INFLUENCE OF INTEGRATED HUMAN RESOURCE INFORMATION SYSTEM ON SERVICE DELIVERY IN THE HEALTH SECTOR AT NAIROBI CITY, KENYA

BY

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DECLARATION

Declaration by Candidate

This thesis is my original work and has not been submitted for any academic purposes to any other university.

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DEDICATION

This thesis is dedicated to my parents, brother, my late brother and my late sister who supported me throughout the process. I will always appreciate all they did.

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ABSTRACT

Service delivery in the health sector, crucial for a healthy nation, is influenced by various factors, including the nature of the service provided. In Kenya, devolution aimed to enhance accountability and improve service delivery, particularly in the health sector. This study focused on Nairobi City County's health sector, investigating the impact of the integrated Human Resource Information System (iHRIS) on service delivery. It evaluate the components of iHRIS on service delivery, the contributions of iHRIS on service delivery and the challenges of iHRIS on service delivery in Nairobi City. The study, grounded in system theory, technology adoption theory, and resource-based view theory, used an explanatory research design targeting 260 health workers in Nairobi City County. From 17 sub-counties, three were selected for having fully implemented iHRIS, with a sample size of 130 respondents determined through stratified random sampling. The study revealed that iHRIS components significantly influence service delivery. It was found that iHRIS enhances workforce management, leading to improved health services, with strong positive correlations (p-value < 0.005) and regression results indicating a substantial impact on service delivery. The iHRIS manage showed a coefficient of 0.944, iHRIS train 0.026, and iHRIS plan 0.011, all positively influencing service delivery ($P < 0.05$). An adjusted R square of 0.743 implied that 74.3% of service delivery variation in Nairobi City County is attributed to iHRIS components. The study also highlighted that effective iHRIS application leads to better data storage and security, enhancing service delivery. However, challenges like insufficient training, inadequate infrastructure, and resistance to change negatively impact iHRIS application and service quality. Conclusively, the study underscores iHRIS's crucial role in service delivery improvement in Kenya's health sector. It recommends that all health institutions in Nairobi County should fully implement iHRIS, ensuring the utilization of all components - iHRIS manage, train, and plan - to enhance service delivery and maintain a competitive edge in human resource systems. Future research should explore iHRIS's impact across different Kenyan counties, investigate the influence of organizational culture and confidentiality on iHRIS effectiveness, and develop methods to enhance questionnaire response rates and completeness for a deeper understanding of iHRIS in diverse contexts.

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ABBREVIATION AND ACRONYMS

HR	Human Resource
HRH	human resources for health
HRIS	Human Resource Information System
HRM	Human Resource Management
HRP	Human Resource Planning
ICT	Information Communication Technology
IHRIS	Integrated Human Resource Information System
IT	Information Technology
MRS	Medical Record Solution
NACOSTI	National Commission for Science, Technology and Innovation
SPSS	Statistical Package for the Social Sciences
UK	United Kingdom
USA	United States of America

OPERATIONAL DEFINITION OF TERMS

Employees Recruitment:	This was used as the process of searching for candidates for employment.
Human Resource Information System (HRIS):	This was used as a computer-based system that is used to manage the administration of human resource processes and procedures.
iHRIS components	These were used to mean the integrated open-source software solutions designed to streamline and optimize human resource management, training, and planning processes.
Integrated Human Resource Information System (iHRIS):	This was used as the open web based application that manages health workers information to support sound decision making.
Service Delivery:	This was used to mean the act of offering services to clients.

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter focuses on the key issues that form the basis of the study namely, statement of the problem, research objectives, and research questions, justification of the study, significance of the study, scope of the study and limitations of the study that lay the basis for this study.

1.2 Background to the Study

Human Resource Information Systems (HRIS) essentially a merger of human resource management and information technology, enables organizations to automate many aspects of human resource management, with a particular focus on the complex and dynamic environment of the health sector (Bal, Bozkurt & Ertemsir, 2022). According Healthcare Information and Management Systems Society (2019), over 75% of healthcare organizations surveyed indicated that HRIS was instrumental in streamlining their HR processes. This has a direct impact on service delivery, as HRIS aids in efficiently managing staff records, tracking employee performance, and ensuring compliance with healthcare regulations. Additionally, HRIS facilitates more effective workforce planning and development, crucial in the health sector which often faces challenges like staff shortages and high turnover rates. By automating routine tasks, HRIS allows HR personnel to focus on more strategic initiatives like workforce development and employee engagement, which are essential for high-quality healthcare delivery (Udekwe, Iwu, De la Harpe & Daramola, 2021).

Furthermore, the implementation of HRIS in healthcare is linked to enhanced decision-making capabilities. By providing real-time data and analytics, HRIS helps healthcare

managers make informed decisions about workforce allocation, talent acquisition, and training needs (Moussa & El Arbi, 2020). This aspect is particularly vital in the context of a report by the World Health Organization (2021), which highlighted a global shortfall of 5.9 million nurses, emphasizing the need for effective HR management in healthcare. HRIS also plays a pivotal role in managing the complex scheduling needs of healthcare workers, thereby directly impacting patient care and service delivery. The system's ability to offer insights into staffing patterns, absenteeism, and turnover rates is essential for maintaining an adequate and skilled workforce, which in turn ensures that the healthcare sector operates at optimal efficiency. Consequently, the successful integration of HRIS in the health sector not only streamlines HR operations but also significantly contributes to the overall goal of delivering high-quality healthcare services (Fernandes, Hartono & Aziza, 2020).

Service delivery in the health sector is a critical aspect that directly impacts patient care and overall health outcomes. It encompasses a wide range of services, from primary care to specialized treatments, and is deeply influenced by the efficiency and effectiveness of healthcare management systems (Troshani, Jerram & Hill, 2021). The integration of HRIS in healthcare, service delivery is particularly relevant. HRIS systems contribute to the optimization of healthcare service delivery by enhancing workforce management, ensuring that the right personnel are available at the right time to meet patient needs (Moussa & El Arbi, 2020). The effectiveness of service delivery is often measured by factors such as the availability of healthcare professionals, the adequacy of medical facilities, the accessibility of services, and the efficiency of healthcare delivery systems. For instance, the World Health Organization (2021) emphasized the importance of maintaining a robust healthcare workforce, noting that

the availability of skilled healthcare professionals is directly linked to improved health outcomes.

The relationship between Integrated Human Resource Information Systems (HRIS) and service delivery in the health sector has been a focal point of several studies. Ball (2019) highlighted that HRIS significantly improves the efficiency of HR operations in healthcare, leading to better resource allocation and enhanced patient care. Similarly, Ruël, Bondarouk, and Looise (2020) emphasize that the implementation of HRIS in hospitals leads to improved data accuracy and decision-making, directly influencing service delivery. This is corroborated by Troshani, Jerram, and Hill (2021), who found that HRIS facilitates strategic human resource management in healthcare, which is crucial for maintaining a high quality of patient care. Additionally, a study by Marler and Fisher (2020) supports these findings, indicating that HRIS integration streamlines processes and improves the responsiveness of HR functions, thereby positively impacting healthcare service delivery.

In the field of human resource management one of the key strategies that have been adopted by many organizations is the use of integrated Human Resource Information System (iHRIS) (Wiblen, Grant & Dery, 2019). iHRIS is a free, global, open-source, web-based HR software developed for the MoH. The system is designed in conformity with national and international HR practices. iHRIS is a management tool for HR Managers, HR Officers and line managers for use in HR planning and decision-making (Mayfield, 2020).

According to Broderick and Boudreau (2019) integrated Human Resource Information System(iHRIS) is the composite of databases, computer applications, hardware and software necessary to collect/record, store, manage, deliver, present, and manipulate

data for human resources. Similarly Tannenbaum (2019) defines Integrated Human Resource Information System as one that is used to "acquire, store, manipulate, analyze, retrieve, and distribute information about an organization's human resources. Basically, iHRIS is a systematic computerized processing of human resource functions in an organization. HRIS adoption helps a firm to achieve the competitive advantage (Wiblen, Grant &Dery, 2019). Adoption of iHRIS plays a significant role towards improvement of organizations service delivery. Service delivery is defined as accessibility, consistency, reliability, accuracy of services offered to patients (Asha, 2021).

Health is one of the essential services which county governments are trying to improve; hence the introduction of iHRIS plays a significant role towards improvement of health services in terms of service quality, service accessibility, service reliability, service acceptability, service availability, service efficiency and service effectiveness (Moussa, & El Arbi, 2020). Adoption of iHRIS has some major limitation which affects service delivery. These includes lack of adequately Trained staff, lack of supportive ICT infrastructure in terms of computer hardware, software's and telecommunication equipment affects and employees resistance to change.

Systems Theory, as the anchoring theory of the study, provides a holistic framework for understanding how diverse elements within the healthcare sector interact and influence each other. It emphasizes the interconnectedness of different components, such as human resources, technology, and organizational structures, in shaping the overall effectiveness and efficiency of health service delivery. Other theories included the Technology Adoption Theory and Resource Based View Theory.

Globally, over the past decade, many organizations have adopted Ihris as a measure to improve on the execution of HRM functions and improve on service delivery (Cedar, 2020). In developed nations such as UK, USA and Canada, rapid advancement in use of ICT has greatly created a supportive environment for the application iHRIS which have enabled effective planning, management and the reduction of the cost of undertaking human resource activities. These have played a significant role in improvement of overall organization service delivery. In Europe and other developed nations, as more companies become globalized, the need for an integrated system where they would manage their human resource functions and improve on service delivery have emerged hence creating a greater need for iHRIS. The expansion has led to the introduction of global iHRIS in various multinational organizations resulting to the emergence of different iHRIS opportunities, benefits and challenges (Opiyo, 2020).

In China and Japan, many public health institutions have realized the benefits of iHRIS in employee recruitment, offering learning opportunities, employee record management and in employee skills inventory management. In India and Malysia, effective application of iHRS in many public health organizations have led to improvement in service delivery for the past seven years, the service delivery have improved on quality standards as result of employees skills inventory management, e recruitment and identification of employees skills gap analysis and this have been realized as result of iHRIS application (Ball, 2019).

Global companies that use iHRIS such as Colgate and Palmolive are able to identify the qualifications of managers and employees, thus recruiting the best candidates. This reduces the expensive process and the time spent searching for the best candidate. Other examples of companies which have adopted global iHRIS include IBM, Levi-Strauss,

FedEx, Hewlett-Packard, Stanford University, and Johns Hopkins. These companies have developed and implemented iHRIS to optimize their employee performance hence leading to improved service delivery (Opiyo, 2020).

In Africa, the rapid development of the ICT during the last two decades has boosted the implementation of electronic human resource management systems like iHRIS in many organizations (Strohmeier, 2020). Surveys of HR consultants suggest that both the number of organizations adopting iHRIS and the depth of applications within the organizations are continually increasing and this has played a major role in improvement of service delivery. Many public health institutions that have successfully managed to implement iHRIS have realized improved service delivery in terms of service quality, service accessibility, service reliability, service acceptability, service availability, service efficiency and service effectiveness (Kovach & Cathcart, 2019). Thompson (2020) observed that in Egypt public health sector, the introduction of iHRIS components notably, iHRIS Manage, iHRIS Train and iHRIS Plan plays a key role in supporting HR managers to effectively execute HRM functions across all organization departments and this leads to improved service delivery.

In Nigeria, the need of iHRIS has been adopted in public health sector due to the recognition of HRM importance is growing with the public health institutions size which requires appropriate HR reports generation and employee data maintenance which leads to improved service delivery. In South Africa public health sector, the use of iHRIS has helped in improvement of service delivery. Perry (2019) noted that iHRIS South Africa public health sector is recommended for management of digital records where paper records are scanned, uploaded into the system and linked to an employee profile.

The profile consists of basic employee details like name, employment number, demographic information, designation among other details. Sound HR information management requires that principles, practices and procedures are defined and followed. This necessitates that HR information, regulations, personnel, and infrastructure issues be well defined. In Rwanda, the use of iHRIS has helped to improve service delivery since it has enabled faster decision making in the development, planning, and administration of Human Resource because data became much easier to store, retrieve, update, classify, and analyze (Perry, 2019).

In Kenya iHRIS is referred to as a free, global, open-source, web-based HR software developed for the MoH. The system is designed in conformity with national and international HR practices (MOH, 2019). iHRIS is a management tool for HR Managers, HR Officers and line managers for use in HR planning and decision-making. iHRIS consists of five modules, namely: iHRIS Manage which supports MoH and other service delivery organizations, to track, manage, deploy and map their health workforce; iHRIS Train which is used to track and manage health worker training activities, including pre-service and in-service education; iHRIS Plan which is a workforce planning and modeling solution that enables decision-makers to assess their workforce needs for the next several years, project the expected health workforce over the same time and make effective policy decisions to close the gap between the two; iHRIS Retain which is a tool for costing health worker retention strategies. Workforce planners and policy makers, as well as health facility administrators and human resource managers can use iHRIS Retain to plan retention interventions at all levels (MOH, 2019).

iHRIS Qualify which is a tool that enables professional councils and associations to maintain a database of registered and licensed health professionals to support increased quality of care. Currently, only iHRIS Train and iHRIS Manage are in use in Kenya. The user guide is specifically designed for iHRIS Manage. National and county governments use iHRIS to manage their own health workforce, and increase efficiency of reporting in recruitment, deployment, transfer, promotion and separation. iHRIS provides information on HRH status in terms of cadre mix, age distribution, productivity, and workload. The system is programmed to fully cater for each county as an independent entity with controlled access to specific county HR data (MOH, 2019).

Devolution of the health services in Kenya is facing several challenges, the devolution of health workers to county management occurred under myriad of problems and resistance by the health workers. To date the country has witnessed several strikes by health workers in different counties as well as resignation of some health workers, especially doctors. It has also witnessed inequitable distribution of available health workforce due to health workers leaving certain counties in favour of others that have better working conditions. Other challenges include but are not limited to shortage of health care workers, loss of skilled workers to the private sector and other countries that offer better financial packages, lack of career opportunities as well as education opportunities, the lack of clarity in the due process for the transfer of health care workers in between counties, promotion of health workers, devolving of HRH records and administration of the HRH pension among others (Mboya, 2021).

In Kenya, most county governments implementing iHRIS lack the requisite resources for ongoing information processing, reflecting low managerial priority. There is

inadequate supply of human, material, technical and other resources needed for the functioning of HIS. Most staff are inadequately trained in iHRIS procedures and there is not much faith in the results coming out of the HIS. For purposes of sustainability, iHRIS require resources and adequate long-term funding for such necessities as recruitment of staff in right numbers, computers, stationery, communication equipment, systems and staff development, reports and communication costs. Sustainability can be enhanced by active involvement of all parties at all stages of HIS development (Muli, 2020).

Since the establishment of the Nairobi City County in the year 2019, the County government health sector adopted an iHRIS as a strategy to improve on health care services delivery (Hassan, 2019). Devolution in Kenya is the pillar of the Constitution and seeks to bring government closer to the people, with county governments at the Centre of dispersing political power and economic resources to Kenyans at the grassroots. The promulgation of the Constitution of Kenya 2019 marked a major milestone in the way the country is governed, stipulated the dispersal of political power and economic resources from the centre in Nairobi to the grassroots in a process known as devolution (ROK, 2019).

As a result, 47 county governments and the Senate were established following the March 4, 2020, General Election as part of the implementation of devolution. With this, Kenya came full circle from pre-independence days when a form of devolution, then known as Majimbo, was introduced briefly in 1962 but scrapped soon after independence. Majimbo came following intense political battles between two independence parties — Kenya African National Union (Kanu)and Kenya African

Democratic Union (Kadu) — as they negotiated the independence Constitution in Lancaster (ROK, 2019).

Devolution in Kenya was expected to enhance efficiency in provision of services to citizens but county governments can hardly cope with the massive requirements of service provision due to both inadequate resources, including shortage of staff. Some of this pool of human resource will be useful in starting off Counties once issues relating to terms and conditions of work are clarified (Kenneth, 2020). Management of county establishment in Kenya is faced with various challenges especially in the health sector (Mbarire, 2019). Many county governments had been facing major challenges especially in delivery of public services. Public health services have been one of the major challenges faced by many counties. Public health workers strike in the year 2021 made Parliament to demand stripping of health roles from county governments after the shocking resignation of 189 doctors (Mbarire, 2019).

Devolution in Kenya is envisioned to improve access, service delivery, bend the cost curve, increase accountability, and improve responsiveness. This is grounded on the principles of the Constitution of Kenya 2019, specifically aiming to achieve the highest attainable standards of health to all Kenyans and to decentralize health services management through a devolved system of governance. The country continues to struggle with various challenges on HRH including: Shortage of human resources for health due to brain drain among other factors; Weak human resource management systems and practices; Poor HR records and data management systems; Lack of appropriate skills mix for delivery of health services; Inadequate financing and planning for HRH; and Frequent industrial unrest. To address these challenges, there was need to come up with Human Resource Information and Record Management

Systems and this necessitated the adoption of the integrated Human Resource Information System (iHRIS) (ROK, 2019).

1.3 Statement of the Problem

The healthcare sector in Nairobi City, Kenya, faces significant challenges in delivering quality and timely services, primarily due to inefficiencies in managing human resources. While the shortage of healthcare professionals, with a doctor-to-patient ratio of 1:16,000 (Kenya Medical Practitioners and Dentists Council, 2018), contributes to the problem, the root cause lies in the inadequate and outdated human resource management systems and processes (Ministry of Health, 2019). This leads to suboptimal utilization of healthcare professionals, increased workload, burnout, and high turnover rates, with 68% of healthcare workers reporting feeling overworked and understaffed (Njuguna et al., 2020). Consequently, patient experiences and outcomes are negatively impacted, with an average waiting time of 3.5 hours in public hospitals (Ouma et al., 2021) and 45% of patients reporting dissatisfaction with the quality of care received (Kenya Healthcare Federation, 2020). Addressing these inefficiencies in human resource management is crucial to improve service delivery, reduce waiting times, enhance the quality of care, and ultimately improve patient satisfaction and health outcomes in Nairobi City's healthcare sector.

Despite substantial investments in healthcare and the adoption of strategies to improve service delivery in Kenya's devolved government system, many counties, including Nairobi City County, still struggle with effective healthcare delivery (Mbarire, 2019). The implementation of iHRIS, a key strategy for sustainable service delivery, faces challenges such as poor employee recruitment, record-keeping issues, and inadequate human skills inventory management. Nairobi City County, in particular, grapples with

unresolved problems in employee training, ICT infrastructure, and change management, which have negatively impacted service delivery and led to high levels of customer dissatisfaction, with over 80% of Nairobi residents expressing dissatisfaction in a health survey (Mboya, 2021). This underscores the urgent need for more effective implementation and management of iHRIS and other service delivery strategies in Kenya's devolved healthcare system.

Although various studies have been conducted on iHRIS and service delivery, they present research gaps, the literature review reveals significant conceptual, contextual, and methodological gaps for the thesis on the influence of integrated Human Resource Information System (iHRIS) on service delivery in the health sector at Nairobi City, Kenya. Broderick and Boudreau (2019) and Tannenbaum (2019) provided broad global definitions of HRIS, lacking specificity to iHRIS, resulting in conceptual gaps. Similarly, Wiblen, Grant, and Dery (2019) discussed HRIS adoption's role in achieving competitive advantage, but without the context of iHRIS in Nairobi City, creating conceptual gaps. Contextual gaps stem from studies conducted in different contexts, such as Ngai and Wat's (2019) focus on HRIS in Hong Kong and Tursunbayeva et al.'s (2019) research in high-income economies' hospital sectors, which differ significantly from Nairobi City. Methodological gaps exist due to variations in research methodologies, including structured questionnaire surveys (Ngai and Wat), narrative synthesis (Tursunbayeva et al.), and mixed-methods analysis (Willis, Craig, and Bazemore), impacting the comparability of findings. Addressing these gaps, the thesis aims to provide specific insights into the influence of iHRIS on service delivery in the Nairobi City health sector, contributing to a more comprehensive understanding of the topic (Broderick & Boudreau, 2019; Tannenbaum, 2019; Wiblen, Grant, & Dery, 2019; Ngai & Wat, 2019; Tursunbayeva et al., 2019; Willis, Craig, & Bazemore, 2022). To

address these gaps, this study sough to evaluate the influence of integrated Human Resource information System on service delivery in the health sector at Nairobi City, Kenya.

1.4 Objectives of the Study

1.4.1 General Objective

The main objective of this study was to evaluate the influence of integrated Human Resource information System on Service Delivery in the health sector at Nairobi City, Kenya.

1.4.2 Specific Objectives

Specifically, the study sought to address the following objectives;

i. To determine the effect of iHRIS components on service delivery in health sector, Nairobi City Kenya
ii. To examine the contributions of iHRIS on service delivery in the health sector at Nairobi City, Kenya
iii. To analyse the challenges of iHRIS on service delivery in the health sector at Nairobi City Kenya

1.5 Research Questions

i. Which components of iHRIS are applicable in the Health Sector, Nairobi City Kenya?
ii. Does iHRIS give any contribution to service delivery in the Health Sector, Nairobi City Kenya?
iii. What are the challenges of iHRIS that affect service delivery in the Health Sector, Nairobi City Kenya?

1.6 Hypotheses

H_{o1}: iHRIS components have no significant effect on service delivery in the health sector, Nairobi city Kenya.

1.7 Justification of the Study

The justification for studying the influence of the integrated Human Resource Information System (iHRIS) on service delivery in Nairobi City County's health sector, Kenya, is rooted in the vital role of healthcare in achieving Sustainable Development Goal No. 3. Despite the implementation of iHRIS across various counties, there's a gap in understanding its effectiveness, particularly in Nairobi, where a significant portion of the workforce is in the health sector. This study is essential as it seeks to bridge this knowledge gap, exploring how iHRIS impacts service quality, efficiency, and reliability. With over 43,000 health workers devolved to counties and the critical nature of healthcare in national development, the study aimed to provide insights into how iHRIS can enhance healthcare delivery, thereby contributing to overall public health and well-being in Kenya.

1.8 Significance of the Study

The study on the influence of the integrated Human Resource Information System (iHRIS) on service delivery in Nairobi City County Government Health Sector, Kenya, offers several significant contributions to various domains. First, it enriches the body of knowledge in the human resource management discipline by providing empirical evidence on the effectiveness of iHRIS in a specific healthcare context. By assessing components, contributions, and challenges of iHRIS, the study offers a detailed understanding of how such systems impact HR management in the health sector, which can inform both academic discourse and practical application.

In terms of policy formulation, the insights derived from this study are instrumental for health sector administrators and HR policymakers. It highlights how iHRIS can be optimally utilized to manage health workforce more effectively, which is critical for improving service delivery in county governments. This information can guide policy decisions, focusing on enhancing the efficiency of HR processes through technology, and addressing the challenges identified in the study.

For the target beneficiaries, primarily the health sector employees and the general public, the study's findings are crucial. It demonstrates how effective implementation and management of iHRIS can lead to better service delivery in healthcare. This improvement in service delivery directly translates to better healthcare experiences for patients and more streamlined work processes for healthcare workers.

Lastly, the study lays a foundation for further research in this field. It identifies gaps in the current understanding of iHRIS's impact on service delivery, suggesting areas where future studies could delve deeper. For scholars and researchers in HR and health service management, the study serves as a comprehensive reference, offering a springboard for further exploration into the integration of HR information systems in improving healthcare services. Overall, this study contributes to theoretical and practical knowledge and also aids in shaping policies and future research directions in human resource management within the health sector.

1.9 Scope of the Study

The study focused on establishing the Influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government in Kenya. The study was confined to the integrated Human Resource Information System (iHRIS) in Nairobi City County due to its critical role in human resource management, which is

a key determinant of service delivery efficiency and effectiveness in the health sector. The study was undertaken in Nairobi City County government. The study population comprised of 260 human resource management staff working in Nairobi City County Government Health sector in three sub counties, Langata, Starehe and Kasarani. The study was undertaken between November and May 2024.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Chapter Two of this literature review covers themes on the Integrated Human Resource Information System (iHRIS) components, the dynamics of service delivery in the health sector, the integration of iHRIS with healthcare service delivery, relevant theories and models of iHRIS, and a conceptual framework. The chapter ends with the research gaps.

2.2 Empirical Review

2.2.1 Integrated Human Resource information System (iHRIS) Components

Globally, integrated Human Resource Information System(iHRIS) is defined as the composite of databases, computer applications, hardware and software necessary to collect/record, store, manage, deliver, present, and manipulate data for human resources(Broderick and Boudreau, 2019). Similarly Tannenbaum (2019) defines Integrated Human Resource Information System as a system that is used to "acquire, store, manipulate, analyze, retrieve, and distribute information about an organization's human resources. Basically, iHRIS is a systematic computerized processing of human resource functions in an organization. HRIS adoption helps a firm to achieve the competitive advantage (Wiblen, Grant &Dery, 2019). Adoption of iHRIS plays a significant role towards improvement of organizations service delivery in many organizations worldwide.

In Kenya, iHRIS is defined as a free, global, open-source, web-based HR software developed for the MoH. The system is designed in conformity with national and international HR practices. iHRIS is a management tool for HR Managers, HR Officers and line managers for use in HR planning and decision-making. iHRIS consists of five

modules, namely: iHRIS Manage; supports MoH and other service delivery organizations, to track, manage, deploy and map their health workforce; iHRIS Train is used to track and manage health worker training activities, including pre-service and in-service education; iHRIS Plan is a workforce planning and modeling solution that enables decision-makers to assess their workforce needs for the next several years, project the expected health workforce over the same time and make effective policy decisions to close the gap between the two; iHRIS Retain is a tool for costing health worker retention strategies. Workforce planners and policy makers, as well as health facility administrators and human resource managers can use iHRIS Retain to plan retention interventions at all levels and lastly iHRIS Qualify is a tool that enables professional councils and associations to maintain a database of registered and licensed health professionals to support increased quality of care (Opiyo, 2020).

The study by Ngai and Wat (2019) presents a comprehensive literature review and empirical analysis of Human Resource Information Systems (HRIS) with a specific focus on their implementation in Hong Kong. Their research involved a structured questionnaire survey across a cross-section of HRIS users in Hong Kong. The study found that the most significant benefits of HRIS implementation were quick response and access to information, while the major barrier was insufficient financial support. They also observed a significant difference in the perception of benefits and barriers to HRIS implementation between adopters and non-adopters, as well as between organizations of different sizes. This study highlights the importance of financial resources and organizational scale in the adoption and perception of HRIS benefits.

Tursunbayeva, Bunduchi, Franco and Pagliari (2019) investigated the prevalence, scope, and impact of Human Resource Information Systems (HRIS) in health

organizations. The study employed a structured search across ten electronic databases and gray literature, without restrictions on language or publication year. The selection process, guided by the Critical Appraisal Skills Program checklist and PRISMA diagram, resulted in 68 publications from 6824 identified, covering 42 studies. These studies, mainly conducted in high-income economies' hospital sectors, revealed an interdisciplinary but often a theoretical approach, focusing largely on usage and benefits without critical examination. The study highlighted the scarcity of evaluative research on HRIS in health, raising questions about their effectiveness in improving quality and efficiency, and the influence of sociotechnical complexity on their implementation.

Chibuzor et al (2021) conducted a study on the implementation of health workforce information systems: a review of eight sub-Saharan country experiences. The study searched selected electronic databases from inception to 14 April 2020. Two authors independently screened studies and extracted data from included studies. The study presented results as a narrative synthesis. The study included eight studies of moderate–high quality in this review. The results suggest that HWRs can improve the distribution and skill-mix of the health workforce, quality of health workforce data, availability and use of data for policy and planning, and user satisfaction. The evidence was derived from case studies, which limited our ability to infer a causal relationship.

A study by CapacityPlus (2021) highlighted the benefits and features of iHRIS Manage. It emphasized that iHRIS Manage, a human resources management component of the iHRIS Suite, enables HR departments to collect, manage, and analyze detailed information about health workers. This system is particularly useful for Ministries of Health, hospitals, and private sector service delivery organizations. It supports the

design of comprehensive HR strategies, management of workforces more effectively and efficiently, cost reduction, and improvement in data accuracy. The study detailed how iHRIS Manage allows for the creation of hierarchies of positions, tracking employee histories, and analyzing data to answer key HR management and policy questions.

IntraHealth International. (2020) study focused on the implementation of iHRIS Manage in the Guatemala Ministry of Health and Social Assistance. This study demonstrated how automating business processes, particularly contracts processing, improved performance, reduced costs, and ensured quality. The study emphasized the importance of analyzing business processes before automation and highlighted how the Contracts Module in iHRIS Manage streamlined the contract processing, reducing processing time from four months to less than a week and minimizing risks of file mismanagement.

iHRIS Manage supports Ministry of Health and other service delivery organizations to track, manage, deploy, and map the health workforce. iHRIS Manage enables an organization to design and manage a comprehensive human resources strategy. It typically resides with an employer of health workers, such as a Ministry of Health or a health facility. It tracks detailed information about health workers throughout their employment, including where they are deployed, salary history, promotions and transfers, qualifications, in-service training courses, and reasons for attrition.

iHRIS Manage also tracks open positions and applicants. Effective health workforce management is crucial for countries to address health worker shortages and meet the health care needs of their people. HR managers and other decision-makers require up-to-date and accurate data on the current number of employed health workers, where

they are deployed, and what their skill sets and salaries are, as well as information on vacant posts and migration. Unfortunately, many countries lack this information, or they store it in paper files or electronic databases that do not link together, making it difficult to locate employee records or aggregate data for analysis

A computerized and integrated human resources information system (HRIS) enables countries to more easily collect, maintain, and analyze health workforce data. The global iHRIS community's free and open source HRIS solutions supply health-sector leaders with information they need to track, manage, and plan the health workforce. iHRIS Manage, an HR management application, enables decision-makers to collect, manage, and analyze detailed information about employed health workers and applicants. iHRIS Manage can be used at ministries of health, district health offices, health-care facilities, private-sector organizations, and even sectors beyond health care. This open source software is free and can be customized to meet a specific country's or organization's needs (Shibly, 2019).

iHRIS Manage supports organizations in designing a comprehensive HR strategy and managing its workforce effectively and efficiently. An HR professional can create a hierarchy of positions based on standard job titles, classifications, and descriptions, even for positions spread over diverse geographic locations, offices, and facilities. HR staff can track job applications for open positions, assign employees to fill positions, and maintain a searchable database of all applicants and employees. An HR manager can track each employee's history within the organization and record the reason for employment termination or departure. Once iHRIS Manage is installed, it can be modified as needed to conform to HR policies and procedures. The software can

produce standard or customized reports for analysis by decision-makers to answer a wide variety of key policy and management questions (Maguta, 2020).

The key features of iHRIS are, Employee management: Record important information and maintain a complete record of employees' work history, including positions held, salary history, in-service trainings, and any workplace incidents resulting in disciplinary action. Position management: Create positions with standardized descriptions, codes, and qualifications within the organizational structure and manage the hiring, transfer, and promotion process. Recruitment support: Record information about job applicants (including educational history, work history, and interview notes) and log hiring decisions. In-service training tracking: Track in-service trainings that employees have registered for and completed, and assess competencies and continuing-education credits earned from training. Reporting: Aggregate, analyze, and export data in a variety of ways to answer key management and policy questions. User management: Create and manage password-protected user accounts to control access to the system. Assign roles limiting user activities to enforce data quality and management protocols. Decentralization support: Install iHRIS Manage at the central and district level.

Districts can send data to the central level for aggregate reporting (Maguta, 2020). Interoperability with other health information systems: iHRIS easily links with DHIS2, OpenMRS, and other popular global-health technologies (Shibly, 2019). Technical support: A global community of iHRIS developers and users provides support via an email group, an interactive website, and an online documentation library. The following features ensure the security and accuracy of data stored in the system: Error checking and data correction by authorized managers to ensure data integrity

Automated logging of the username, date, and time when data are entered or changed, for auditing purposes Permanent archiving of all data changes to ensure a consistent record of each employee's history with the organization. Several countries have implemented iHRIS Manage to help manage their health workforce and customized the software to meet local needs. iHRIS Manage is being used in Botswana, Chad, Ghana, India, Kenya, Lesotho, Mali, Namibia, Rwanda, Sierra Leone, Tanzania, Togo, and Uganda, among other countries (Ama, 2020).

iHRIS Qualify enables professional councils and associations to maintain a database of registered and licensed health professionals to support increased quality of care. iHRIS Qualify enables a licensing or certification authority, such as a nursing council, to track complete data on a health worker cadre from pre-service training through attrition. It captures information about health professionals in that cadre from the time they enter pre-service training through registration, certification, and/or licensure. Since separate councils usually regulate doctors, dentists, pharmacists, and allied health professionals, each council can maintain its own iHRIS Qualify system, and data can be aggregated to provide a complete picture of a country's entire regulated health workforce (Ama, 2020).

iHRIS Qualify can also track employment, continuing education credits, and out-migration requests for workers in the cadre. Professional health councils play a key role in ensuring national health workforce quality by credentialing health professionals through licensure, registration, and certification. Information gathered and generated by these councils is crucial for countries to address health worker shortages and meet growing health-care demands. Unfortunately, many councils store this information in paper files or electronic databases that do not link together, making it difficult to supply

aggregate information. A computerized and integrated human resources information system (HRIS) enables countries to more easily collect, maintain, and analyze health workforce data. The global iHRIS community's free and open source iHRIS solutions supply health-sector leaders with information they need to track, manage, and plan the health workforce (Rothwell, 2019).

iHRIS Qualify is a health professional registration, licensing, and certification application. Using iHRIS Qualify, a nursing council, for example, can collect, track, and analyze data on all nurses in the country. Each separate council that regulates doctors, dentists, pharmacists, and allied health professionals can maintain its own iHRIS Qualify system, and data from all systems can be aggregated to provide a picture of a country's entire regulated health workforce. This open source software is free and can be customized to meet the specific needs of a council or country.

iHRIS Qualify enables a professional health council to record data on a cadre of health workers from the time they enter pre-service training through registration and licensure. It can also track deployments, issue licenses for private practice, and record out-migration verification requests. Thus, it can provide complete information about that cadre, whether they are in training, employed in the public or private sector, or even working outside the health sector. Once installed, iHRIS Qualify can easily be modified to meet the specific requirements of the health council (Rothwell, 2019).

Data captured by iHRIS Qualify helps a professional health council to: Enforce minimum qualifications for students entering training programs, Administer national-level examinations that qualify a graduating student to practice within the country, Verify that continuing education requirements have been completed before renewing licenses, Issue private practice licenses to qualified health professionals and Verify

qualifications of foreign-trained health workers applying to work within the country and internal health workers applying to work in foreign countries (Ama, 2020).

The key Features of iHRIS Qualify includes, Records management: Record information about each health worker, such as citizenship, marital status, birth date, contact information, educational qualifications, and identification numbers. Pre-service training tracking: Track students entering pre-service training programs and monitor completion rates as well as reasons for training disruption. Examination management: Record applications for national-level certification examinations and track exam results. Registration and licensing: Issue registration numbers, licenses, and license renewals for health professionals; track deployments; issue private practice licenses; and manage out-migration verification requests, Reporting: Aggregate, analyze, and export data in a variety of ways to answer key policy and management questions.

Interoperability: iHRIS easily links with DHIS2, OpenMRS, and other popular global-health technologies and Technical support: A global community of iHRIS developers and users provides support via an email group, an interactive website, and an online documentation library. The following features ensure security and accuracy of data stored in the system: Error checking and data correction by authorized data managers to ensure data integrity Automated logging of the username, date, and time when data are entered or changed and Permanent archiving of all data changes to ensure a consistent record of each health professional's work history. Registrars of professional health councils in Nigeria and Uganda have opted to use iHRIS Qualify and have modified it to meet their councils' specific needs (Mayfield, 2020).

iHRIS Plan is a workforce planning and modeling solution. It enables decision makers to assess their workforce needs for the next several years, project the expected health workforce over the same time, and make effective policy decisions to close the gap between the two. iHRIS Plan analyzes data collected in iHRIS Manage, iHRIS Qualify, and other health information systems to enable decision makers to understand their future workforce needs and make effective planning and policy decisions. It provides a picture of the current health workforce and projects how that workforce will change based on known influences such as retirement age, the number of trained workers annually entering the workforce, and other factors. This is then compared to projected health workforce needs, illustrating the gap between the two. The decision maker can interactively test various interventions to try to close that gap and immediately assess the effects.

iHRIS Retain is a web-based tool for costing health worker retention strategies (Rothwell, 2019).Workforce planners and policy makers, health facility administrators, and human resources managers can use iHRIS Retain to plan retention interventions at the district, regional, and national levels. It may be used alone or as part of the full iHRIS platform of health workforce information tools and technologies. iHRIS Retain, developed by Capacity Plus in collaboration with the World Health Organization (WHO), is based on the WHO's global policy recommendations for improving retention of rural health workers. The tool guides the user step-by-step through the process of collecting the necessary data and calculating the costs of retention interventions. iHRIS Retain generates reports for each targeted cadre, as well as the aggregated cost of the retention strategy, and compares the costs to available health sector funds. These reports help planners determine which retention strategies to pursue

and how much they will cost to implement. iHRIS Retain is a free tool hosted by Capacity Plus, so there is no software to install or maintain (Mayfield, 2020).

Currently, only iHRIS Train and iHRIS Manage are in use in Kenya. The user guide is specifically designed for iHRIS Manage. National and county governments use iHRIS to manage their own health workforce, and increase efficiency of reporting in recruitment, deployment, transfer, promotion and separation. iHRIS provides information on HRH status in terms of cadre mix, age distribution, productivity, and workload. The system is programmed to fully cater for each county as an independent entity with controlled access to specific county HR data. Currently, only iHRIS Train and iHRIS Manage are in use in Kenya. National and county governments use iHRIS to manage their own health workforce, and increase efficiency of reporting in recruitment, deployment, transfer, promotion and separation. iHRIS provides information on HRH status in terms of cadre mix, age distribution, productivity, and workload. The system is programmed to fully cater for each county as an independent entity with controlled access to specific county HR data.

In Kenya, iHRIS is centrally hosted by the MoH. It is managed by the Information, Communication & Technology Department, and overseen by the National iHRIS Technical Working Group. The system contains workforce data for public health workers in the country. The authorized national and county HR Managers and officers can access the system from this central location and view/edit data of their own health workers. Controls have been put in place to ensure no county can access data of another county. However, authorized officers at the national level can view and generate reports from all counties. The line Cabinet Secretary is responsible for the system at national

level and gives authority on who should have access to the system. At the county level, this responsibility lies with the Chief Officer of Health.

In Kenya, the use of iHRIS helps in improvement of service delivery through enhancing effective storage and archival management of HRH data, increasing security of HR records and HR information and reducing the cost incurred in management of HRH data. The prime objective of archiving records is to preserve them for future use. Electronic archiving has the advantage of bulk storage in thin digital volumes while making such records available almost in perpetuity. Moreover, current ICT systems ensure faster and easier search and retrieval of details and records themselves. The iHRIS database is accessible directly from a host server on the Internet. iHRIS data is backed up daily both on-site and off-site. The iHRIS database stores digitized files in text format to allow for ease of retrieval and reference to personnel profiles. The MoH and county departments of health are advised to regularly back up their own data. Such practice must adhere to existing guidelines on electronic archives management and the records and archival management policies of the government (Oyugi, 2021).

According to the information security standards developed by the Kenya Bureau of Standards (KEBS), national and county governments should put in place data and record management procedures that spell out clear roles and responsibilities for staff involved in information management. Standard procedures will therefore be defined, and applicable security controls implemented to guide data collection, transmission, processing, storage and output of e-records that meet business needs for confidentiality of e-records, and complies with applicable laws and regulatory requirements. Security guidelines are an essential part of HR information management. The guidelines define

organizational and technical safeguards of iHRIS service with regard to HR information, personnel and infrastructure (MOH, 2019).

2.2.2 Service Delivery in Health sector

Service delivery is the provision of the expected services by an organization to its customers, service delivery is also the accessibility, consistency, reliability, accuracy of services offered to patients (Asha, 2021).As measure to improve on service Delivery and achieve a competitive advantage in the market, many organizations have been employing various strategies and adoption of iHRIS is one of the recent IT based human resource management strategies. iHRIS plays a significant role towards improvement of health services in terms of service quality, service accessibility, service reliability, service acceptability, service availability, service efficiency and service effectiveness.

The use of iHRIS has brought revolutionary changes in the field of HRM around the world. Due to the new technology being introduced at a rapid pace, iHRIS plays a major role in management of various functions of organizations, especially human resources which leads to improved service delivery. Both the increased competition and rapid economic growth have enabled diverse business environment that lead to make exponential technology applications growth in all business areas of Human Resource Management which have a key effect on service delivery. Therefore, it has pressurized human resource practitioners and researchers to think again about the improvement of service delivery through the adoption of integrated Human Resource Information Systems or HRIS (Tripathi, 2019).

iHRIS, along with the Internet and related communication technologies, are transforming the human resource management arena and life within organizations (Opiyo, 2020). In China, rapid technological advancement particularly with reference

to globalization has shifted many organizations to knowledge-oriented units. Trendsetters have changed and are changing companies into signature modern companies, which has improved the efficiency of HR departments in the organizations (Thompson, 2020). In many firms in Malaysia, compared to the benefits of standard national iHRIS, a global HRIS can put immense amounts of multinational employee data to strategic use which improves service delivery.

Willis, Craig and Bazemore (2022) conducted a mixed-methods analysis combining patient outcome data with practitioner interviews. Their findings indicated that EHR implementation significantly improved the efficiency and accuracy of patient data management, leading to enhanced patient care quality. However, they also noted challenges related to staff training and system integration.

Lee et al. (2019) examined the effects of patient-centered care models on service delivery in outpatient clinics. The study used a qualitative approach, analyzing patient satisfaction surveys and clinic performance metrics. The researchers found that clinics adopting patient-centered models reported higher patient satisfaction and improved service efficiency, suggesting these models are beneficial for enhancing the quality of health service delivery.

Gupta and Kumar (2020) conducted a comprehensive review of existing literature and case studies to assess how leadership styles affect healthcare outcomes. Their findings emphasized that transformative leadership in healthcare organizations positively impacts service delivery efficiency and patient satisfaction.

Brown, Hughes and Jones (2021) investigated the impact of telemedicine on service delivery in rural health settings. The researchers employed a longitudinal study design, tracking patient outcomes and service delivery metrics over two years. Their results

showed that telemedicine significantly increased access to healthcare in rural areas and improved the timeliness and relevance of health services provided, thus reducing the rural-urban healthcare disparity.

Ideally, the global database is automatically updated by the local databases ensuring data is not only inputted correctly, but only once (Obeidat, 2019). By applying consistent standards for data management, global iHRIS reporting becomes more accurate and streamlined as all of the decision makers receive and have access to the same information. This information can then be used for in-depth analysis to help HR and the organization make better and informed decisions which leads to improved service delivery (Ball, 2019). In Kenya, Health is one of the essential services which county governments are trying to improve, hence the introduction of iHRIS was hoped to plays a significant role towards improvement of county governments health services in terms of service quality, service accessibility, service reliability, service acceptability, service availability, service efficiency and service effectiveness. iHRIS plays a major role in enhancing improvement on service delivery, through the use of iHRIS components such as iHRIS Manage, iHRIS Train and iHRIS Plan, organizations are able to effectively undertake workforce management functions which leads to improved service delivery(Crestone, 2019).

2.2.3 iHRIS and Service Delivery

Many organizations worldwide are faced with challenges of appropriate service delivery, in spite of committing huge amount of funds on service delivery processes. Globally, over the past decade, information technology considerably changed the HRM functions through adoption of iHRIS which is IT based system aimed to improve on service delivery. In USA, UK and Canada, iHRIS is imperative regarding the online job

advertisements through the corporate web sites, online database and managing electronic applicants. The main role of iHRIS is to retrieve and disseminate appropriate information pertaining to human resources which leads to improved service delivery. However, in many African nations, the adoption of iHRIS in many organizations is challenging due to lack of supportive ICT infrastructure, resistance to change and lack of trained staff (Cedar, 2020).

In Africa, health is one of the essential services which governments are trying to improve; hence the introduction of iHRIS plays a significant role towards improvement of health services in terms of service quality, service accessibility, service reliability, service acceptability, service availability, service efficiency and service effectiveness. In Kenya, as counties embarked on management of health workers, there arose a need for digitizing the HR records and setting up of a system to manage these digitized records. The Ministry of Health digitized the records for all health workers prior to transferring the files to counties.

The digital records were saved in the existing human resource information system. This would ensure quick and timely access of the records and also safeguard the records against physical loss, theft or damage. In place of physical HR files, digital records deliver value addition in records management thereby helping meet HR management needs. This created the need to adopt iHRIS to support effective execution of Human Resource Information and Record Management functions. In Kenya, iHRIS can play a major role in enhancing improvement on service delivery, through the use of iHRIS components such as iHRIS Manage, iHRIS Train and iHRIS Plan. However, challenges such as lack of supportive ICT infrastructure, resistance to change and lack of trained staff affects effective adoption of iHRIS and this makes county governments to be

unable to effectively undertake workforce management functions which leads to improved service delivery (Maguta,2020).

2.3 Theories and Models of iHRIS

This section explores theories that will be used by the study in order to examine the influence of integrated human resource information system on service delivery.

2.3.1 Systems Theory

System theory was proposed by Bertalanffy in 1987 and is generally regarded as the founder of "systems theory" and the broad sweep of its applications for almost all disciplines, the natural as well as the social sciences (Schein, 2018). The systems theory has had a significant effect on management science and understanding organizations. A system is a collection of part unified to accomplish an overall goal. If one part of the system is removed, the nature of the system is changed as well. A system can be looked at as having inputs (e.g., resources such as raw materials, money, technologies, and people), processes (e.g., planning, organizing, motivating, and controlling), outputs (products or services) and outcomes (e.g., enhanced quality of life or productivity for customers/clients, productivity). Systems share feedback among each of these four aspects of the system.

Beulen (2019) perceived management of organization through the systems theory. He noted that an organization, just as a system, will exist and operate in a system entailing a range of components associated to pursue an identified goal. If a single component fails or is inadequate, the entire system is incapacitated too. Ideally, the systems theory describes management as procedural and pursuing organizational succession in all spheres (Shibly, 2019). Employees' skills inventory is a continuous process and the use of iHRIS leads to adoption of electronic skill inventory system which is continuously

updated. This helps in Health workforce planning, Health workforce skills needs and Distribution of health workers which affects service delivery.

The theory assumes that the components within a system are interrelated and interdependent. In the context of iHRIS, this means that the different elements of the system, such as data management, workforce planning, and capacity building, are interconnected and influence each other's functioning. Secondly, Systems Theory assumes that systems have boundaries that distinguish them from their external environments. In the study assessing iHRIS components, this implies recognizing that iHRIS exists within a broader healthcare environment and understanding how it interacts with and impacts that environment. Additionally, Systems Theory assumes that systems exhibit feedback loops, where information or actions within the system can affect future behavior. In assessing iHRIS, this highlights the importance of feedback mechanisms for continuous improvement and adaptation to changing healthcare needs.

This theory is relevant in assessing the components of iHRIS in Nairobi City County Government Health Sector. By recognizing the interdependencies between iHRIS components, the study can better understand how changes or improvements in one component may have ripple effects throughout the system. Moreover, Systems Theory's emphasis on feedback loops aligns with the study's goal of identifying areas for improvement in iHRIS.

2.3.2 Technology Adoption Theory

Technology adoption theory was developed by Venkatesh, Morris, Davis &Davis in 2020.This theory explains how, why and at what rate new ideas and technology spread through cultures operating at the individual and the firm level (Venkatesh, Morris,

Davis &Davis, 2020). Technology adoption theory sees acceptance of technology (innovation) as being communicated through channels over time and within a particular social system. Individuals are seen as possessing different degrees of willingness to adopt innovation and thus, it is generally observed that the portion of the population adopting innovation is normally distributed over time (Venkatesh, Morris, Davis, & Davis, 2020).

Adoption of new technology in an organization leads to innovation on methods of execution of organization functions like record management. Adoption of iHRIS leads to adoption of electronic record management system which leads to records digitization and storage, electronic process of records identification and extraction and improved records security. This prevents loss of very critical records for effective decision making process. In absence of good technology like iHRIS, records are manually processed and stored and this affects service delivery.

The theory assumes that individuals or organizations have varying degrees of readiness and willingness to adopt new technologies. Second, it posits that the decision to adopt a technology is influenced by the perceived attributes of that technology, including its relative advantage over existing solutions, compatibility with existing practices, complexity, trialability, and observability. Third, the theory assumes that communication channels play a significant role in disseminating information about the technology, with interpersonal communication being particularly influential. Finally, it suggests that the adoption process follows a diffusion curve, with innovators and early adopters paving the way for later adopters.

This theory is hence relevant in examining the contribution of iHRIS benefits on service delivery in Nairobi City County Government Health Sector. The theory's focus on

perceived attributes aligns with the evaluation of how healthcare professionals perceive the advantages of iHRIS, such as improved workforce management, data accuracy, and streamlined processes. Compatibility with existing healthcare practices is crucial in assessing how well iHRIS can be integrated into the healthcare system. Moreover, the theory highlights the importance of communication channels, which can shed light on how knowledge about iHRIS is disseminated among healthcare professionals and organizations.

2.3.3 Resource Based View Theory

The resource based view theory was developed by Barney in 1991. The resource-based view (RBV) is a business management tool used to determine the strategic resources available to a company. The fundamental principle of the RBV is that the basis for a competitive advantage of a firm lies primarily in the application of the bundle of valuable resources at the firm's disposal (The resource-based view (RBV) is a business management tool used to determine the strategic resources available to a company (Mayfield, 2020). The fundamental principle of the RBV is that the basis for a competitive advantage of a firm lies primarily in the application of the bundle of valuable resources at the firm's disposal.

To transform a short-run competitive advantage into a sustained competitive advantage requires that these resources are heterogeneous in nature and not perfectly mobile. Effectively, this translates into valuable resources that are neither perfectly imitable nor substitutable without great effort (Barney, 1991). Implementation of iHRIS requires organizations to have enough resources in terms of trained staff and supportive ICT infrastructure, lack of these resources hampers successful adoption and use of iHRIS hence affecting realization of the aimed service delivery benefits.

The theory assumes that firms have unique and valuable resources and capabilities that can be a source of sustained competitive advantage. These resources can include physical assets, intellectual property, human capital, and organizational processes. Secondly, RBV assumes that these resources are heterogeneously distributed across firms, meaning that not all organizations possess the same set of valuable resources. Thirdly, RBV asserts that resources are not perfectly mobile, implying that it may be difficult for competitors to replicate or imitate the unique resources and capabilities of a firm

The theory was thus relevant to evaluate the challenges of iHRIS on service delivery in Nairobi City County Government Health Sector. iHRIS represents a valuable resource that healthcare organizations possess. The theory suggests that the unique capabilities of iHRIS, such as data management, workforce optimization, and capacity building, can be a source of competitive advantage.

2.3.4 Constructivism Theory

The Constructivism theory was developed by Schmalzried and Fallon in 2018. Constructivism is basically a theory based on observation and scientific study about how people learn. It says that people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences (Schmalzried and Fallon, 2018). The constructivism learning theory states that employees actively participate in their own learning and development (Shibly, 2019).Organization managers need to recognize that their employees bring the past work experience, cultural background and personality to their current roles.

With the current modern technology, the use of iHRIS provides an effective platform for supporting e-learning. E-learning promotes career development, training needs

identification and reporting and communications process in the organization which improves knowledge sharing amongst employees. These leads to increased employees knowledge in their respective jobs which helps in effective execution of their job task functions thereby improving service delivery. In addition, when employees are provided with supportive tools and environment for learning, the responsibility for their own career development, their morale typically improves and their job satisfaction increases (Schmalzried & Fallon, 2018).

Constructivism theory assumes that knowledge is actively constructed by individuals through their experiences, interactions, and reflections. It posits that learners are not passive recipients of information but active participants in the learning process. This theory also assumes that individuals have pre-existing mental frameworks or schemas that influence how they interpret and integrate new information. Constructivism further emphasizes the importance of social interactions and collaboration in learning, suggesting that knowledge is co-constructed through dialogue and shared experiences. Additionally, it assumes that learners have unique perspectives and prior knowledge, which shape their understanding of new concepts. In essence, constructivism recognizes the subjectivity of knowledge and the learner's role in its creation.

The theory is relevant as it highlights the significance of collaborative learning and knowledge sharing, which can be applied to healthcare teams using iHRIS to improve service delivery. By recognizing the diversity of perspectives and prior knowledge within healthcare settings, constructivism underscores the importance of tailoring iHRIS implementation strategies to the unique needs and experiences of different healthcare stakeholders, ultimately enhancing the system's effectiveness in improving service delivery.

2.4 Conceptual Framework

This section explains the conceptual framework adopted by the research study. According to Sekeran (2003) a conceptual framework describes the relationship between the research Variables. The conceptual framework is used to show the relationship between the independent variables and dependent variable. The relationships between the research variables are illustrated in figure 2.1.The independent variables are iHRIS Components, Contribution of iHRIS, iHRIS Challenges. The dependent variable is service delivery.

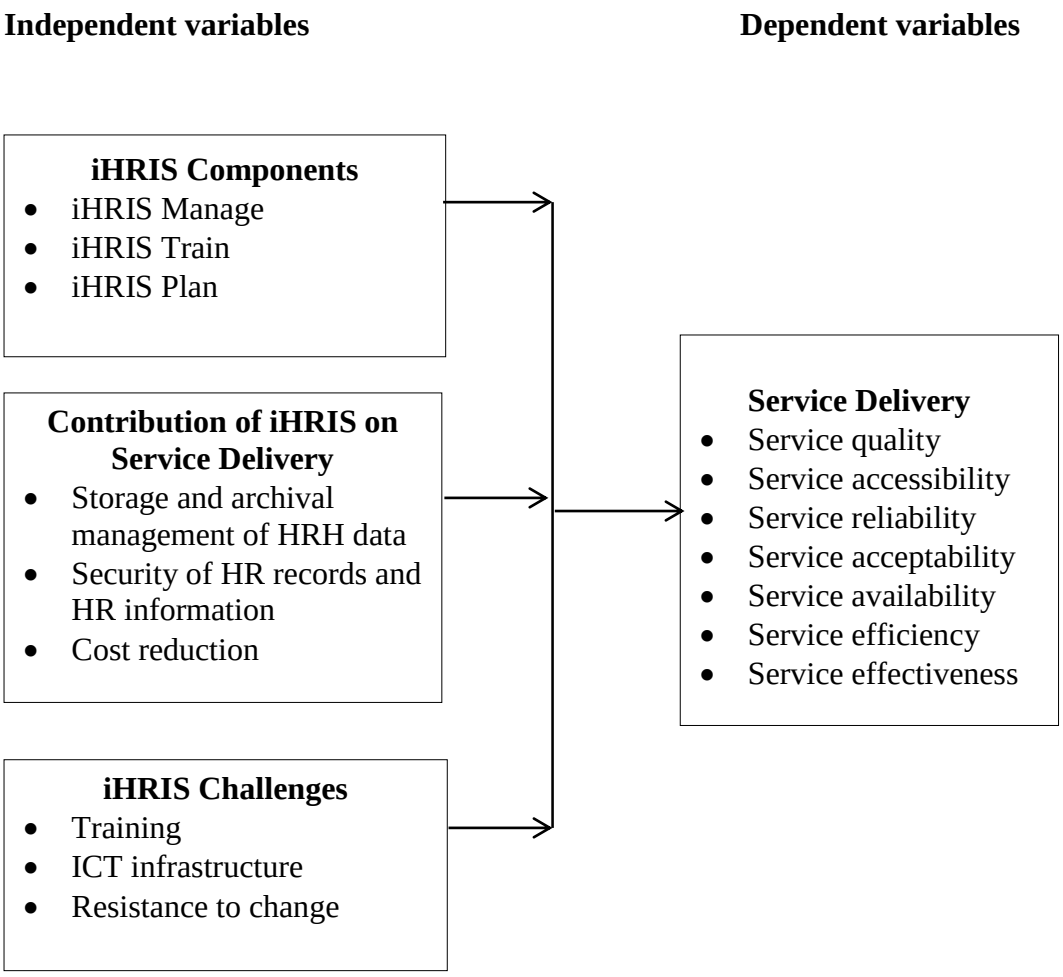

Figure 2.1 Conceptual Framework

Source: Author, 2021

2.5 Synthesis of Existing Literature

The literature review demonstrates that although many studies have been undertaken on iHRIS and service delivery, there lacks a specific study that has managed to establish the influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government Health Sector. Dessler (2019) study explained that employee's recruitment and selection system is a computer based system used to manage the sequence of activities pertaining to recruitment and selection of employable candidates and job seekers for an organization. The study findings failed to determine the influence of e-recruitment on service delivery in Nairobi City County.

A study by Bushe (2020) revealed that in many Africa public organizations, lack of HRIS affected employees skills inventory management and this leads to a study by Bushe (2020) revealed that in many Africa public organizations, lack of iHRIS affected human resource planning and this affected service delivery in many organizations. The study findings are inadequate in establishing the influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government Health Sector.

A study by Edward (2019) revealed that lack of application of HRIS in many state corporations in Kenya affects effective management of human resource. The study did not determine the influence of e- recruitment on service delivery in Nairobi City County health sector; assess the influence of e-record management on service delivery in Nairobi City County health sector. All the previous studies also failed to assess the influence of e-record management on service delivery in Nairobi City County health sector and to establish the influence of e-learning on service delivery in Nairobi City County health sector. It is there important to undertake a more comprehensive study to

establish the influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government Health Sector in reference to influence of HRIS Components, Contribution of iHRIS benefits, iHRIS Challenges on Service Delivery in Nairobi City County Government Health Sector.

2.6 Research Gaps

Conceptual gaps arise from the studies of Broderick and Boudreau (2019) and Tannenbaum (2019) who offered global definitions of HRIS as composite systems for managing human resource data. However, their concepts were broad and did not specifically address the unique attributes and functions of iHRIS, potentially resulting in conceptual gaps when comparing their findings to the iHRIS-focused thesis. Similarly, Wiblen, Grant, and Dery (2019) highlighted the role of HRIS adoption in achieving competitive advantage, but their study lacked the specific context of iHRIS in the health sector, creating a conceptual gap in understanding the unique benefits of iHRIS in Nairobi City, Kenya.

Contextual gaps arise from studies conducted in different geographical and organizational contexts compared to the Nairobi City, Kenya, health sector. Ngai and Wat (2019) focused on HRIS implementation in Hong Kong, a distinct context from Nairobi City, which may not fully capture the specific challenges and benefits faced by the Nairobi City health sector. Tursunbayeva, Bunduchi, Franco, and Pagliari's (2019) investigation into HRIS in high-income economies' hospital sectors highlighted the scarcity of evaluative research on HRIS in health, raising questions about their effectiveness and the influence of sociotechnical complexity. However, this context differs significantly from Nairobi City, introducing contextual gaps in the applicability of their findings.

Methodological gaps also exist as the studies mentioned employed various research methodologies, including structured questionnaire surveys (Ngai and Wat), narrative synthesis (Tursunbayeva et al.), and mixed-methods analysis (Willis, Craig, and Bazemore). These methodological variations differ from the explanatory research design used in the thesis, potentially impacting the comparability of findings. Additionally, the studies did not specifically focus on iHRIS but rather on HRIS in general, leading to methodological gaps in directly addressing the iHRIS-related objectives of the Nairobi City, Kenya, health sector thesis. These conceptual, contextual, and methodological gaps highlight the need for a focused study like the thesis to address the specific influence of iHRIS on service delivery in the Nairobi City health sector, filling these gaps and contributing to a more nuanced understanding of the topic.A noticeable knowledge gap thus exists on the influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government Health sector in Kenya. In particular, the study determined the influence of HRIS Components, Contribution of iHRIS benefits, iHRIS Challenges**.** The study also gives recommendation on how county governments should embrace iHRIS in order to improve on service delivery.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter describes the methodology and procedures that were used to carry out this study. The type of research design used is described and justified as well as the target population of the study. The sampling frame, sampling technique and data collection instruments are also described. The data collection procedures and data analysis techniques used in this study are explained.

3.2 Research Design

A research design provides the framework to be used as a guide in collecting and analyzing data (Cooper & Schindler, 2001). The study applied explanatory research design. This design was used because it helps to describe characteristics associated with the subject population and explain the relationship that exists between variables in order to provide a picture of a particular phenomenon (Cooper & Schindler, 2003). The study considered this design since the research variables are identified and to thus determine their relationship with the dependent variable.

3.3 Study Area

The study focused on establishing the Influence of integrated Human Resource information System on Service Delivery in the health sector at Nairobi City, Kenya. The study area was in the health sector at Nairobi City, Kenya (Figure 3.1). Nairobi City, lies at coordinates approximately 1.2921° S latitude and 36.8219° E longitude. The city experiences a subtropical highland climate, with pleasant temperatures ranging from 10°C to 26°C, and receives moderate rainfall throughout the year, especially during two rainy seasons. The city's economy is diverse, with key sectors including

finance, manufacturing, real estate, tourism, and information technology. There are seventeen sub-counties in Nairobi, however, this study covered the Health sector in only three sub counties namely; Langata, Starehe and Kasarani. These sub counties were selected since they have implemented iHRIS to undertake human resource management functions. The study area population characteristics comprised human resource employees for health with experience in human resource management function in the health sector. In each of the sub county, there are over 2000 people who access the health care services and this made it appropriate area for the study since much data was generated.

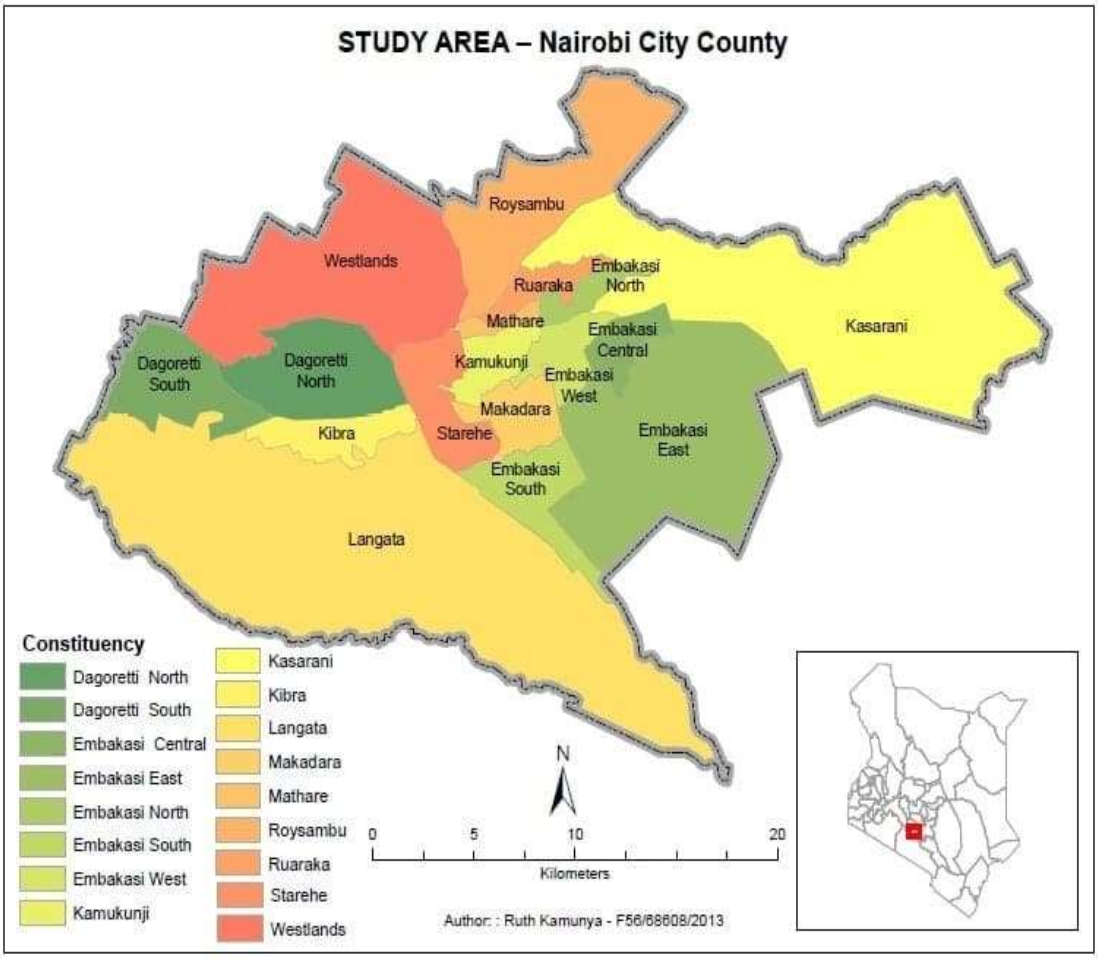

Figure 3.1: Map of the study area

3.4 Target Population

Schindler and Schindler (2018) defines population as the total collection of elements about which we wish to make inferences. A population as explained by Kombo and Tromp (2018) is a group of individuals, objects or items from which samples are taken for measurement. The target population was drawn from the three Sub-Counties which were purposively selected, thus giving a total population of 260, which comprised of HRM staff working at Nairobi City County health sector in three Sub-counties notably, 120 HRM staff in Langata Sub-County, 80 HRM staff in Starehe Sub-County, 60 HRM staff in Kasarani Sub-County. HRM staff play crucial roles in recruiting and managing personnel, developing and implementing policies, overseeing employee relations and benefits, and contributing to the overall strategic planning of an organization. The HRM staffs in the three sub counties were targeted since they were the first sub-counties where iHRIS was first implemented. The HRM staff was targeted since they had experienced iHRIS applications and had more technical knowledge on how iHRIS influences service delivery. The target population is distributed as shown in Table 3.1

Table 3.1: Target Population

Population Categories	Target Population
a) Starehe Sub-County	80
b) Langata Sub-County	120
c) Kasarani Sub-County	60
Total	260

Source: Nairobi City County health department (2023)

3.5 Sample and Sampling Techniques

The Sub-counties involved in this study were purposely selected; they are sub-counties which have fully implemented iHRIS in the health sector. More importantly, this study applied a stratified random sampling technique to select employees to participate in this

study. Stratified random sampling is whereby the population is divided into segments and thereafter subjects are drawn in proportion to their original numbers in the population (Bougie & Sekaran, 2019).The strata were based on the three Sub-counties. According to Orodho (2019) stratified random sampling is considered appropriate since it gives all respondents an equal chance of being selected and thus it has no bias and eases generalization of the findings.

More so, Mugenda and Mugenda, (2003) proposes that a sample size of 10-50% is acceptable, thus this study took 50% sample from each of the strata, giving a total of 130 respondents as the sample size for the study. A sample size of 50% is justifiable since according to Orodho (2019) a sample size of 10% to 50% of the study population gives unbiased representation of all respondents' opinions in the target population and this assists in generalization of research findings. The sample population of the study was thus 130 respondents i.e. 50% of the study population. The sample size therefore was distributed as shown in table 3.2.

Table 3.2: Sample Size

Population Category	Population	Sample Ratio	Sample Size
Starehe Sub-County	80	0.5	40
Langata Sub-County	120	0.5	60
Kasarani Sub-County	60	0.5	30
Total	260	0.5	130

Source: Author, 2023

3.6 Data Collection Instruments

Data collection instrument is a device used to collect data in an objective and a systematic manner for the purpose of the research (Orodho, 2019). In this study the main data collection instruments were questionnaires containing both open ended and

close ended questions with the quantitative section of the instrument utilizing both a nominal and a Likert-type scale format. The Likert-type format will be selected since according to Kiess and Bloomquist (2019), this format yields equal-interval data, a fact that allows for the use of more powerful statistical statistics to test research variables.

This questionnaire is organized into four distinct sections. Section I focuses on gathering background information from the respondent. Section II delves into the various components of the Integrated Human Resource Information System (iHRIS). In Part B, the questionnaire seeks to understand the contribution of iHRIS to service delivery, exploring how this system enhances or impacts the delivery of services. Part C addresses the challenges associated with iHRIS, inviting respondents to share any difficulties or obstacles they have encountered while using the system. Finally, Part D shifts the focus to service delivery, examining how services are provided, with or without the integration of iHRIS, and the overall efficiency and effectiveness of these services.

Questionnaires were preferred since according to Dempsey (2003) they are effective data collection instruments that allow respondents to give much of their opinions pertaining to the researched problem. According to Kothari (2018) the information obtained from questionnaires is free from bias and researchers influence and thus accurate and valid data was gathered. The questions addressed by the questionnaires sought to gather quantitative and qualitative data on the influence of integrated Human Resource information System on Service Delivery in Nairobi County government health sector in Kenya. The study also used open ended questions

3.6.1 Data Collection Procedure

The questionnaire were administered via drop and pick method to the employees in hospitals by the researcher. The researcher was assisted by one research assistant to administer the questionnaire and guide respondents on how to fill out the questionnaires. Respondents were given a time frame of two days to complete filling the questionnaires before returning them for further processing.

3.7 Reliability and Validity of Research Instruments

The study conducted a pilot study to test the reliability of the questionnaires. According to Sekeran (2003), a pilot study is necessary for testing the reliability of data collection instruments. Joppe (2000) explains reliability of research as determining whether the research truly measures that which it is intended to measure or how truthful the research results are. The pilot study was conducted in Dangoretti Sub County.

3.7.1 Validity of Data Collection Instruments

Validity is the extent to which a concept conclusion or measurement is well-founded and corresponds accurately to the real world. An expert (supervisor) was consulted to scrutinize the relevance of the question items against the objectives of the study. The instrument was also well scrutinized by professionals in research field. The instrument was checked to ensure they produce accurate and credible results. The study used a Content validity to measure the validity of the instrument, through thorough examination of the instruments with assistance of research experts. This also involved the study to carefully design the guidelines for measurement with no variation from group to group and also broadening the sample of the items used (Kothari, 2004).

To establish the validity of the data collection instruments, the research instruments were also given to 13 respondents which were 10% of the sample population. The

respondents were expected to tick if the item in the questionnaires could be used to examine the influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government Health Sector, Kenya. The Content Validity Index of 1(not relevant) to 5 (very relevant) was used to determine the validity by adding up all the items rated using a scale of 1 and 5 by the selected pilot study respondents and dividing the total sum by the total number of items in the questionnaires. An average content validity index of 6 was obtained and this implied that the questionnaires were valid research instrument for the study.

3.7.2 Reliability of Data Collection Instruments

Reliability is the measure of degree to which a research instrument will yield consistent results after repeated trials (Kothari, 2018). Reliability was conducted to determine the consistency of scales to measure the variables of the study. The data gathered from the pilot study was analyzed using a Cronbach's alpha which is an internal consistency technique aided by SPSS. The reliability of data collection instruments was measured using Cronbach's alpha which is an internal consistency technique. Cronbach's alpha was applied using SPSS. Cronbach's alpha is a coefficient of reliability that gives an unbiased estimate of data generalizability (Zinbarg, 2005). All the study variables had an Alpha coefficient of between 0.8176 and 0.8385 which was above 0.75 and this satisfied Zinbarg (2005) that an alpha coefficient of 0.75 or higher indicates that the gathered data is reliable as it has a relatively high internal consistency and can be generalized to reflect opinions of all respondents in the target population. This thus implied that the data collection instruments were reliable in gathering sufficient data that can be generalized to examine the influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government Health Sector, Kenya.

3.8 Data Analysis Methods

Upon completion of the questionnaire administration, the collected data underwent a systematic organization process through coding to facilitate subsequent analysis. The data analysis procedures employed for each objective are delineated in the following sections;

Objective One

The first objective sought to determine the effect of iHRIS manage on service delivery in health sector, Nairobi City Kenya. This objective was analyzed using descriptive, correlation and regression analysis. Descriptive statistics was used to compute data frequency, percentage, mean and standard deviation results. Correlation analysis was used to show the association between iHRIS manage, iHRIS Train and iHRIS Plan on Service delivery. In addition, regression analysis was used establish the significance of the independent variables on the dependent variable. The following multiple regression model was applied:

$$Y = B_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon_i$$

Where:

Y= Service delivery (Dependent Variable)

X_1 = iHRIS manage

X_2= iHRIS Train

X_3 = iHRIS Plan

B_0 = constant of regression

ε. = error term

Objective Two

The second objective sought to examine the contributions of iHRIS on service delivery in the health sector at Nairobi City, Kenya. To analyze this objective two, descriptive statistics were employed. The objective focused on three key indicators: storage and archival management of HRH data, security of HR records and HR information, and cost reduction. Descriptive statistics, including data frequency, percentage, mean, and standard deviation, were computed for each indicator.

Objective Three

The third objective sought to analyse the challenges of iHRIS on service delivery in the health sector at Nairobi City Kenya. Descriptive statistics were utilized to analyze the data collected for this objective, focusing on three main indicators: training, ICT infrastructure, and resistance to change. The data frequency, percentage, mean, and standard deviation were calculated for each indicator to provide a comprehensive understanding of the challenges encountered.

3.9 Diagnostics

Prior to conducting a linear regression model for the purpose of hypothesis testing, several diagnostic tests will be conducted. These are tests to determine whether the assumptions of regression are first met. To check for normality, the study applied skewness and kurtosis statistic and Shapiro-Wilk test. On heteroscedasticity, Breusch-Pagan/Godfrey test will be used. Multicollinearity tested the interrelation between the independent study variables. Variance Inflation Factor (VIF) will be used to test for multicollinearity.

3.10 Measurement of Study Variables

The measurement of the study variables is as presented in Table 3.3.

Table 3.3: Measurement of Study Variables

Variable	Measures	Tool	Analysis
Components of iHRIS	• iHRIS Manage • iHRIS Train • iHRIS Plan	Likert Scale Questionnaire	Descriptive analysis, Correlation analysis and Regression analysis
Contributions of iHRIS	• Storage and archival management of HRH data • Security of HR records and HR information • Cost reduction	Likert Scale Questionnaire	Descriptive analysis
Challenges of iHRIS	• Training • ICT infrastructure • Resistance to change	Likert Scale Questionnaire	Descriptive analysis
Service delivery	• Service quality • Service accessibility • Service reliability • Service acceptability • Service availability • Service efficiency • Service effectiveness	Likert Scale Questionnaire	Descriptive analysis

3.11 Ethical Considerations

Before commencement of data collection, an introductory letter was obtained from the University and Authorization Letter and Research Permit from National Commission for Science, Technology and Innovation (NACOSTI). These documents enabled the researcher to secure appointments with the respondents to issue questionnaires which were picked at a later data to commence data analysis.

Several ethical considerations were meticulously addressed. Participant consent was obtained, ensuring that all participants were fully informed about the study's purpose and their role in it. Confidentiality and privacy of the participants' data were strictly upheld, with personal identifiers removed to maintain anonymity. The study also adhered to non-malfeasance, ensuring that no harm came to the participants as a result of their involvement. Moreover, the research avoided any form of bias or conflict of interest, ensuring the integrity and impartiality of the findings.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Overview

This chapter presents the findings and the analysis of the data obtained through various data analysis techniques. The areas include the response rate, demographic statistics, diagnostics findings, descriptive statistics, and inferential statistic. The discussion of findings has also been presented. The data obtained from the study are analyzed, tabulated and presented elaborately in this chapter.

4.2 Response Rate

In this study a total of 130 questionnaires were distributed, a total of 110 questionnaires were returned representing a response rate of 85%. According to Orodho (2019), a 50% response rate is appropriate for analysis. This response rate was considered satisfactory to make conclusions for the study. This also collaborates with Bailey (2019) assertion that a response rate of 50% and above is adequate, while a response rate greater than 70% is very good. This implies that based on this assertion, the response rate in this case of 85% was therefore very good to determine the influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government Health Sector, Kenya.

Table 4.1: Response Rate

Response rate	Frequency	Percentage
Responded Questionnaires	110	85%
Non-responded Questionnaires	20	15%
Total	130	100%

Source: Author, 2023

4.3 Demographic Data

This section presents an analysis of the respondents' background information. The value of demographic study was to determine how different respondent's population characteristics participated in the study and if all respondents in the population were represented in the study. This helped to eliminate cases of data biasness due to demographic variables such as age, education level and working experience.

4.3.1 Age of the Respondents

The study aimed to establish the age of the respondents in order to determine if the age corresponded with their working experience in the organization. Figure 4.1 shows that majority 50% of the respondents were in the age category of 41-50 years, followed by 20% of the respondents who were in the age category of 31-40 years, then 18% of the respondents who were in the age category of over 51 years and over and lastly 12% of the respondents who were in the age category of above 18-30 years. This implied that majority of the respondents were senior management staff with a long working experience and they understood the influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government Health Sector, Kenya.

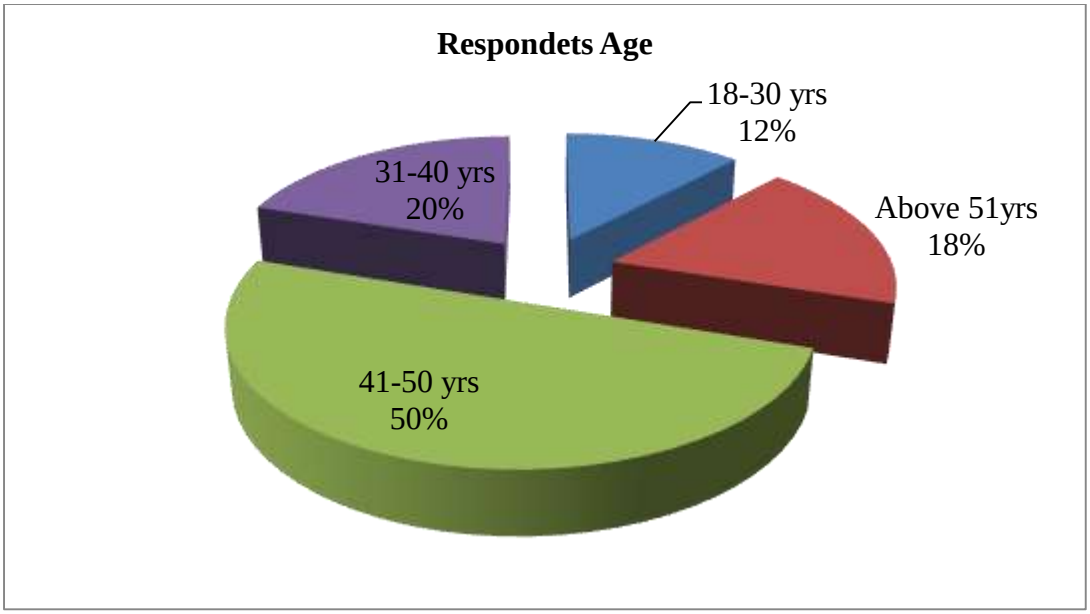

Figure 4.1: Age of the Respondents

Source: Author, 2023

4.3.2 Respondents Highest Education Level

The study established the highest education level held by respondents in order to find out if the respondents had the required technical iHRIS knowledge and skills and understood the influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government Health Sector, Kenya. The results in figure 4.2 show that, majority (42%) of the respondents had university education level, followed by (40%) of the respondents with graduate education level and finally 18% of the respondents had college education level. This implication is that all the respondents were qualified to have the required knowledge and skills in understanding the influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government Health Sector, Kenya. These findings demonstrated that all respondents were highly educated and had no difficulties in understanding the research questions. These concurred with Hubbard (2005), that respondents with technical knowledge on the study problem assists in gathering reliable and accurate data on the problem under research investigation.

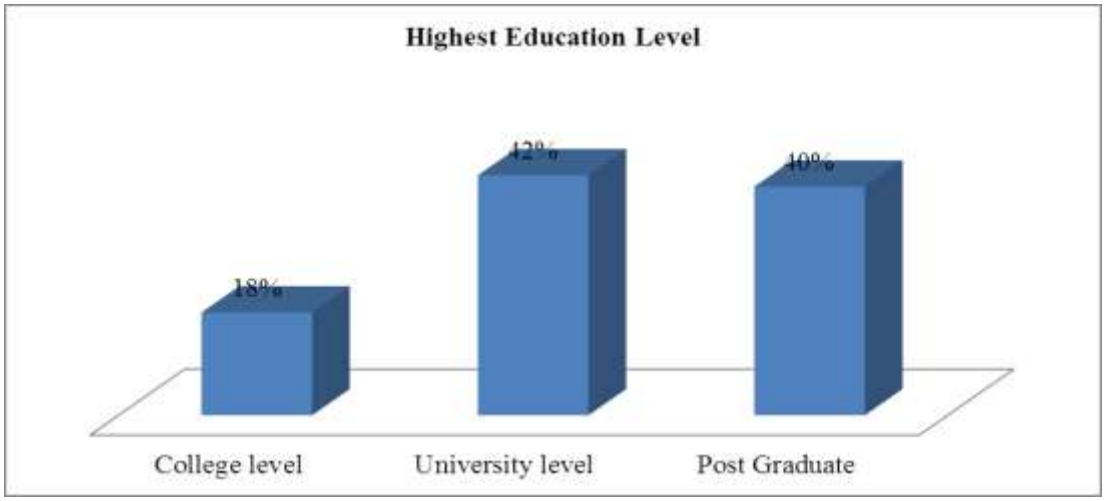

Figure 4.2 Highest Education Level

Source: Author, 2023

4.3.3 Respondents Working Experience

The study established the respondents working experience in order to determine if their working experience could be relied upon to make valid conclusions on the study findings. The results in figure 4.3 depicts that, majority 40% of the respondents had a working experience of 11-15 years, 30% had a working experience of 6-10 years, 20% of the respondents had a working experience of 16 years and above and 10% of the respondents had a working experience of less than 5 years. These indicates that majority of the respondents had a long working experience and the implication is that they provided reliable and valid data on the influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government Health Sector, Kenya. These findings were in tandem with findings by Braxton (2019) who found out that respondent with a high working experience assist in providing reliable data on the problem in hand since they have past experience on the study problem.

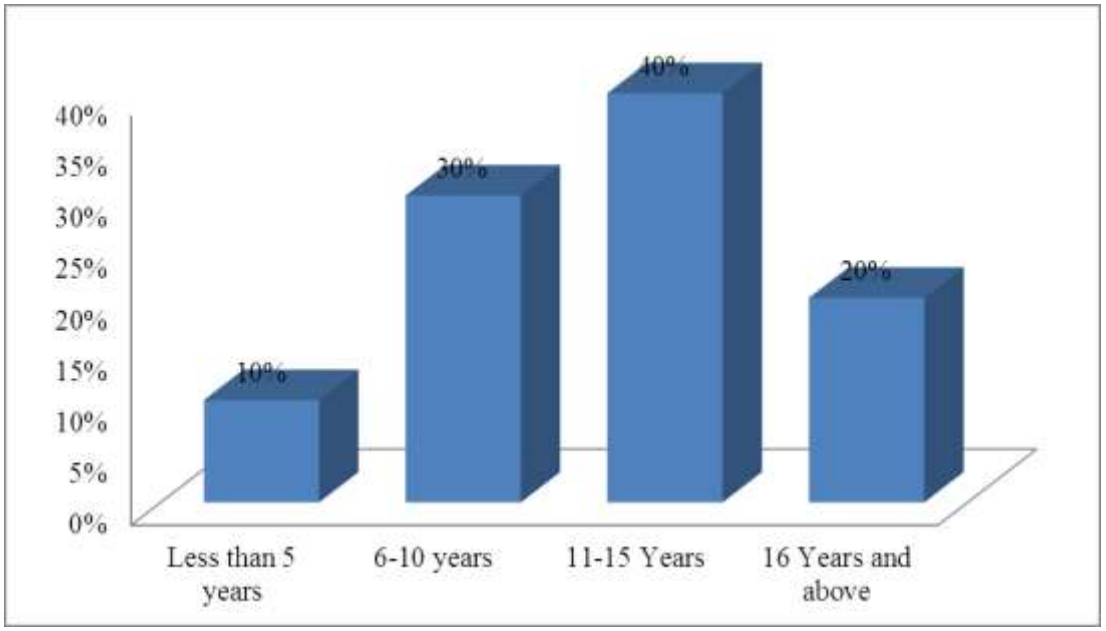

Figure 4.3 Working Experience

Source: Author, 2023

4.4 iHRIS Components

The first objective sought to determine the effect of iHRIS manage on service delivery in health sector, Nairobi City Kenya. This objective was analyzed using descriptive, correlation and regression analysis. Each of the analysis has been presented in the subsequent sections.

4.4.1 Descriptive statistics

The study requested respondents to indicate their level of agreement with key statements in relation to the influence of iHRIS Components on service delivery in Nairobi City County. Using a scale of 1-5 where 1= strongly disagree, 2 = disagree, 3 = moderately agree, 4 = agree, 5 = strongly agree. The results are presented in table 4.2.

Table 4.1: iHRIS Components Descriptive Results

iHRIS Components	N	Min	Max	Mean	Std. Dev	Variance
a) iHRIS Manage supports to track, manage, deploy and map health workforce leading to improved service delivery	110	2.00	5.00	4.295	0.9600	0.922
b) iHRIS Train helps to track and manage health worker training activities, including pre-service and in-service education, hence improving service delivery	110	2.00	5.00	4.361	0.8449	0.714
c) iHRIS Plan helps in decision making concerning workforce needs for the next several years, project the expected health workforce over the same time and make effective policy decisions to close the gap between the two	110	1.00	5.00	3.657	1.3786	0.901
Average	110			4.104	1.0611	1.179

Source: Author, 2023

According to the descriptive statistics results in Table 4.2, majority of the respondents agreed that iHRIS Manage supports to track, manage, deploy and map health workforce leading to improved service delivery as presented by a mean score of 4.295 and standard deviation of 0.9600. Majority of the respondents also agreed that iHRIS Train helps to track and manage health worker training activities, including pre-service and in-service education, hence improving service delivery as presented by a mean score of 4.361and standard deviation of 0.8449. Lastly, majority of the respondents moderately agreed that iHRIS Plan helps in decision making concerning workforce needs for the next several years, project the expected health workforce over the same time and make effective policy decisions to close the gap between the two as presented by a mean score of 3.657 and standard deviation of 1.3786. On average all the iHRIS Manage statements

had an average mean score of 4.104, standard deviation of 1.0611 and variance of 1.179. These findings indicate that majority of the respondents agreed on all iHRIS Manage statements.

The results in Table 4.2 also implies that only few respondents had varied or divided opinions on all iHRIS Manage statements since all the standard deviation and variance results were less than 1 and only iHRIS Plan had a standard deviation of slightly greater than 1, this indicates that most of the respondents gave similar responses and not many respondents had divergent views. According to Greener (2020) standard deviation and variance are both measures of variation for interval-ratio variables and describe how much variation or diversity there is in a distribution. According to Corbin (2020), if the standard deviation and variance are each greater than 1 it means that the respondents had divergent views and if they are each less than 1, this means that the respondents had similar opinions on the issues concerned.

These findings indicate that majority of the respondents agreed that iHRIS Manage supports to track, manage, deploy and map health workforce leading to improved service delivery; iHRIS Train helps to track and manage health worker training activities, including pre-service and in-service education, hence improving service delivery and iHRIS Plan helps in decision making concerning workforce needs for the next several years, project the expected health workforce over the same time and make effective policy decisions to close the gap between the two.

4.4.2 Correlation Analysis

Pearson correlation analysis was carried out to determine how the research variables related to each other. Pearson's correlation reflects the degree of linear relationship between two variables. It ranges from -1 to +1. A correlation of +1 means

that there is a perfect positive linear relationship between variables (Bougie & Sekaran, 2019). As presented in table 4.3, the variables i.e. iHRIS components (iHRIS manage, iHRIS train and iHRIS plan) had a strong positive correlation with service delivery in health sector in Nairobi City County (p-values < 0.01).

Table 4.3: Correlation Analysis Results

Variables		Service Delivery	iHRIS manage	iHRIS Train	iHRIS Plan
Service Delivery	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	110			
iHRIS manage	Pearson Correlation	.866**	1		
	Sig. (2-tailed)	.000			
	N	110	110		
iHRIS Train	Pearson Correlation	.673**	.485**	1	
	Sig. (2-tailed)	.000	.000		
	N	110	110	110	
iHRIS Plan	Pearson Correlation	.532**	.415**	.386**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	110	110	110	110

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Author, 2023

The table 4.3 indicates that iHRIS manage has strong positive association with Service Delivery in Nairobi City County Government Health Sector (r = 0.866). This correlation was found to be statistically significant at 86.6% significance level (p-value = 0.000). iHRIS train have strong positive correlation with Service Delivery in Nairobi City County Government Health Sector (r = 0.673). This correlation was found to be statistically significant at 67.3% significance level (p-value = 0.000). iHRIS plan has a strong positive correlation with Service Delivery in Nairobi City County Government Health Sector (r = 0.532). This correlation was found to be statistically significant at 53.2% significance level (p-value = 0.000). These findings showed that iHRIS

components (iHRIS manage, iHRIS train and iHRIS plan) has a positive significant relationship with service delivery.

4.4.3 Diagnostics results

The diagnostic assessments carried out encompassed a Multicollinearity Test, an examination for Heteroscedasticity, and Normality Test.

4.4.3.1 Multicollinearity Test

A multicollinearity assessment was carried out to examine whether there was significant correlation among two or more of the predictor (independent) variables within the regression model. Variance inflation factors (VIF) were employed as the metric for assessing multicollinearity, and VIF values below 10 were considered to be within acceptable limits. Conversely, if the VIF values for the explanatory variables exceeded 10, it signified a high degree of collinearity among those variables.

Table 4.4: Multicollinearity Test Using Tolerance and VIF

	Collinearity Statistics	
	Tolerance	**VIF**
iHRIS Manage	0.522	1.915
iHRIS Train	0.451	2.218
iHRIS Plan	0.406	2.465

Based on the results, it can be observed that all the variables exhibited tolerance values exceeding 0.2 and VIF values below 10. This aligns with the assertion made by Myres (2020) that VIF values equal to or greater than 10 are indicative of the presence of multicollinearity. Therefore, it can be concluded that there was an absence of multicollinearity among the independent variables in this study.

4.4.3.2 Test for Heteroscedasticity

Heteroscedasticity occurs when the variability of a variable is not uniform across the range of values of a second predictive variable. Neglecting to account for heteroscedasticity when running a regression model can result in parameter estimates that are not unbiased. To assess the presence of heteroscedasticity, the Breusch-Pagan/Godfrey test was employed. Specifically, the Breusch-Pagan / Cook-Weisberg test was conducted to examine whether the error terms exhibit correlation across observations in the cross-sectional data, as detailed by Long and Ervin (2000). The findings of the Breusch-Pagan test are presented in Table 4.5.

Table 4.5: Heteroscedasticity Results

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity		
Ho: Constant variance		
Variables: fitted values of Service Delivery		
chi2(1)	=	21.52
Prob > chi2	=	0.072

The findings indicate that the p-value exceeds the 5% significance level. Therefore, the null hypothesis was not dismissed at the critical p-value of 0.05, as the Chi-squared statistic, with one degree of freedom (Chi2 (1) = 21.52), yielded a p-value of 0.072, which is greater than the 0.05 threshold. Consequently, it can be concluded that the data did not exhibit heteroscedasticity.

4.4.3.3 Normality Test

The normality test assesses whether the data conforms to a normal distribution. In this study, the Shapiro–Wilk test, known for its high power in detecting departures from normality, was employed to examine the normality of the variables. The hypothesis was evaluated at a significance level of 0.05, following the standard practice of rejecting the

null hypothesis (H0) if the p-value is less than 0.05, and retaining it otherwise. It was essential for the dependent variable to exhibit normal distribution since the analysis utilized a multiple regression model, which necessitates the assumption of normality (Quataroli & Julia, 2020). The outcomes of the normality tests are summarized in Table 4.6.

Table 4.6: Normality Outputs

	Shapiro-Wilk	
Variables	**Statistic**	**Sig.**
iHRIS Manage	0.754	0.6292
iHRIS Train	0.776	0.1620
iHRIS Plan	0.795	0.5307
Service Delivery	0.832	0.1781

The results showed that when applying the Shapiro-Wilk test of normality to the data, all variables exhibited p-values greater than 0.05, indicating that the data follows a normal distribution. As a result, there is no basis to reject the alternative hypothesis (H1), affirming that the variables exhibit a normal distribution. Consequently, the data's normality allows for the continuation of further analysis.

4.4.4 Regression Analysis

The study further carried out regression analysis to establish the statistical significance of the relationship between the independent variables notably; (X_1) iHRIS manage; (X_2) iHRIS train and (X_3) iHRIS plan and dependent variables health service delivery. The regression analysis results were presented using regression model summary table, Analysis Of Variance (ANOVA) table and beta coefficients table. The model used for the regression analysis was expressed in the general form as given as:

$$Y= a + B_0X_1 + B_0X_2 + B_0X_3+ B_0X_4 + e$$

In interpreting the results of multiple regression analysis, the three major elements considered were: the coefficient of multiple determinations, the standard error of estimate and the regression coefficients. R squared was used to check how well the model fitted the data. R squared is the proportion of variation in the dependent variable explained by the regression model. These elements and the results of multiple regression analysis were presented and interpreted accordingly in table 4.7, table 4.8 and table 4.9. From the findings, the regression model coefficient of determination (R^2) is 0.750 and R is 0.866 at 0.05 significance level.

This is an indication that the four independent variables notably; (X_1) iHRIS benefits contribution; (X_2) iHRIS challenges components and (X_3) iHRIS challenges are significant in affecting the dependent variables Y= service delivery. The adjusted R square is 0.743, thus, 74.3% of the variation in Service Delivery in Nairobi City County Government Health Sector can be attributed to iHRIS components i.e., iHRIS manage, iHRIS train and iHRIS plan. The remaining 25.0% of the variation on in Service Delivery in Nairobi City County Government Health Sector can be explained by other variables not included in the model.

This shows that the model has a good fit since the value is above 50%. This concurred with Sekaran and Bougie (2019) that (R^2) is always between 0 and 100%: 0% indicates that the model explains none of the variability of the response data around its mean and 100% indicates that the model explains all the variability of the response data around its mean. In general, the higher the (R^2) the better the model fits the data.

Table 4.7: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.866[a]	.750	.743	.22929

a. Predictors: (Constant), X_3, X_1, X_2

Source: Author, 2024

The study further used one way Analysis of Variance (ANOVA) in order to test the significance of the overall regression model. Green & Salkind (2003) posits that one way Analysis of Variance helps in determining the significant relationship between the research variables. Table 4.8 indicates that the high value of F (105.826) with significant level of p-value 0.00 which is less than 5% level of significance is enough to conclude that iHRIS components (iHRIS manage, iHRIS train and iHRIS plan) significantly affect service delivery in Nairobi City County Government Health Sector, Kenya. This implies goodness of fit of the model and thus the variables can be carried on for further analysis to determine with significance the level of influence of each variable.

Table 4.8: Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.691	3	5.564	105.826	.000[b]
	Residual	5.573	106	.053		
	Total	22.264	109			

a. Dependent Variable: y

b. Predictors: (Constant), X_3, X_1, X_2

Source: Author, 2024

Table 4.9 further presents the results of the test of beta coefficients which shows the extent to which each independent variable affect Service Delivery in Nairobi City County Government Health Sector. The results shows that; (X_1) iHRIS manage had a

coefficient of 0.944, which was found to be positive at significant level of (P=0.000<0.05). This indicated that iHRIS manage significantly affects affect Service Delivery in Nairobi City County Government Health Sector. Similarly, (X_2) iHRIS train showed a coefficient of 0.026, which had a positive at significant level of (P=0.000<0.05) and this indicates that iHRIS train significantly affects affect Service Delivery in Nairobi City County Government Health Sector.

Lastly, (X_3) iHRIS plan had a coefficient of 0.011, with a positive significance level of (P=0.004<0.05); this indicated that iHRIS plan significantly influence Service Delivery in Nairobi City County Government Health Sector. Thus, the model demonstrated that iHRIS components (iHRIS manage, iHRIS train and iHRIS plan) significantly affect Service Delivery in Nairobi City County Government Health Sector.

Table 4.9: Coefficients

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	.285	.360		.792	.430
X_1	.944	.085	.879	11.041	.000
X_2	.026	.099	.023	.265	.002
X_3	.011	.102	.007	.111	.004

a. Dependent Variable: y

Source: Author, 2024

Given that the significance values were less than 0.005, all the coefficients were significant and thus the regression equation was:

$Y=0.285+ 0.944X_1 + 0.026X_2 + 0.011X_3 + e$

The regression model above has established that taking all the independent variables into account notably; (X_1) iHRIS manage; (X_2) iHRIS train and (X_3) iHRIS plan at Zero constant (0.285) affects Service Delivery in Nairobi City County Government Health Sector. The results presented also shows that taking all other independent variables at constant zero, a unit increase in iHRIS management leads to a 0.944 increase in Service Delivery; a unit increase in iHRIS trainings leads to 0.026 increase in Service Delivery and a unit increase in iHRIS planning leads to 0.011 increase in Service Delivery.

4.5 Contribution of IHRIS Benefits on Service delivery

The second objective was to examine the Contributions of iHRIS benefits on service delivery in Nairobi City County Government Health Sector, Kenya. The study requested respondents to indicate how they agreed or disagreed on key statements in relation to the Contributions of iHRIS benefits on service delivery in Nairobi City County Government Health Sector, Kenya. The results are as presented in table 4.10.

Table 4.10: Contributions of iHRIS Descriptive Results

	Contributions of iHRIS statements	N	Min	Max	Mean	Std. Dev	Variance
a)	iHRIS helps in Storage and archival management of HRH data and this improves service delivery	110	2.00	5.00	4.409	0.9476	0.898
b)	iHRIS improves security of HR records and HR information and this improves service delivery	110	2.00	5.00	4.438	0.7585	0.575
c)	iHRIS leads to cost reduction and this improves service delivery	110	1.00	5.00	4.361	0.8784	0.772
	Average	110			4.403	0.8615	0.7483

According to the descriptive statistics results in Table 4.10, majority of the respondents agreed that iHRIS helps in Storage and archival management of HRH data and this

improves service delivery as presented by a mean score of 4.409 and standard deviation of 0.9476.Majority of the respondents agreed that iHRIS improves security of HR records and HR information and this improves service delivery as shown by a mean score of 4.438 and standard deviation of 0.7585. iHRIS leads to Cost reduction and this improves service delivery as indicated by a mean score of 4.361and standard deviation of 0.8784. On average all the contribution of iHRIS benefits statements had an average mean score of 4.403, standard deviation of 0.8615 and variance of 0.7483.

These findings indicate that majority of the respondents agreed that contribution of iHRIS benefits in terms of Storage and archival management of HRH data; improvement of security of HR records and HR information and cost reduction leads to improved service delivery. These findings are in line with findings by Charles (2019) where he found out that effective application of iHRIS leads to effective methods of storage and archival management of HRH data increased security of HR records and HR information and this helps in movement of service delivery in health sector. According to Maguta (2020) the use of iHRIS has played a key role in promoting service delivery in the public health sector since manual HRH data storage and archival methods are automated, there is high data security and reduced cost of managing HRH data.

4.6 Challenges of iHRIS on Service Delivery

The study aimed to examine the challenges of iHRIS on service delivery in Nairobi City County Government Health Sector, Kenya. The study requested respondents to indicate how they agreed or disagreed on key statements in relation to the challenges of iHRIS on service delivery in Nairobi City County Government Health Sector, Kenya. The results are as presented in table 4.11.

Table 4.11: Challenges of iHRIS on Service Delivery Descriptive Results

iHRIS Challenges Statements	N	Min	Max	Mean	Std. Dev	Variance
a) Lack of adequately Trained staff affects application of iHRIS and this affects service delivery	110	1.00	5.00	3.152	1.6039	2.573
b) Lack of supportive ICT infrastructure in terms of computer hardware, software's and telecommunications equipment affects application of iHRIS and this affects service delivery	110	2.00	5.00	4.314	0.8913	0.795
c) Employees resistance to change affects effective implementation of iHRIS and this affects service delivery	110	1.00	5.00	4.238	1.0877	1.183
Average	110			3.901	1.1943	1.517

Source: Author, 2024

According to the descriptive statistics results in Table 4.11, majority of the respondents moderately agreed that lack of adequately trained staff affects application of iHRIS and this affects service delivery as shown by a mean score of 3.152 and standard deviation of 0.8913. On the other hand majority of the respondents agreed that lack of supportive ICT infrastructure in terms of computer hardware, software's and telecommunications equipment affects application of iHRIS and this affects service delivery as shown by a mean score of 4.314 and standard deviation of 0.8913.

Finally, majority of the respondents agreed that employees' resistance to change affects effective implementation of iHRIS and this affects service delivery as indicated by a mean score of 4.238 and standard deviation of 1.0877. On average all the iHRIS challenges. Statements had an average mean score of 3.901, standard deviation of 1.1943 and variance of 1.517.

These findings indicate that majority of the respondents agreed that lack of adequately Trained staff affects application of iHRIS and this affects service delivery; lack of supportive ICT infrastructure in terms of computer hardware, software's and telecommunications equipment affects application of iHRIS and this affects service delivery and employees resistance to change affects effective implementation of iHRIS and this affects service delivery**.**

These findings concurs with findings by Oyugi (2021) that lack of adequately Trained staff iHRIS application and lack of supportive ICT infrastructure in terms of computer hardware, software's and telecommunications equipment affects application of iHRIS and this affects service delivery in many Kenyan public health institutions. The findings are also in agreement with Shibly (2019) that in many organization effective application of iHRIS in hampered by challenges arising as result of lack of adequately Trained staff, poor ICT infrastructure and employee resistance to change.

4.7 Service Delivery

The study sought to assess the service delivery in Nairobi City County Government Health Sector. The study requested respondents to indicate their level of agreement on key statements on service delivery in the organization.

Table 4.12: Service Delivery Descriptive Results

Service Delivery Statements	N	Min	Max	Mean	Std. D	Variance
a) There is improved quality of delivered heath care services	110	2.00	5.00	4.421	0.7797	0.608
b) Service accessibility	110	2.00	5.00	4.473	0.7415	0.55
c) Service reliability	110	2.00	5.00	4.536	0.7964	0.634
d) Service acceptability	110	2.00	5.00	4.314	0.8913	0.795
e) Service availability	110	1.00	5.00	2.752	1.3642	1.861
f) Service efficiency	110	1.00	5.00	3.752	1.2386	1.534
g) Service effectiveness	110	1.00	5.00	3.895	1.0462	1.095
Average				4.020	0.980	1.011

According to the descriptive statistics results in Table 4.12, majority of the respondents agreed that there is improved quality of delivered heath care services as shown by a mean score of 4.421 and standard deviation of 0.7797. On the other hand majority of the respondents agreed that there was increased service accessibility as shown by a mean score of 4.473 and standard deviation of 0.7415.Majority of the respondents also agreed that there was service reliability as indicated by a mean score of 4.536 and standard deviation of 0.7964. Majority of the respondents agreed that there is high service acceptability as shown by a mean score of 4.314 and standard deviation of 0.8923.

Further majority of the respondents disagreed that there was increased level of service availability as shown by a mean score of 2.752 and standard deviation of 1.3642.Majority of the respondents also moderately agreed that there was high level of service efficiency as indicated by a mean score of .752 and standard deviation of 1.2386.Lastly, majority of the respondents also moderately agreed that there was high level of service effectiveness as indicated by a mean score of 3.895 and standard deviation of 1.0462.

These findings indicated that majority of the respondents agreed that implementation of iHRIS had improved service delivery in terms of service quality, service accessibility, service reliability and service acceptability. However, the respondents disagreed that implementation of iHRIS had improved service delivery in terms service availability. However the respondents moderately agreed that application of iHRIS had led to increased service efficiency and service effectiveness.

This could have been as result of challenges such as lack of adequate training, ICT infrastructure and employee resistance to change. These findings are in agreement with findings by Kumar (2020) where he identified that effective implementation of iHRIS helps in improving service delivery in terms of service quality, service accessibility, service reliability and service acceptability. However findings by Oyugi (2021) identified that lack of effective implementation of iHRIS affects service availability, service efficiency and service effectiveness in many public health care institutions in Kenya.

4.8 Discussion of Findings

The first objective was to assess components of iHRIS in Nairobi City County Government Health Sector, Kenya. On average all the iHRIS Manage statements had an average mean score of 4.104, standard deviation of 1.0611 and variance of 1.179. These findings indicate that majority of the respondents agreed on all iHRIS Manage statements. The correlation analysis revealed a strong positive associations between iHRIS components (iHRIS manage, iHRIS train, and iHRIS plan) and service delivery in the Nairobi City County Government Health Sector, with correlation coefficients of 0.866, 0.673, and 0.532, respectively. These correlations were statistically significant at high levels (86.6%, 67.3%, and 53.2% significance levels, respectively), indicating

that iHRIS components have a positive and significant relationship with service delivery in this context. From regression tests, the findings showed that holding all other factors constant, a unit increase in iHRIS management leads to a 0.944 increase in Service Delivery; a unit increase in iHRIS trainings leads to 0.026 increase in Service Delivery and a unit increase in iHRIS planning leads to 0.011 increase in Service Delivery. This indicated that iHRIS components have positive influence on health service delivery. TSince the P-value were below 0.05, the null hypothesis that **H_{o1}**: iHRIS components have no significant effect on service delivery in the health sector, Nairobi city Kenya was rejected. These findings corroborates with findings by Mayfield (2020) where he found out that iHRIS components notably iHRIS Manage, iHRIS Train and iHRIS Plan plays a major role in improvement of service delivery in public health sector.

The second objective was to examine the Contributions of iHRIS benefits on service delivery in Nairobi City County Government Health Sector, Kenya. On average all the contribution of iHRIS benefits statements had an average mean score of 4.403, standard deviation of 0.8615 and variance of 0.7483. These findings indicate that majority of the respondents agreed that contribution of iHRIS benefits in terms of Storage and archival management of HRH data; improvement of security of HR records and HR information and cost reduction leads to improved service delivery. These findings are in line with findings by Charles (2019) where he found out that effective application of iHRIS leads to effective methods of storage and archival management of HRH data increased security of HR records and HR information and this helps in movement of service delivery in health sector. According to Maguta (2020) the use of iHRIS has played a key role in promoting service delivery in the public health sector since manual HRH

data storage and archival methods are automated, there is high data security and reduced cost of managing HRH data.

The third objective aimed to examine the challenges of iHRIS on service delivery in Nairobi City County Government Health Sector, Kenya. On average all the iHRIS challenges. Statements had an average mean score of 3.901, standard deviation of 1.1943 and variance of 1.517. These findings indicate that majority of the respondents agreed that lack of adequately Trained staff affects application of iHRIS and this affects service delivery; lack of supportive ICT infrastructure in terms of computer hardware, software's and telecommunications equipment affects application of iHRIS and this affects service delivery and employees resistance to change affects effective implementation of iHRIS and this affects service delivery**.** These findings concurs with findings by Oyugi (2021) that lack of adequately Trained staff iHRIS application and lack of supportive ICT infrastructure in terms of computer hardware, software's and telecommunications equipment affects application of iHRIS and this affects service delivery in many Kenyan public health institutions. The findings are also in agreement with Shibly (2019) that in many organization effective application of iHRIS in hampered by challenges arising as result of lack of adequately Trained staff, poor ICT infrastructure and employee resistance to change.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Overview

This chapter discusses the summary of the major findings on the influence of integrated Human Resource information System on Service Delivery in Nairobi City County Government Health Sector. The chapter further draws the study conclusions and presents major recommendations, limitations and gives suggestion for further studies.

5.1 Summary of the Major Findings

The main objective of this study was to examine the influence of integrated Human Resource information System components on Service Delivery in Nairobi City County Government Health Sector, Kenya. The study specifically assessed components of iHRIS in Nairobi City County Government Health Sector, Kenya; the Contributions of iHRIS on service delivery in Nairobi City County Government Health Sector, Kenya and evaluated the challenges of iHRIS on service delivery in Nairobi City County Government Health Sector, Kenya. The study findings showed that iHRIS components; (iHRIS manage, iHRIS train and iHRIS plan) influence Service Delivery in Nairobi City County Government Health Sector.

5.1.1 iHRIS Components and Service Delivery

The study aimed to assess components of iHRIS in Nairobi City County Government Health Sector, Kenya. The study findings indicated that components of iHRIS played a significant role towards influencing service delivery in Nairobi City County Government Health Sector, Kenya. The study findings indicated that iHRIS components notably iHRIS Manage, iHRIS Train and iHRIS Plan plays a major role in improvement of service delivery in public health sector. The study findings indicated

that that majority of the respondents agreed that iHRIS Manage supports to track, manage, deploy and map health workforce leading to improved service delivery; iHRIS Train helps to track and manage health worker training activities, including pre-service and in-service education, hence improving service delivery and iHRIS Plan helps in decision making concerning workforce needs for the next several years, project the expected health workforce over the same time and make effective policy decisions to close the gap between the two.

The correlation analysis revealed a strong positive associations between iHRIS components (iHRIS manage, iHRIS train, and iHRIS plan) and service delivery in the Nairobi City County Government Health Sector, with correlation coefficients of 0.866, 0.673, and 0.532, respectively. These correlations were statistically significant at high levels (86.6%, 67.3%, and 53.2% significance levels, respectively), indicating that iHRIS components have a positive and significant relationship with service delivery in this context.

From regression tests, the findings showed that holding all other factors constant, a unit increase in iHRIS management leads to a 0.944 increase in Service Delivery; a unit increase in iHRIS trainings leads to 0.026 increase in Service Delivery and a unit increase in iHRIS planning leads to 0.011 increase in Service Delivery. This indicated that iHRIS components have positive influence on health service delivery. These findings corroborates with findings by Mayfield (2020) where he found out that iHRIS components notably iHRIS Manage, iHRIS Train and iHRIS Plan plays a major role in improvement of service delivery in public health sector.

5.1.2 iHRIS Contributions and Service Delivery

The study examined the contributions of iHRIS benefits on service delivery in Nairobi City County Government Health Sector, Kenya. The study findings indicated that iHRIS benefits played a key role in enhancing improvement of service delivery in Nairobi City County Government Health Sector, Kenya. Findings showed that the use of iHRIS has played a key role in promoting service delivery in the public health sector since manual HRH data storage and archival methods are automated, there is high data security and reduced cost of managing HRH data. These findings indicated that majority of the respondents agreed that contribution of iHRIS benefits in terms of Storage and archival management of HRH data; improvement of security of HR records and HR information and cost reduction leads to improved service delivery.

The study noted that effective application of iHRIS leads to effective methods of storage and archival management of HRH data increased security of HR records and HR information and this helps in movement of service delivery in health sector. These findings concurs with findings by Charles (2019) where he found out that effective application of iHRIS leads to effective methods of storage and archival management of HRH data increased security of HR records and HR information and this helps in movement of service delivery in health sector.

5.1.3 iHRIS Challenges and Service Delivery

The study aimed to examine the challenges of iHRIS on service delivery in Nairobi City County Government Health Sector, Kenya. The study noted that existence of challenges of iHRIS implementation and application hindered effective service delivery in Nairobi City County Government Health Sector, Kenya. These findings indicated that majority of the respondents agreed that lack of adequately Trained staff affects

application of iHRIS and this affects service delivery; lack of supportive ICT infrastructure in terms of computer hardware, software's and telecommunications equipment affects application of iHRIS and this affects service delivery and employees resistance to change affects effective implementation of iHRIS and this affects service delivery**.**

The study therefore affirmed that lack of adequately trained staff iHRIS application and lack of supportive ICT infrastructure in terms of computer hardware, software's and telecommunications equipment affects application of iHRIS affects service delivery in Nairobi City County Government Health Sector, Kenya. These findings are in line with Oyugi (2021) that lack of adequately Trained staff iHRIS application and lack of supportive ICT infrastructure in terms of computer hardware, software's and telecommunications equipment affects application of iHRIS and this affects service delivery in many Kenyan public health institutions.

The study thus deduced that effective implementation of iHRIS helps in improving service delivery in terms of service quality, service accessibility, service reliability and service acceptability. However lack of effective implementation of iHRIS affected service availability, service efficiency and service effectiveness in many public health care institutions in Kenya. These findings confirms research findings by Kumar (2020) where he identified that effective implementation of iHRIS helps in improving service delivery in terms of service quality, service accessibility, service reliability and service acceptability.

5.2 Conclusion

The study concludes that the Integrated Human Resource Information System (iHRIS) components in Nairobi City County Government Health Sector, Kenya, significantly

enhance service delivery. This conclusion is based on the acknowledgment of iHRIS Manage, Train, and Plan components as pivotal elements in improving service effectiveness. Specifically, iHRIS Manage is identified as a critical driver, with its impact on service delivery seen as substantial.

Regarding the second objective, the study concludes that the contributions of iHRIS benefits are instrumental in elevating service delivery in Nairobi City County Government Health Sector. The benefits, including efficient storage and archival management of Human Resources for Health (HRH) data, enhanced security of HR records and information, and cost reduction, collectively foster an improved service delivery environment. These advantages are recognized as vital to the overall effectiveness of health sector operations.

Finally, the study concludes that certain challenges associated with iHRIS impede optimal service delivery within the Nairobi City County Government Health Sector. These challenges, mainly revolving around the lack of adequately trained staff, insufficient supportive ICT infrastructure, and employee resistance to change, significantly affect the application and effectiveness of iHRIS. Addressing these issues is essential for realizing the full potential of iHRIS in enhancing service delivery.

5.3 Recommendations

The study recommended that health sector at Nairobi City, in Kenya should fully implement iHRIS and ensure all the components; iHRIS manage, iHRIS Train and iHRIS Plan, are fully utilized to improve service delivery and maintain competitive advantage resulting from human resource systems.

5.3.1 iHRIS components

The Health institutions in Nairobi County should fully automate health services by implementing iHRIS components. iHRIS Management function need to be modified by the organization IT personnel to conform to HR policies and procedures in order to support organization in designing a comprehensive HR strategy and managing its workforce effectively and efficiently. Human Resource employees for health should be updating the records in the iHRIS manage by capturing employee information and maintaining a complete record of employees' work history, including designations, cadre , Date of appointment, Current appointment Job group , in-service trainings, and any workplace incidents.

iHRIS management function need to be updated by human resource for health employees to facilitate interoperability with other health information systems. The hospital management should effectively implement iHRIS Plan to facilitate decision makers to assess their workforce needs for the next several years, project the expected health workforce over the same time, and make effective policy decisions to close the gap between the two. iHRIS Plan analyzes data collected in iHRIS Manage.

5.3.2 iHRIS Benefits

To realize full benefits of iHRIS, Health institutions in Nairobi City, should have all its functions supported by iHRIS components. This will eventually improve service delivery and maintain the competitive advantage resulting from human resource information systems. The iHRIS should be used in Storage and archival management of all HRH data; improvement of security of HR records and HR information and cost reduction to improve on service delivery. The iHRIS should be modified to facilitate limiting user activities to enforce data quality and management protocols.

The iHRIS should provide support via an email group, an interactive website, and an online documentation library. The following features should be implemented to ensure the security and accuracy of data stored in the system: Error checking and data correction by authorized managers to ensure data integrity and automated logging of the username, date, and time when data are entered or changed, for auditing purposes. Permanent archiving of all data changes to ensure a consistent record of each employee's history with the organization.

5.3.3 iHRIS Challenges

To mitigate challenges related to iHRIS, Health institutions in Nairobi City should provide employee with adequate training, provide supportive ICT infrastructure and implement change management strategies to manage employee resistance to change. Supportive ICT infrastructure in terms of computer hardware, software's and telecommunications equipment should be implemented and continuously upgraded. The Health Sector in Nairobi City, Kenya should also implement iHRIS Qualify to enable maintenance of a database of registered and licensed health professionals to support increased quality of care. Effective security measures should be employed to ensure security and accuracy of data stored in the system. These should include error checking and data correction by authorized data managers and automated logging of the username and permanent archiving of all data changes.

5.4 Contribution to Knowledge

5.4.1 Policy Implications

The findings of this study have significant policy implications for the health sector in Nairobi City County, Kenya. The positive influence of Integrated Human Resource Information Systems (iHRIS) on service delivery suggests that policymakers should

prioritize the implementation and enhancement of iHRIS in healthcare settings. This includes allocating adequate resources for iHRIS management, training, and planning. Moreover, policies should focus on addressing the identified challenges, such as improving ICT infrastructure and providing training for staff, to ensure the effective utilization of iHRIS.

5.4.2 Practical Implications

From a practical standpoint, the study highlights the importance of iHRIS in improving service delivery within the health sector. Healthcare facilities should integrate iHRIS components comprehensively into their operations. This involves not only the adoption of the technology but also the active engagement in ongoing training and planning to optimize its use. Additionally, health facilities should develop strategies to overcome resistance to change among employees, ensuring that the benefits of iHRIS are fully realized in practice.

5.4.3 Theoretical Implications

Theoretically, this study contributes to the understanding of information systems in healthcare. It provides empirical evidence supporting the positive relationship between integrated human resource information systems and service delivery in the health sector. This reinforces theories that advocate for the integration of technology in healthcare management and highlights the need for continuous adaptation and evolution of these systems in response to emerging challenges and technological advancements.

5.5 Limitation of the study

The study had limitations that affected the accuracy and the process of the study findings. The study was limited in the Nairobi City County Government health sector and this thus made the study geographical scope not to include other county

governments. However, Nairobi City County provides a general presentation of other County governments and this made the study findings to be generalized to reflect the influence of integrated Human Resource information System on Service Delivery in other County Government Health Sector.

Other limitations that were experienced included some of the respondents not filling or completing the questionnaires fearing victimization or some issues being misunderstood, inadequate responses to questionnaires and unexpected occurrences like people going on leave before completing the questionnaires. This was mitigated through constant reminder to the respondents during the period they will be having the questionnaires. The organizations confidentiality policy restricted most of the respondents from completing some of the questionnaires since it might be considered to be against the organization confidentiality policy to expose the organization confidential matters. To address the issue of respondents reluctant to provide information, the researcher assured confidentiality and anonymity, emphasized the academic nature of the study, and used introduction letters from the university and NACOSTI to build trust and encourage participation.

5.6 Areas for Further Research

Future research based on these limitations could expand the geographical scope beyond Nairobi City County, exploring the influence of Integrated Human Resource Information Systems (iHRIS) on service delivery in various Kenyan county governments to provide a more diverse and comprehensive understanding. Studies could also examine the impact of organizational culture and confidentiality policies on the effectiveness and acceptance of iHRIS, delving into the dynamics of employee participation and trust in different health sector environments. Additionally, research

should focus on developing methodologies to increase response rates and completeness of questionnaires, perhaps through digital platforms or alternative data collection strategies, to mitigate issues of non-response and incomplete participation. These areas would address the limitations faced in this study and contribute to a more nuanced understanding of iHRIS in varying contexts.

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APPENDICES

Appendix 1: Introduction Letter

Dear Respondent,

RE: COLLECTION OF DATA

I am a Masters of Science Degree in Human Resource Management Student in the Moi University. As part of the requirement for the award of the Degree, I am expected to undertake a Research study on "**TO EXAMINE THE INFLUENCE OF INTEGRATED HUMAN RESOURCE INFORMATION SYSTEM ON SERVICE DELIVERY IN NAIROBI CITY COUNTY GOVERNMENT HEALTH SECTOR".** I'm therefore seeking your assistance to fill the Questionnaires hereby attached. The questionnaire will take about twenty minutes to complete. Kindly answer all the questions.

Thanks for your assistance.

CATHERINE MUIA

SHRH/PGH/041/16

Appendix 2: Questionnaire

Introduction

This questionnaire seeks to gather information **TO EXAMINE THE INFLUENCE OF INTEGRATED HUMAN RESOURCE INFORMATION SYSTEM ON SERVICE DELIVERY IN NAIROBI CITY COUNTY GOVERNMENT HEALTH SECTOR**. Please spare your ten minutes to respond to this questions, all information you provide will be treated with utmost confidentiality and only used for academic purposes thank you in advance.

Instructions (tick where appropriate)

SECTION I: BACKGROUND INFORMATION

1. Age:

- ☐ 18-30 yrs
- ☐ 31-40 yrs
- ☐ 41-50 yrs
- ☐ Above 51 yrs

2. Education level

- ☐ Secondary level
- ☐ College level
- ☐ University level
- ☐ Post Graduate
- ☐ Other specify……

3. Working experience

- ☐ Less than 5 years
- ☐ 6-10 years
- ☐ 11-15 Years
- ☐ 16 Years and above

SECTION 2: iHRIS COMPONENTS

1. What is your level of agreement with the following statements in relation to the influence of iHRIS Components on service delivery in Nairobi City County?. Use a scale of 1-5 where 1= strongly disagree, 2 = disagree, 3 = moderately agree, 4 = agree, 5 = strongly agree.

iHRIS COMPONENTS	**1**	**2**	**3**	**4**	**5**
d) iHRIS Manage supports to track, manage, deploy and map health workforce leading to improved service delivery					
e) iHRIS Train helps to track and manage health worker training activities, including pre-service and in-service education, hence improving service delivery					
f) iHRIS Plan helps in decision making concerning workforce needs for the next several years, project the expected health workforce over the same time and make effective policy decisions to close the gap between the two					

PART B: CONTRIBUTION OF IHRIS ON SERVICE DELIVERY

1. What is your level of agreement with the following statements in relation to contribution of iHRIS on Service Delivery in Nairobi City County?. Use a scale of 1-5 where 1= strongly disagree, 2 = disagree, 3 = moderately agree, 4 = agree, 5 = strongly agree.

Contribution of iHRIS Benefits on Service Delivery	**1**	**2**	**3**	**4**	**5**
d) iHRIS helps in Storage and archival management of HRH data and this improves service delivery					
e) iHRISimproves security of HR records and HR information and this improves service delivery					
f) iHRIS leads to Cost reduction and this improves service delivery					

PART C: iHRIS CHALLENGES

1. What is your level of agreement with the following statements in relation to the influence of iHRIS Challengeson service delivery in Nairobi City County? Use a scale of 1-5 where 1= strongly disagree, 2 = disagree, 3 = moderately agree, 4 = agree, 5 = strongly agree.

iHRIS Challenges	1	2	3	4	5
d) Lack of adequately Trained staff affects application of iHRIS and this affects service delivery					
e) Lack of supportive ICT infrastructure in terms of computer hardware, software's and telecommunications equipment affects application of iHRIS and this affects service delivery					
f) Employees resistance to change affects effective implementation of iHRIS and this affects service delivery					

PART D: SERVICE DELIVERY

1. What is your level of agreement on the following statements on service delivery in the organization? Use a scale of 1-5 where 1= strongly disagree, 2 = disagree, 3 = moderately agree, 4 = agree, 5 = strongly agree.

Service Delivery	1	2	3	4	5
h) There is improved quality of delivered heath care services					
i) Service accessibility					
j) Service reliability					
k) Service acceptability					
l) Service availability					
m) Service efficiency					
n) Service effectiveness					