agreement among more than half of respondents, 40% strong agreement, 3% undecided and 1% disagreement that health information includes all relevant findings related to the patient's condition, diagnosis and treatment. The results show that at least half of the respondents agreed that patient treatment history is captured while 48% strongly agreed.

The study indicates agreement among more than half of respondents that patient name is captured as it appears on the identification documents to avoid spelling. Concerning patients are issued with unique identifier to eliminate patient mismatches there was agreement among 58% of the participants and 41% strong agreement. The findings concur with sentiments of specialist doctor 4 who noted, "the hospital has maintained a filing system which is manned by skilled medical personnel". This is in consistent with Amarasinghm (2009) who suggested that supporting better health information through adoption of electronic devices fosters the completeness, accessibility and sharing of medical data with practitioners. This is reaffirmed by WHO (2018) report revealed that recording crucial information is necessary to ensure there is no errors in the provision of treatment. The Specialist doctors 1&2 also noted that having a standardized patient card and improving capacity building among the hospital personnel is critical to improving the quality of availed health information. This concur with Kenyan Health Information System Policy (2013) which indicates that there is need for a standardized policy on health information that will ensure the health records in place can support health provision. The implication of the above results shows that adequately filling data collection tools, collecting all relevant patient information, timely production of information during decision making and having unique identifiers can significantly improve the access and quality healthcare in Kerugoya Level IV hospital.

### **7.4 Accessibility of Health Information at Kerugoya Level 4 Hospital**

The researcher was interested in establishing the accessibility level of health information by practitioners at Kerugoya Level 4 Hospital, Kirinyaga County. The hospital technical staff were presented with various statements on the accessibility of health information within the hospital. Concerning there is easy and timely retrieval/access of health information there was agreement among two thirds of the participants. The results indicated that more than half of the respondents agreed that health records are available for only authorized practitioners with two-fifths of respondents strongly agreeing. The study showed agreement among two-thirds of respondents that there is privacy and confidentiality of medical records in the hospital. The research indicated agreement among 61% of the respondents that the hospital has established a separate and well-equipped medical record section. Regarding the health records are kept in secure condition there



was strong agreement among 63% of the respondents. The study also showed that more than half of the respondents agreed that the hospital has a mechanism for tracking the movement of patient's documents and records. The research showed agreement among half of the respondents had strong agreement that the hospital has record retention and disposal schedule.

Specialist doctor 1 pointed, "the hospital has created a control mechanism to ensure there are protocols in place to ensure there is seamless information accessibility in the hospital". This was echoed by specialist doctor 3 who also noted, "the hospital records are only available to authorized personnel and the hospital ensures that confidentiality of the patients is maintained. This is consistent with views of Adeleke (2014) who found that there is need for proper accessibility of health information. Nicholson (2014) also stated that securing electronic health information and ensuring access protocols are in place helps to avoid challenges in provision of healthcare. The specialist doctor 2 also noted, "having an elaborate filing system improved accessibility of health information within the hospital". This is in line with Swaran (2015) who revealed that an accessible registry and proper health recording is critical to service provision within the health facility. The findings of the study provide vital information which shows that ease in excess of health information, improving confidentiality of health records, securing health information, tracking of patient information stored and effective disposal of health records can lead to benefits in improved healthcare

### **7.5 Management Support and Resource Availability at Kerugoya Level 4 Hospital**

The research further examined the moderating effect of management support and resource availability on improving healthcare services within Kerugoya hospital. The study respondents were presented with various statements and the captured responses are presented in the table below. There was agreement among two-thirds of respondents that there is an improvement in the coordination of services within the hospital as shown in results above. The research findings indicated agreement among more than half of the respondents that there is a clear charter guiding the provision of services within the hospital. Regarding there is always an adequate number of staff available at the hospital there was agreement among two-thirds of respondents. The findings showed agreement among three-fifths of respondents that the hospital has adequate financial capacity to ensure there is availability of medical supplies and equipment. Concerning the hospital leadership has put in place adequate structures to ensure quality service provision there was agreement among two-thirds of the respondents. The study indicated strong agreement among half of the respondents that there is a direct chain of command for solving of patient's complaints within the hospital. The specialist doctor 4 stated, "engagement of trained professions, periodically conducting audits of health information and supportive supervision are key to improved quality of health information". This concur with specialist doctor 1 who noted, "the hospital management ensures that there is continues medical trainings for health providers which impacts new knowledge". The review of the moderator variable shows that enhancing coordination within the hospital management, having a clear charter/guideline can improve healthcare. Further, the findings show that hospitals have improved their leadership practices, fostered chain of command, and have adequate employees can be key to enhancing healthcare.

### **7.6 Improved Healthcare Services in Kerugoya Hospital**

The research dependent variable reviewed the improving healthcare services within Kerugoya hospital. The technical staff within the hospital were offered various statements and the recorded

**Table 2 Improved Healthcare Services Results**

Healthcare Services	Strongly agree		Agree		undecided		Disagreed		Strongly disagreed		Total	
	count	%	count	%	count	%	count	%	count	%	count	%
The medical staff within the hospital are responsive to the patient needs	48	33%	93	65%	3	2%	0	0	0	0	144	100
There is efficiency in the provision of healthcare services within the hospital	64	44%	77	54%	3	2%	0	0	0	0	144	100
The hospital staff accord patients empathy in their service provision	45	31%	95	66%	3	2%	1	1%	0	0	144	100
There is an improvement in the delivery of healthcare services within the hospital	66	46%	76	52%	1	1%	1	1%	0	0	144	100
The hospital is able to offer affordable healthcare services to the patients	46	32%	91	63%	4	3%	3	2%	0	0	144	100
The hospital management has ensured that specialized	49	34%	90	62%	5	4%	0	0	0	0	144	100

Healthcare Services	Strongly agree		Agree		undecided		Disagreed		Strongly disagreed		Total	
	coun t	%	coun t	%	coun t	%	coun t	%	coun t	%	coun t	%
healthcare services are available within the institution												

The study findings showed agreement among two thirds of participants agreed that the medical staff within the hospital are responsive to the patient needs. The research showed agreement among half of respondents that there is efficiency in the provision of healthcare services within the hospital. Concerning the hospital staff accord patients empathy in their service provision there was agreement among two-thirds of respondents. The study results indicated that half of respondents agreed that there is an improvement in the delivery of healthcare services within the hospital. The research showed agreement among 63% of the respondents that the hospital is able to offer affordable healthcare services to the patients. The study showed agreement among more than half of respondent's agreement that the hospital management has ensured that specialized healthcare services are available within the institution. Specialist doctor 1 reported" improved health care is affirmed through having special clinics managed by specialist doctors in addition the clinics are well equipped with specialized equipment". The findings showed that Kerugoya hospital has been able to improve healthcare through ensuring efficiency of hospital, enhancing empathy to patients, offering affordable and specialized healthcare and improving service delivery. These findings are in agreement with earlier literature by Paul (2012) revealed that the accuracy and reliability of health records is dependent on the practitioners' record keeping prowess which fosters access to healthcare services. Swaran (2015) also found out that enhancing specialized care, showing empathy to patients and ensuring quality service provision are integral healthcare metrics.

## 8. Conclusions

The research concludes that quality of health information is essential for improved health services within the Level IV hospital. The research concludes that creation of health information, relevance of information and accessibility of health records are significant predictors to improved healthcare services. The research revealed that the level of management support and resource availability are positive and significant predictors of the level of improved healthcare services in Kerugoya level IV hospital. The study findings noted there is a relationship between completeness and accuracy of health information and improved healthcare services within the level IV hospital.

## 9. Recommendations

The research recommends that the hospital should invest in digitalized systems of record capturing as this will help in improving the patient records. Further the research recommends that the Kerugoya level IV hospital in conjunction with the County Government should develop an integrated information system which will ensure that patients records can be retrieved from other health institutions within the county which can be critical to provision of quality services. The study further recommends that the health institutions should ensure that patient information captured is as accurate as possible and can be retrieved timelessly to ensure there is better decision making on diagnosis and treatment procedures.

The study further recommends that health institutions should invest in better health information storage processes to ensure minimal loss of patient information or unauthorized access. The research further recommends that the hospital should improve the privacy of health information by instituting a control system to ensure confidentiality in the retrieval and access of health information. The study recommends that the hospital should mobilize adequate resources to foster the financial capability of the hospital. This will be key to fostering the quality of health services. The study further recommends the institution should ensure there are retention measures in place to enhance employee retention, motivation, development and knowledge sharing which can be integral to better health services.

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