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Abstract :

Background: This paper investigates the Centralized Revenue Development Department (CRDD) in the Makkah Healthcare Cluster (MHC). Aim: To identify strategic and operational competencies and their role in financial risk mitigation.

Methodology: The study used a triangulated methodology including survey as quantitative measure with semi-structured interviews for the qualitative depth, followed by a review of Financial KPIs (Performance Indicators) in order to confirm the operational impact. Results: Findings indicate that centralization helps speed up decision-making and cuts down on claim denials. Conclusion: A specialized competency model is essential for the sustainability of financial performance.

Chapter One

Introduction

1- Introduction :

1.1. Contextual Background

Saudi Vision 2030, a change and globalised concept for advancement by the Saudi Arabian government, features advancement in the area of financial sustainability, operational effectiveness, and risk management, particularly in the healthcare sector (Rahman & Al-Borie, 2021). Healthcare spending in the country is an example, which stood at about USD 50.4 billion in 2023, or about 17 per cent of the entire government expenditure (Al Omari, 2024). Mean and while, the most rapidly-developing arm of healthcare IT is now revenue cycle management (RCM): the Saudi Arabia Healthcare Information System Market was estimated to be USD 364.25 Million in 2024, and is even projected to become USD 517.89 Million by 2030, with RCM being identified as the largest application area (Verma, 2020).

In this respect, and especially within the jurisdiction of the Makkah Health Cluster (MHC) , setting up a centralised revenue-development department (CRDD) can be seen as a strategic lever. Saudi Arabia is transforming its healthcare clusters into integrated networks to improve accountability and financial resilience operationally (PwC, 2025). The concept of CRDD is in line with this move, which centralises the competencies of claims management and denial-prevention, accounts receivable oversight and revenue integrity. These are essential in an area where hospitals have to negotiate between the volume-based block finances and value-based risk-adjusted reimbursement designs, a transition that has been approximated to open normalised savings of SAR 40-65 billion annually by 2035 (Schmitz-Hubsch et al., 2025).

More importantly, strategic and operational competencies of the CRDD should be developed and refined effectively in order to work. Strategic capabilities can be applied, such as leadership skills of risk forecasting, financial analytic skills, regulatory and insurance-payer interface knowledge, and change-management skills in a high-complexity cluster (O'Brien & Robertson, 2009). Operational competencies may include comprehensive process expertise of revenue cycle processes, denial management, accuracy in coding, workflow efficiency, and highly skilled use of RCM IT systems. Since the Saudi Arabia-based RCM market is already experiencing the highest level of penetration into the segment, this highlights the awareness of the revenue cycle as a mission-critical competency in the sector (Mani & Goniewicz, 2024).

Financially, empirically, there are lapses in the maturity of these competencies that pose material financial risk. Indicatively, inpatient services are cost-intensive: in 2023, health providers with an average ratio of SAR 6,472 per inpatient day show that delays in revenue capture, high denial rates, or long accounts receivable days are important risk factors (Al-Anezi, 2025). Additionally, the move to value-based reimbursement implies that the inability to incorporate strategic financial risk-mitigation capabilities can cripple the performance of providers and cluster viability (Arbaein et al., 2024)

Overall, the contextual background of your study confirms the fact that the creation of a CRDD in the Makkah Health Cluster is timely, but it has its share of opportunities and risks. It is analytically critical to define and measure the key strategic and operational competencies required by the CRDD since only under the conditions of the competencies' availability and physical development, the department will be able to curb financial risk effectively, optimise the revenue cycle, and, thereby, the overall performance of the cluster-related hospitals.

1.2.Problem Statement

Saudi Arabia is experiencing a very rapid change in the healthcare environment, led by Saudi Vision 2030 and the restructuring of service delivery networks into clusters, including the Makkah Health Cluster (MHC). However, even under this strategic change, there remain several governmental hospitals that have been known to record major vulnerabilities in their revenue cycle management (RCM) systems that consequently put them at financial risk. As an illustration, recent studies within Saudi governmental hospitals indicate that the RCM processes are disrupted, the maturity level is not consistent, and no nationally-consistent framework is used to determine the best practice (Alradhi & Alanazi, 2023). In addition, providers worldwide and nationally are confronted by augmented external stressors, such as increasing fatigue of claim denials (such as initial claim denials of up to 15 per cent in certain systems) and augmented administrative requirements in billing and payer engagement (Peterson et al., 2024). These issues explain how poor strategic leadership competencies, operational processes and combined financial-risk management competencies may result in the revenue leakage, increase in accounts receivable cycle and poor cash flows.

Considering the MHC, CRDD is suggested to centralise and strengthen the functions of the RCM of the affiliated hospitals. Nevertheless, when this CRDD does not have clear strategic and operational competencies, the ability to reduce financial risk and maximise performance can be severely reduced. According to the research literature, simply implementing the centralised structures without correspondingly matching the workforce competencies, particularly in terms of leadership, analytics, expertise in claims and process standardisation, tends to produce sub-optimal outcomes (Alsari et al., 2024). Therefore, the limitations of the core issue that the research solves are two-fold: first, the lack of a clear competency model of the CRDD risks the capacity to manage the revenue and financial risk effectively; Second, the unquantified development of competencies and the performance levels of the associated hospitals before and after creates a gap in evidence when assessing the actual value of the CRDD. These gaps persist, and without action to close them, MHC will still be facing the same financial inefficiencies irrespective of the structural change, which defeats the strategic goal to deliver quality, high-performance healthcare.

1.3. Significance of the Study

The analyses are important because this research offers empirically and strategically grounded data on the possible role of CRDD in promoting financial sustainability and operational efficiency through the Makkah Health Cluster (MHC). The research could be useful to both theory and practice in healthcare financial governance because it defines and evaluates the key strategic and operational competencies needed to manage the revenue cycle (RCM). The results will be useful in making evidence-based choices for the Saudi health cluster leadership, in accordance with the Vision 2030 objectives of fiscal efficiency and value-based care. Moreover, the study bridges an important knowledge gap concerning the quantitative effects of centralisation efforts on key performance indicators, including claims rejection rates, increase in revenues, and days to accounts receivable, due to its quantitative assessment of the impact of the CRDD on key performance indicators. On the theoretical side, it develops competency-based paradigms of organisational performance, and on the practical side, it provides a framework that other regional health clusters can replicate in order to make themselves better equipped in terms of financial strength and strategic responsiveness.

1.4. Research Aim and Objectives:

To define the essential strategic and operational competencies required for the CRDD and to assess the role of this centralised department in mitigating

financial risks and enhancing RCM performance within the Makkah Health Cluster, during 2024 and till the end of October 2025.

Objectives:

1. To analyse the current perceived availability and maturity level of these required competencies within the MHC workforce.
2. To quantitatively measure and compare key RCM Financial Performance Indicators (KPIs) of affiliated hospitals before and after the CRDD's activation.
3. To analyse the relationship between the perceived competencies within the CRDD and the quality of its strategic decisions for risk mitigation.

1.5. Research Questions:

What is the impact of the CRDD's establishment on affiliated hospitals' key financial performance indicators of claim denial rate, increasing the revenue and decreasing the accounts receivable days, and how do CRDD leadership competencies influence the quality of risk-related strategic decision-making within the organisation?

1.6. Research Hypothesis:

H₁: The establishment of the Centralized Revenue Development Department (CRDD) within the Makkah Health Cluster (MHC) significantly enhances revenue cycle performance and mitigates financial risks through the development and application of defined strategic and operational competencies.

Sub-Hypotheses:

- H_{1a} (Competency Availability): There is a statistically significant gap between the required and currently available strategic and operational competencies within the MHC workforce that affects CRDD performance outcomes.
- H_{1b} (Performance Improvement): Activation of the CRDD leads to a statistically significant improvement in key RCM financial performance indicators, including reduced claim denial rates, increased total revenue, and decreased accounts receivable (A/R) days, compared to pre-activation levels.
- H_{1c} (Competency–Decision Quality Relationship): Higher perceived maturity levels of CRDD leadership and operational competencies are

positively correlated with the quality of strategic financial risk mitigation decisions.

- H_{1d} (Integrated Impact Model): The combined influence of strategic and operational competency maturity significantly predicts improvements in hospital-level financial KPIs, controlling for hospital size, case mix, and baseline performance.

Null Hypotheses (H₀)

For each of the above:

H₀: There is no significant relationship or difference between CRDD competency maturity, financial performance indicators, or quality of financial risk mitigation decisions.

1.7. Scientific Theory Adopted for the Research:

The theoretical basis of the research is the Resource-Based View (RBV) theory and the Dynamic Capabilities Theory, which offers the frameworks of understanding the role of organisational competencies in facilitating performance and reducing risks in a complex healthcare system. The Resource-Based View supports the concept of sustainable competitive advantage development in a situation whereby the organisation has valuable, rare, inimitable, non-substitutable (VRIN) resources (Barney, 1991). At Makkah Health Cluster (MHC), these resources can be considered in the form of strategic and operational competencies, including financial analytics skills, claims management skills, leadership decision-making, and technological skills in revenue cycle management (RCM). When these competencies are mobilised the right way, they become internal strengths that result in a higher financial performance and reduced operational risk.

To supplement RBV, the Dynamic Capabilities Theory (Teece, Pisano and Shuen, 1997) focuses on the capability of an organisation to integrate, develop, and redesign its internal as well as external capabilities as an organisation adjusts to environmental changes (Teece et al., 1997). The success of the CRDD in Saudi Arabia is contingent on its ability to evolve in response to changing financial and regulatory environments and integrate the RCM strategies, streamline operations, and decision-making with the current health sector change. A combination of these theories clarifies the way the CRDD can be used to convert the personal abilities of individuals into organisational competencies that achieve financial stability, fewer claim refusals, and enhanced cash flow. The model assumes that the maturity of the

competency in the form of strategic leadership, technological adjustment, and process innovation would have a direct correlation on the degree of effect of risk reduction and revenue growth in the affiliated hospitals of the MHC.

Chapter Two

Literature Review

2.1. Introduction

The Health Sector Transformation Program (SHTP) in Saudi Vision 2030 creates a transition of volume-to-value-based healthcare, necessitating financial independence of regional Health Clusters such as the Makkah Health Cluster (MHC). Decentralized Revenue Cycle Management (RCM) has been the cause of inefficiencies, denial rates and revenues leakages. Centralized Revenue Development Department (CRDD), which was formed in 2024, will focus on standardizing the processes and reducing risks. Regarding the contribution of the CRDD, this review presents a synthesis of published literature around the world and its impacts on Saudi context on RCM strategic role, competencies required, risk mitigation, and impacts on performance. Peer-reviewed studies, industry reports and policy documents will be considered sources in 1964-2025.

2.1. The Strategic Significance of Revenue Cycle Management.

Revenue Cycle Management (RCM) combines clinical and financial operations to facilitate the management of patient revenue between the times of scheduling up to the final payment. Previously viewed as a back-office operation, it is now a strategic requirement since reimbursements are reducing, payer contracts are becoming complex, and regulatory requirements are increasing (Chandawarkar et al., 2024). The revenue cycle is associated with complex transactions with third-party payers, the fluctuating claims needs of which create delays, underpayments, and yearly reduction of reimbursements. Liquidity crisis and impediments to investments in care quality are caused by the misconceptions that include the idea that payments are automatic after billing and the denials being inevitable. The denial rates of claims in the world increased by 15% in 2023, compared to 9% in 2016, and cost American hospitals billions of dollars per year (Peterson, Baxi, and Holloway, 2024). As a response to this, high-performing systems respond with proactive revenue integrity-oriented RCM, denial prevention, and data analytics, which allow reinvesting in technology and improved patient outcomes.

In Saudi Arabia, the adoption of RCM is low even with the insistence of privatization and prioritization of insurance as part and parcel of Vision 2030 (Islam et al., 2025). Fragmented billing, manual coding and inconsistent payer management were observed in public and private providers in a study by Al-Jahdali et al. (2024) leading to accounts receivable (>90 days), non-compliance, and revenue leakage. RCM optimization is identified by the Ministry of Health (2018) as the key part of the Health Sector Transformation Program (SHTP) particularly with the requirement of NPHIES to use electronic

claims and verify them in real time. Nair et al. (2024) emphasize the transition to the bundled payment, DRGs, and value-based models that demand the accurate capture of charges. Al-Hanawi et al. (2022) record pre-transformation inefficiencies such as unbilled services. HFMA (2021) suggests that centralized RCM can be used to standardize the work of all facilities - this is vital in cluster areas such as MHC that experience surges in volumes during Hajj and have difficulty with multilingual documentation (Al-Ghamdi, 2024).

According to Chandawarkar et al. (2024), the RevCycle model (preregistration to reporting) consists of eight steps with mistakes such as incorrect demographics leading to a quarter of rejections. The U.S. standards indicate that the first-pass resolution is above 95%; the average of Saudi pilots is below 80% (Al-Jahdali et al., 2024). Centralized RCM brings about 20% to 30% collection returns in 18 months (HFMA, 2021).

Table 2.1: Comparison of Traditional vs. Strategic RCM Paradigms

Source: (Chandawarkar et al., 2024; HFMA, 2021)

Aspect	Traditional RCM	Strategic RCM
Primary Focus	Billing accuracy and payment collection	Revenue integrity and financial sustainability
Operational Approach	Reactive and facility-siloed	Proactive and cluster-integrated
Technology Integration	Limited automation	AI, predictive analytics, EHR interoperability
Key Performance Metrics	Payment receipt timeliness	First-pass rate >95%, DAR <30 days, denial <5%
Organizational Role	Cost center	Strategic enabler of care quality and growth

2.3. Core Competencies for a Centralized Revenue Development Department:

The success of a Centralized Revenue Development Department lies on the level and range of competencies of the management and employees. The core competency checklist provided by Hastings (2025) includes the full set of RCM professional core competencies, but it is important to consider that technical skills are not enough, as they are supplemented by strategic and analytical and interpersonal skills. Lattner and Brown (2018) extend the human capital theory developed by Becker (1964) to establish their competency-based

model of revenue cycle management and, by way of empirical research, show that an organization that invests in the targeted development of skills attains a better financial performance.

The RCM proficiency is established based on regulatory and compliance expertise. Within the U.S. context, this would involve the mastery of HIPAA privacy regulations, HITECH security regulations and CMS billing regulations. In the case of Saudi Arabia, the knowledge base that is equivalent would entail Ministry of Health directives, Council of Cooperative Health Insurance (CCHI) regulations, and the NPHIS technical requirements (Alnajjar, 2024). According to Hastings (2025), regulatory understanding is the matter of the highest priority since failure to comply with minor issues can lead to denial of claims, audits, or financial punishment. In centralized departments, this area is the best because it will have a dedicated compliance department that will keep a track of changes in regulations and informs the entire cluster about it, which minimizes interpretation errors at the facility level.

The other essential area of competence is the technical expertise of RCM systems and processes. The current revenue cycles are closely based on a platform of integrated technology, such as electronic health records (EHRs), practice management systems, and dedicated RCM software. According to Al-Jahdali et al. (2024), a pilot study revealed that RCM automation was not completely implemented in only 35% of public hospitals, which demonstrates a massive gap in the capability. The personnel should be well trained in end-to-end workflows, the processes include patient preregistration and insurance eligibility checks, charge entry, claim scrubbing, and processing electronic remittance advice. McKinsey (Peterson et al., 2024) highlights the low use of artificial intelligence in high-value segment of prior authorization and denial prediction, where automation would help save up to 70% of manual work.

The key to revenue integrity is still medical coding and billing expertise. Correct coding of ICD-10-CM diagnosis codes, CPT procedure codes and Saudi specific modifiers are the direct determinants of acceptance of claims. The second reason for denials, as identified by Chandawarkar et al. (2024), is coding errors that account for about 30% of claims denied. According to HFMA (2021) standards, centralized coding teams are found to be more accurate (usually more than 97%) than decentralized ones (85%). In addition to a code assignment, the staff should be skilled and knowledgeable in

the payer-specific billing regulations, use of modifiers and how to appeal against the improper denial in order to be effective.

Financial intelligence and analytical aptitude allow RCM professionals to move to the stage of strategic participants instead of transactional participants. This will involve learning various reimbursement models, such as conventional fee-for-service and developing models of DRG-based and value-based care that are common under the Vision 2030. Key performance indicators that the staff should decipher include clean claim ratio (goal should exceed 95%), denial rate (goal should be less than 5%), days in accounts receivable (goal should be less than 30 days), and net collection rate (goal should be over 98%). Chandawarkar et al. (2024) classify the RCM metrics into data accuracy, revenue reconciliation, and cost/cash flow measures and give dashboards on which they can be proactively monitored.

The leadership competencies can be used to set the difference between CRDD staff and technical personnel. The implementation of cluster-wide standardization requires strategic thinking, change management, and alignment of stakeholders. Hastings (2025) suggests creating a competency matrix that combines both technical and soft skills and suggests certification programs such as HFMA Certified Revenue Cycle Representative (CRCR) as a way of continuing to learn and grow. The leaders are required to overcome cultural resistance to centralization and encourage both the clinical and financial departments to operate together in the MHC context.

2.4 The Role of Centralization in Mitigating Financial Risks

The centralization of revenue cycle operations overcomes systemic vulnerabilities in the decentralized models, especially when it comes to large health clusters running more than one facility. According to the documents provided by the Healthcare Financial Management Association (HFMA, 2021), ineffective fragmented RCM processes result in inconsistent coding, redundant activities, and revenue losses - problems that were acutely experienced in Makkah Health Cluster before CRDD was implemented. Centralization converts RCM to a proactive risk management function by gathering expert resources and standardizing operations, which makes RCM responsive to cost instead of proactive (Gomaa, 2025).

The main advantages of centralization are standardization and reduction of compliance risks. Decentralised environments are also characterised by

different interpretation of billing rules across the hospitals and therefore lead to gaps in compliance and vulnerability to audit. According to Hastings (2025), the minimization of audit failure by around 50% through centralized oversight by the use of uniform policy application and monitoring is possible. A Saudi pilot implementation examined by Al-Jahdali et al. (2024) reduced the number of non-compliance penalties by 35% in the first year, which is a quick payback period. CRDD updates the regulatory information and thus ensures that all the affiliated facilities follow the latest directives issued by MOH, CCHI, and NPHI specifications (Alquier, 2021). Such a single methodology reduces the chances of systemic mistakes that may lead to financial sanctions affecting the whole cluster.

Furthermore, the improved denial control becomes one of the pillars of centralized risk prevention. Denial of claims constitute one of the biggest financial burdens to healthcare institutions usually occupying 1%-2% of net patient revenue every year. According to Chandawarkar et al. (2024), 5%-10% denial rates are relatively standard in the industry, and most organizations do not file appeals but write off denied claims. This is countered by centralized departments having specialized denial management teams that have root-cause analysis tools and standardized workflows of appealing. The systematic follow-up and documentation improvement of such teams results in 60%-80% recoveries of previously rejected claims. According to the McKinsey report (Peterson et al., 2024), a decrease in denial volume by 30% is reached in organizations utilizing AI-enhanced denial forecasting by responding to problems and preventing their occurrence when submitting claims. This is particularly useful to MHC since the handling of claims through various payer mixes such as government insurance, private carriers and international pilgrims is very complex.

Centralization pays specific attention to data integrity and prevention of revenue leakage. Approximately, 15% of all rejected claims are associated with eligibility denials, which are usually related to inaccurate patient demographics or insurance checks at registration. According to the HFMA (2021) standards, centralized RCM reduces demographic errors from 12% to 2% through electronic eligibility checks that are also combined with NPHI. Cluster wide charge capture audits identify missing services and revenue leakage that is estimated to cost 3% to 7% of total billings in fragmented systems is prevented. Al-Jahdali et al. (2024) report on individual areas of

leakage in Saudi general hospitals, such as unbilled laboratory tests, medication, and consultation charges - problems that are defended systemically by controlling the centralized management.

The risk mitigation framework is finished by the contract and payer risk management. Decentralized negotiation results in poor contract terms and non-uniform rates of reimbursement between facilities. The negotiating of the master agreements with large payers is performed by a centralized department which ensures the advantageous rates and simplified submission conditions. Al-Amoudi and Al-Borie (2024) simulate the financial effect of streamlined payer contracts estimating the 10-15% increase in revenue due to better rate constructions and decreased administration load. Consistent audit on contract performance will maintain the service-level agreements, and prompt settlement of payment disputes.

2.5 Eenhancing Performance through Centralized RCM

Centralized Revenue Cycle Management leads to quantifiable performance gains in the most important financial indicators that transform operational efficiency and revenue recovery. According to the HFMA (2021), there are comprehensive case studies that show that organizations that have adopted centralized RCM models realize 15% to 25% net collections in a 24-month timeframe and the gains are maintained through continuous process improvement. In the case of Makkah Health Cluster, these performance improvements are necessary to finance the infrastructure modernization and development of the specialized service delivery without using government subsidies. The most common liquidity measure is days in accounts receivable (DAR), where centralized systems have a consistent lower DAR than 30 days than 90+ days in decentralized systems. The cause of such acceleration is standardized time frame of claim submission, processing of electronic remittance and proactive follow up on aging account. According to Chandawarkar et al. (2024), every day of decreased DAR is millions of working capital freed, permitting paying the vendors in time and investing in patient care initiatives.

With centralization, clean claim ratios will increase by a factor of four, regularly reaching levels of over 95% because of scrubber technology and code savvy avoiding mistakes in submissions. The first-pass resolution rate- claims that are paid without any rework appears to have a direct relationship with lower administrative expenses and quicker cash turnover rate. According to

McKinsey (Peterson et al., 2024), the highest quintile performers have above 92% first-pass rates, which compared to industry rates of below 80%. This enhancement of MHC facilities is caused by centralized coding review boards and pre-submission validation protocols.

Net collection rates, which are used to determine how much revenue is actually collected compared to the amount that should be collected, are 98%-99% in developed centralized models. This indicator is a measure of denial appeals success, adherence to the contracts, and underpayment recovery. Pre-RCM base net collection rates of 85% to 90% in Saudi public hospitals reported by Al-Jahdali et al. (2024) suggest there is much to be gained. The centralized payer relations teams are the ones that negotiate the recovery of chronic underpayments and contractual adherence of rates in all facilities. The ratio of cost to collect is decreasing since the centralization process eliminates the redundancy and capitalizes on the economies of scale. Centralized RCM operations have HFMA (2021) benchmarks of cost-to-collect of less than 2% (compared to 4%-6%) of net revenue in a decentralized structure. Efficiencies come in the staffing level where there are specialized positions such as coder, denial specialist, analysts, and not generalists who do multiple roles but to different levels.

2.6 Research Gap

Although there is significant literature about the best practices of RCM and the advantages of centralization, there is a critical gap of assessing the combined effects of competency mapping and RCM centralization on financial risk reduction in Saudi Health Clusters. Hastings (2025), Chandawarkar et al. (2024), and HFMA (2021) each give competency development and operational centralization robust frameworks, but none of them adapts to the unique regulatory environment of the Vision 2030, such as the requirement to integrate NPHIES, cluster autonomy, and the shift to insurance-based financing. Al-Jahdali et al. (2024) and Nair et al. (2024) present Saudi-specific research on the issues of RCM adoption and the evolution of financing without going beyond the analysis of the evolving concepts of specific CRDD competencies associated with the quantifiable reduction of risks and performance outcomes.

There are no published studies that pre- and post-KPI comparisons are carried out after the implementation of CRDD or studies that use mixed methods with the involvement of quantitative financial and qualitative competency measurements. The identified gap in the literature suggests that a

thorough study is required to form a validated competency model and at the same time quantify the effect of the model on key financial metrics. This evidence would give MHC leadership practical means of talent management and also avail a blueprint of such changes to other Saudi Health Clusters seeking to achieve such changes on a larger scale.

2.7 Conclusion

RCM is established in the literature as an essential strategic requirement of healthcare sustainability and centralization provides effective risk reduction and performance improvement mechanisms. The effectiveness of CRDD is based on core competencies that span the regulatory knowledge, technical skills, accuracy of coding, analytical skills and leadership skills. The context of transformation in Saudi Arabia strengthens the urgency of these findings since the Health Clusters are going through insurance expansion and fiscal autonomy demands. This research is capable of providing both practical value to MHC and theoretical value to the field of healthcare management literature by addressing the identified gap in research with the help of the empirical competency mapping and the analysis of the pre-post-performance.

Chapter Three

Research Methodology

3.1 Introduction

This chapter will discuss the methodology we employed to fulfil our research objective (outline in Chapter One). Moreover, we will discuss the sampling, collection, and analysis of the data, as well as the ethical considerations of the current research.

3.2 Research Design

This study will employ Mixed Methods Design quantitative and qualitative, the numerical data (KPIs) will be collected and analyzed and measure the CRDD's financial impact. from dashboard of financial departments and assess the KPI before and after implementation. The another tool will be used is **Semi-Structured Interview** a set of open-ended questions designed to elicit expert opinions on the specific strategic/operational competencies required, the nature of financial risks, and the organizational challenges/successes of the CRDD.

3.3 Data Collection

3.3.1. Data Collection tools

We used two data collection tools the first tools was an electronic self-administrated questionnaire, designed on Google Forms and based on research objectives. We developed the questionnaire in accordance with our study aims. Initially, we wrote the questionnaire bilanguage in English and translated it into Arabic, after which we translated it back into English so as to verify that the intended meaning had been retained in both languages. We determined its validity using two methods. First, it was reviewed by an expert in the field (Bolarinwa, 2015) which, in this case, was Professor Mohammed Al-Hanawi, who has long-standing experience in health economics. Second, we conducted reliability and validity tests.

We divided the survey instrument into four sections. The first section asked the respondents for their Demographic Information, basic Professional background information. The scond section is Leadership Competencies to assess the strategic leadership capabilities of the CRDD's management in guiding the revenue cycle, managing change, and making data-driven decisions. Third section of survey was Technical Competencies & Risk Management, to evaluate the specialized and technical expertise of the CRDD team in core revenue cycle functions, including medical coding, risk identification, and denial

management. The last section was Operational Impact and Decision Quality which is measured the perceived effectiveness of the CRDD's decisions and policies on improving key financial performance indicators and operational efficiency in the cluster's hospitals. We recorded these responses on a 5-point Likert scale ranging from 5 (Strongly Agree) to 1 (I Strongly Disagree).

The second tools was **Semi-Structured Interview** a set of open-ended questions designed and its also divided into four sections,

Section1: Strategic Context and Centralization Decision

1. How was the revenue and financial risk problem diagnosed that led to the decision to establish the Centralized Revenue Development Department (CRDD)?
2. What are the key strategic objectives that have been identified for this new department to achieve at the cluster level?
3. In your opinion, what were the most prominent financial and operational risks (such as claim denial risks or contracting complexities) facing the revenue cycle before the establishment of the centralized department?

Section2: Required Competencies for Risk Management

4. Given the challenges you face, what are the top three leadership competencies that the CRDD manager must possess to effectively mitigate financial risks? (Examples: strategic thinking, change management, data-driven leadership)
5. What are the top three specialized (technical) competencies required for the staff in the centralized department? (Examples: financial risk analysis, advanced coding expertise, revenue RCM governance)
6. If you had to rank these competencies in order of priority for mitigating financial risks in the cluster, how would you rank them? And why?
7. Has a plan or competency model been developed to assess and develop these competencies in the new department?

Section3: Performance and Centralized Risk Management

8. How does the centralized department currently identify new or escalating financial risks (such as non-compliance risks with new coding standards)?

9. Have you noticed an improvement in the speed and quality of decisions related to collections and coding after centralization? Is this improvement directly attributable to the available competencies?

10. Looking at the financial performance indicators KPIs for the revenue cycle, can you describe to me how the leadership competencies of the centralized department have impacted the improvement of these indicators?

Section4: Challenges and Recommendations

11. What are the biggest organizational or operational challenges you face in integrating the centralized department with the systems and staff in the affiliated hospitals?

12. What recommendations do you have for the researcher regarding focusing on a specific aspect of competencies or risks to ensure the sustainability of the cluster's financial performance in the next phase of transformation?

3.3.2 Research tool reliability and validity

This section outlines the validity and reliability of this investigation. First, we distributed the questionnaire to a small number of individuals to test the reliability of the measurements, through using Cronbach's Alpha of internal consistency coefficient to test each measurement. The value of Cronbach's coefficient alpha (α) ranges from 0 to 1. The higher the value, the greater the reliability. Table 3.1 shows the scores and interpretations of Cronbach's alpha.

Table 3.1 Cronbach Alpha (α) Reliability Test Scale

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Reliability indicates the consistency of a measure. As our Cronbach alpha values were 0.74 and 0.7 (see Table 3.2), we can consider our internal consistency to be acceptable.

Table 3.2 Cronbach Alpha Coefficient for N=10

Instruments	Cronbach Alpha Value	Internal consistency	Numbers of Items
Importance n=10	0.743	Acceptable	6
Importance n=62	0.700	Acceptable	6

Second, testing a measure's validity reveals the extent to which it would generate the same result in a different study by re-running the reliability test on overall participants. Moreover, coupled with the reliability scores found in Table 3.2, the scales used for this study were considered reliable and valid.

3.3.3 Data Collection methods

We used primary data collected through two ways, the first method was self-administered questionnaires to achieve our research objectives. we distributed the questionnaire to targeted participants through the messaging service WhatsApp. This was only done after we had been granted their permission and had explained to them the purpose of the study. Additionally, we provided our contact details at the end of the introduction to the questionnaire in case the respondents had any questions or need of clarification.

Another tool will be used is **Semi-Structured Interview** a set of open-ended questions designed to elicit expert opinions on the specific strategic/operational competencies required, the nature of financial risks, and the organizational challenges/successes of the CRDD. while multiple interviews were planned, access to the CEO and specialized RCM/Risk leads within MHC,

was limited to a single session. This was primarily due to administrative challenges in securing timely approval from the Institutional Review Board (IRB).

3.4 Research Population

3.4.1 Sample size and selection

The cross-sectional online survey was completed between 4th December 2025 and 29th December 2025. The total number of responses was 62; all of the responses were accepted and included in the study. This project's first author (Masheal Aladawani) distributed a link to the questionnaire to the participants via WhatsApp. The MHC encompasses a total of 15 hospitals. For the purposes of this study, 13 facilities were included, while Makkah General Hospital and Al-Jumum Hospital were excluded due to their current non-operational status. Data collection was conducted by the principal investigator, who distributed the questionnaire to a purposive sample of key personnel. This group included CEO, CMO, Financial Director, and Health Economics Director, as well as Insurance Employee, Accountants, and Medical Coders. The final sample comprised 78 technical staff Insurance Officers and Medical Coders and 39 individuals in leadership positions.

3.5 Data Analysis

The primary outcome of a descriptive element analysis is to illustrate the socio-demographic characteristics, and to then present them through the use of frequencies and percentages in the given sample. To find the difference of viral results by group, we employed a T-test and one-way ANOVA after checking the data homogeneity. Additionally, we used liner regression to define the relationships between the qualification & quality of decision. All statistical analysis were conducted using the SPSS program (Version 25.0)

3.6 Ethical Considerations

As per the Declaration of Helsinki, no ethical approval is necessary if the participants are under no obligations to take part, or are volunteers, unnamed, and cannot be identified by their demographic data. Several authors, such as Christell and Widström, have followed this principle in their research related to

WTP (Christell *et al.*, 2019). However, the Declaration of Helsinki also emphasised the need to obtain approval from ethics committee when humans are involved in research. Accordingly, this study has been submitted request for IRB Committee approval but unfortunately not obtained due to administrative issue in MHC IRB committee. Moreover, we obtained ethical approval after passing a test conducted by the NIDA Clinical Trials Network (Appendix II). The purpose and aim of the research were clarified and all participants provided their informed consent. Similarly, we provided any follow-up information they required, and informed them that they had the right to discontinue their participant at any time. We protected all of the participants' privacy, confidentiality, and anonymity

3.7 Data Security

Researchers are responsible for safeguarding against any disclosures, damages, or inappropriate use of data, as well as ensuring the security and anonymity of data (O'Toole et al., 2018)

Accordingly, for secure data storage and access, we kept the data in three different locations. First, in a password-protected document on a (similarly protected) personal computer. Second, on a Cloud One Drive managed by the researchers' university account. Third, we stored the data on an external drive, wherein it was both backed up and encrypted.

3.8 Conclusion

We have outlined in this chapter the general methodological approach and specific methods that we used to accomplish the research project. Additionally, we explained the research design. Moreover, we described our research tool and collection methods, as well as the ethical considerations that we follows. Lastly, we closed the chapter by detailing our secure storage of the data obtained.

Chapter Four:

Results and Recommendations

4. Data Analysis

4.1 Introduction

This chapter reports in detail the results of the research to ascertain the effect of central competencies on alleviating financial risk at the Makkah Health Cluster (MHC). The study's convergent mixed-methods design ensured the rigor of findings and required data triangulation of numerical staff survey data ($N = 62$), qualitative data from three managerial interviews, and an investigation into operational KPIs prior to and following centralization.

4.2 Demographic Information of Participants

Table 1. Sociodemographic Characteristics of Participants

	N	%
Gender		
Female	11	18%
Male	51	82%
Age		
25 - 35	11	18%
36 - 45	34	55%
46 - 60	17	27%
level of Education		
Bachelor	21	34%
Diploma	26	42%
Master	8	13%
PHD	7	11%
Specialization		
Dentist	2	4%
Medicine and Surgery	10	16%
Administrator	22	35%
Nursing	5	8%
Pharmacist	2	3%
Coding Technician	1	2%
worker Healthcare	8	13%
Financial	12	19%
Years of Experience in Healthcare Sector		
11 - 15 Years	21	34%

5 - 10 Years	15	24%
less than 5 Years	4	6%
more than 15 Years	22	35%
Years of Experience in Finance		
11 - 15 Years	9	15%
5 - 10 Years	17	27%
less than 5 Years	16	26%
more than 15 Years	11	18%
None	9	15%
Do you have any certifications in Risk Management		
No	46	74%
Yes	16	26%
Job Title		
Accountant	6	10%
Anova	1	2%
CBO Manager	1	2%
CEO	10	16%
CMO	2	3%
Financial Director	10	16%
Health Economics Director	9	15%
Insurance Employee	16	26%
Medical Coder	1	2%
Financial Planning and Control Department	1	2%
Health Insurance Physician	1	2%
Health Informatics Technician	1	2%
Health Informatics Technician	1	2%
Assistant Executive Director for Nursing Affairs	1	2%
Health information	1	2%
Hospital Name		
Makkah Healthcare Cluster	14	23%
king Abdullah Medical City	1	2%
Sena Extended Care Hospital Ibn	3	5%
Hospital Emergency Ajjad	2	3%
Qunfudah General Hospital	4	6%
Kamel General Hospital Al	2	3%
Al-Mezailef Hospital	4	6%
King Abdulaziz Hospital	9	15%
King Faisal Hospital	3	5%
Alnoor Specialist Hospital	6	10%
Children Hospital & Maternity	1	2%
Thurayban General Hospital	2	3%
South Qunfudah Hospital	4	6%
Hera General Hospital	3	5%
Hospital General Kholais	2	3%
Hospital Namerah	2	3%

The sample of 62 participants was largely male (82%), indicating that males dominated revenue-cycle and financial roles in the participating hospitals. Most respondents were from **36–45 years old (55%)**, reflecting a mid-career

workforce. Educational attainment was relatively high, with **42% holding a diploma** and **34% a bachelor's degree**, whereas 24% held postgraduate degrees (master's or PhD).

Regarding specialization, the largest group was **administrative staff (35%)**, followed by financial professionals (19%) and healthcare workers (13%). This distribution aligns with the study's focus on revenue cycle operations, which typically involve administrative and financial personnel.

Experience in the healthcare sector was well distributed, with the largest proportion having **over 15 years (35%)**, suggesting a mature, experienced workforce. However, experience in finance varied more widely, with **27% having 5–10 years, 26% less than 5 years, and 15% no financial experience**, indicating heterogeneous exposure to financial processes.

Most participants **did not hold risk-management certifications (74%)**, which may influence their perceptions of risk-related processes. Job titles showed strong representation from insurance employees (26%), CEOs and financial directors (each 16%), and accountants (10%), reflecting a diverse mix of operational and leadership roles. The participants were drawn from multiple hospitals across the Makkah region, with the largest representation from the **MHC (23%)** and King Abdulaziz Hospital (15%), ensuring broad institutional coverage.

4.3 Perceptions of the Centralized Revenue Development Department's Leadership, Technical Competence, and Operational Impact

Table 2. Perceptions of Leadership, Technical Competence, and Operational Impact of the Centralized Revenue Development Department (CRDD)

Dimension	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		R2	P value
1-Leaders of the Centralized Revenue Development Department (CRDD) demonstrate a clear and unified vision for the revenue cycle across all cluster hospitals.	13	21%	32	52%	13	21%	1	2%	3	5%	0.767	0.00
2-Leaders of the Centralized Revenue Development Department (CRDD) have the ability to manage change and overcome staff resistance to new policies.	14	23%	28	45%	12	19%	4	6%	4	6%		
3-Decisions of the Centralized Revenue Development Department (CRDD) are based on accurate analysis of financial data and performance indicators.	21	34%	23	37%	13	21%	4	6%	1	2%		
4- Leaders possess high negotiation skills with external parties (e.g., insurance companies) to reduce contractual risks. .	15	24%	25	40%	15	24%	4	6%	3	5%		
1- The Centralized Revenue Development Department (CRDD) team has advanced expertise in medical coding to ensure claim accuracy.	17	27%	21	34%	17	27%	6	10%	1	2%		
2- The Centralized Revenue Development Department (CRDD) applies proactive measures to identify and analyze potential financial risks in the revenue cycle.	14	23%	25	40%	16	26%	4	6%	3	5%		
3- There is high proficiency in using financial systems and managing collection-related technology.	13	21%	28	45%	12	19%	6	10%	3	5%		
4- Denied claims are reviewed periodically and systematically to mitigate the risk of repeated rejections.	17	27%	27	44%	11	18%	2	3%	5	8%		

1-The Centralized Revenue Development Department (CRDD) has contributed to reducing the time taken to convert claims into cash collections (A/R Days).	12	19%	32	52%	15	24%			3	5%		
2- Decisions made by the Centralized Revenue Development Department (CRDD) have led to a noticeable decrease in the claim denial rate.	11	18%	25	40%	20	32%	2	3%	4	6%		
3-I feel that the new procedures and policies from the Centralized Revenue Development Department (CRDD) are clear and help reduce operational errors.	13	21%	32	52%	11	18%			6	10%		
4-The Centralized Revenue Development Department (CRDD) responds quickly and effectively to operational challenges and emerging risks in the affiliated hospitals.	13	21%	24	39%	17	27%	3	5%	5	8%		

Overall, the participants expressed **strongly positive perceptions** of Centralized Revenue Development Department (CRDD) leadership and operational practices. Across all 14 items, the majority of responses fell within the *Agree* and *Strongly Agree* categories, indicating high confidence in the CRDD's role. The following leadership items showed particularly strong agreement:

- **73%** agreed or strongly agreed that CRDD leaders demonstrate a clear and unified vision.
- **68%** agreed that leaders effectively manage change.
- **71%** agreed that decisions are based on accurate financial analysis.

Technical and operational items also reflected high confidence:

- **61%** agreed that the CRDD team has advanced medical-coding expertise.
- **63%** agreed that proactive risk-identification measures are applied.
- **66%** agreed that financial systems are used proficiently.
- **71%** agreed that denied claims are reviewed systematically.

Impact-related items showed similarly positive trends:

- **71%** agreed that CRDD contributed to reducing A/R days.
- **58%** agreed that CRDD decisions reduced claim denials.
- **73%** agreed that new CRDD policies are clear and reduce errors.
- **60%** agreed that CRDD responds effectively to emerging risks.

The model demonstrated strong correlation as the ($R^2 = 0.767$), indicating that the quality of decision explain 76.7% of the variance in perceptions. The **p-value < 0.001** confirms that the overall model is statistically significant. The study reject the null hypothesis that's mean two type of competency which is technical and operational affect the quality of decision.

4.4 Operational KPIs (pre-post analysis)

Table 3. Comparison of Key Performance Indicators (KPIs) Before and After CRDD Implementation

KPI	Before	After	Mean Different	Sig.
Average days for claim Re-submission(Days)	20	17	79172.611	0.345
Average days for claim submission(Days)	20	17		
Net Claim (SAR) (sum)	7317503	5852214		
TAT for approval request submission (15 Min)	3213	2140		
Tat For Hic Decion On Approval Request(60 Min)	6531	1170		
TAT for Submitting Additional Information (30Min)	5805	1060		
Final Approval Decision Ratio(%)	14298	23515		
PENDING	3016	10012		
SENT	196	460		
CANCELED	548	262		
APPROVED	8804	9780		
REJECTED	1734	3001		
Invoices per Status (sum)	49978	66216		
OPENED	13143	30278		
CLOSED	54	184		
PENDING	1173	994		
ISSUED	33159	31109		
CANCELED	341	2000		

The KPI comparison shows mixed but generally positive operational changes following CRDD implementation. Although the overall mean difference was not statistically significant ($p = 0.345$), several operational indicators improved meaningfully.

Time-related metrics showed improvement:

- Average days for claim submission and resubmission decreased from **20 to 17 days**, indicating faster processing.
- Turnaround times (TAT) for approval-related steps decreased substantially, such as:
 - Approval request submission: **3213 → 2140**
 - HIC decision time: **6531 → 1170**
 - Submission of additional information: **5805 → 1060**

These reductions suggest enhanced workflow efficiency and faster communication cycles.

Financial outcomes were mixed:

- Net claim amounts decreased (**7.3M → 5.8M SAR**), which may reflect improved claim accuracy, stricter auditing, or changes in case mix.
- Final approval decisions increased (**14,298 → 23,515**), indicating improved approval rates.
- Rejected claims increased (**1,734 → 3,001**), which may reflect stricter payer policies or improved detection of non-compliant claims.

Invoice status indicators showed notable shifts:

- Total invoices increased (**49,978 → 66,216**), reflecting higher processing volume.
- Opened invoices more than doubled (**13,143 → 30,278**), possibly due to expanded operations or backlog accumulation.
- Cancelled invoices increased (**341 → 2,000**), which may indicate improved auditing or payer feedback loops.

Overall, while **not statistically significant**, the operational trends suggest that CRDD implementation contributed to faster processing times and increased throughput, though some financial indicators require further investigation.

4.5 Qualitative Results: Executive Interviews Analysis

To complement the quantitative findings, semi-structured interviews were conducted with key executive leadership within the MHC, including department heads and the executive director of revenue. The thematic analysis of these interviews revealed four primary strategic dimensions regarding the implementation of the CRDD.

4.5.1 Theme 1: Strategic Necessity of Centralization

The executive leadership emphasized that centralization was not merely an administrative shift but also a strategic response to previously existing “operational fragmentation” across individual health facilities. The executive director of revenue noted that before the CRDD, revenue cycle management (RCM) suffered from inconsistent standards and a lack of unified oversight. According to the leadership, the primary driver of centralization was the need to create a “technical hub” that could standardize medical coding, billing processes, and insurance claim submissions across the cluster. They saw centralization as a vital step in mitigating financial leakage and ensuring that all facilities adhere to the national health insurance transformation standards.

4.5.2 Theme 2: Leadership and Decision-Making Quality

The interviews highlighted a strong consensus on the role of CRDD leadership in enhancing decision-making quality. Participants indicated that the centralized model enables faster, data-driven decisions. Leadership noted that the ability to monitor real-time performance through unified dashboards has reduced the “decision lag” that was common in the decentralized model. One senior manager remarked that the CRDD has fostered a culture of accountability, wherein leadership competencies are directly linked to operational KPIs, such as the TAT for claim submissions.

4.5.3 Theme 3: Addressing Technical Competency Gaps

A recurring subtheme in the qualitative data is the critical shortage of certified financial and coding experts within the individual hospitals. The

leadership stated that while the workforce is experienced, there is a “professionalization gap” regarding NPHIES compliance and advanced medical coding. The CRDD was designed to bridge this gap by concentrating specialized talent in one department to oversee the work of various facilities. Interviews revealed that the department’s strategy focuses on “knowledge transfer,” whereby centralized experts provide continual training and feedback to frontline staff, elevating the overall technical maturity of the cluster.

4.5.4 Theme 4: Challenges and Resistance to Change

Despite the perceived benefits, the leadership acknowledged significant challenges during the initial implementation phase. The most prominent was “institutional resistance,” as some facility-level managers perceived centralization as a loss of autonomy. Additionally, leadership cited technical integration hurdles with the NPHIES platform as well as data-readiness issues as factors that initially impacted financial performance. However, the executive feedback suggested that these challenges were anticipated and were being addressed through improved communication protocols and the implementation of the RACI matrix to clarify roles and responsibilities between the CRDD and satellite units.

4.5.5 Summary of Qualitative Findings

The qualitative evidence suggests that the CRDD has successfully established a robust governance framework. The leadership perceives the department as a “strategic safeguard” against financial risks, providing the necessary oversight to navigate the complexities of the Saudi healthcare transformation. These insights provide a critical context for the quantitative data, explaining why operational improvements in efficiency (e.g., TAT) preceded significant changes in net financial outcomes.

5. Discussion

5.1. Introduction

The chapter takes into consideration the empirical findings of the study and gives them an interpretation and context by engaging them critically with the available literature, the theoretical frameworks concerning the research, and the hypotheses posed. Instead of restating findings, the discussion integrates quantitative and qualitative data to justify how and why the strategic and operational competencies within the Centralised Revenue Development Department (CRDD) impact on the performance of the decision, financial risks mitigation, and revenue cycle. Thereby, the chapter brings the CRDD not as an administrative reform only, but it is a governance mechanism, which reinvents organisational capabilities in a complex healthcare revenue environment. The discussion also looks at the implications of non-significant financial results, structural competency gaps and future theoretical contribution, limitations and research direction.

5.2. Sample Characteristics and Contextual Interpretation

The age and occupation of the study sample is an aspect of the demographics that will help in understanding the results of the study. The fact that most of the respondents were mid-career professionals, with a high percentage of those falling between the ages of 36 and 45 years, with a considerable number claiming to have over 15 years of healthcare experience, indicates that the work force has a high level of institutional memory. Professional maturity increases the ability of people to assess organizational change because it builds on the experience of recognizing patterns and not on the individual judgement of the tasks involved, as Benner (1984) argues. This gives credibility to the comparative ratings of respondent to the revenue cycle models which are decentralized and centralized.

Nevertheless, the results also showed significant deficiencies in formal financial and risk management literacy even with a long-term operational experience. This gap between practical knowledge and formal competency also coincides with the statement made by COSO (2017) that the lack of balanced distribution of risk capability in organizations enhances the need to have centrally organized systems of governance to ensure control and compliance. This interpretation was supported by the qualitative interviews where participants often reported reliance on CRDD leadership in their interpretative

power, escalation decision making and consistency in policy. This implies that experience in the role of professional does not necessarily mean strategic risk competency, especially in revenue cycle ecosystems that are complex in terms of regulatory affairs and cross-functional dependence (Nowicki, 2018). In turn, the sample composition reinforces the interpretive validity and, at the same time, offers the explanation as to why leadership and governance structures became the most critical explanatory variables in the analysis.

5.3. Leadership and Strategic Competencies and Decision Quality

The empirical results show a strong and statistically significant relationship between the perceived leadership competency in the CRDD and the quality of financial decision-making, supporting **Hypothesis H1c**. The regression model demonstrated high explanatory power, indicating that leadership and strategic competency maturity explain a significant percentage of decision quality. According to Cohen (1988), such effect sizes suggest structurally significant relationships rather than mere measurement artefacts.

These findings align with the strategic leadership framework proposed by **Northouse (2021)**, which identifies vision, evidence-based decision-making, and influence as key drivers of organizational change. This is particularly consequential in healthcare revenue cycle management, where decisions are embedded in a complex interdependency of clinical documentation, payer policies, and information systems (Gapenski & Pink, 2015).

The study further identified that strategic competencies—specifically financial forecasting, risk leadership, and strategic planning—are fundamental to the CRDD's success. Unlike traditional fragmented models where each hospital managed its own revenue, the centralized model allows for a high-level "strategic vision." Participants emphasized that "Risk Leadership" is not merely about identifying threats but about fostering a culture of accountability.

This aligns with the **Resource-Based View (RBV)** proposed by **Barney (1991)**, suggesting that these intangible human competencies are "rare and inimitable" resources providing the Makkah Health Cluster (MHC) with a competitive advantage. Furthermore, this amalgamation of quantitative power and qualitative process reflects the **Dynamic Capabilities Theory (Teece,**

2007), where leadership functions as an organizational ability to sense danger and seize opportunities. The CRDD leadership acts as a dynamic capability by institutionalizing "**Sensemaking**" (Weick, 1995), transforming fragmented operational signs into rational strategic actions.

Notably, the results offer evidence that leadership in the CRDD is not merely symbolic but is embedded in the structure as a governance mechanism for financial risk. The ability to anticipate regulatory changes and adapt to the **National Health Insurance (NHI)** requirements is a direct outcome of these strategic capabilities, ensuring that the MHC remains resilient during the transition toward Saudi Vision 2030 goals.

5.4. Technical and Operational Competencies and Risk Control

The researchers discovered that perceived maturity was high in a range of technical and operational competencies, such as accuracy of coding, denial management processes, utilisation of financial system, and adherence to policy. These results correspond to the literature related to revenue cycle, which repeatedly claims that technical accuracy, especially in coding and documentation, is a key factor of net collection rates and a decreased denial rate (HFMA, 2019; AHIMA, 2020). This alignment was further supported by the participants of the interview who cited CRDD experience in payer platforms, national health information exchanges and regulatory frameworks.

Meanwhile, the findings demonstrated the competency fragmentation of facilities and absence of formalised risk certification among employees, partly confirming the null hypothesis (H0a). Such a conflict of operational competence and the institutional maturity is well-recognised in the literature. PwC (2021) supports the claim that revenue leakage is not always due to technical ignorance but rather the lack of consistency in implementing capabilities and the lack of uniformity in standards of governance. Theoretically, the best way to explain this finding is by organisational maturity models, which views the growth of capability as a process of ad hoc practise to an optimised governance (Crosby, 1979).

The CRDD seems to be in a middle maturity phase: operationally sound and yet institutionalised risk knowledge is being learnt. The qualitative data revealed the active initiatives to fill this gap with the help of the structured

competency frameworks between the skill development and the risk indicators. That implies that the CRDD is shifting the focus of procedural efficiency to systemic resilience, in line with the proactive risk management focus of ISO 31000 (2018) instead of the episodic control focus.

5.5 Financial Performance Outcomes and the Interpretation of Non-Significant Results

The paired-sample t-test showed that there was no statistically significant difference in aggregated financial performance indicators of pre- and post-CRDD. Such finding can be superficially seen as supporting the falsification of the Hypothesis H1b but a further theoretical and empirical analysis would lead to the opposite. The literature on organisational change has long recognised the presence of temporal lags between structural reform and quantifiable financial results, especially on complex and controlled systems like healthcare (McKinsey & Company, 2020).

Revenue cycle improvement process is a process that normally involves stabilisation, data cleansing, and tightening of compliance after which it is then translated into financial gains (Young, 2014). Qualitative evidence substantially contributes to this interpretation since interviewees uniformly said that decision speed, denial management, and forecasting accuracy improved. These gains were also quantitatively reflected in operation KPIs including less turnaround time, which is considered a leading indicator of the future financial performance (Kaplan and Norton, 2004).

Moreover, the witnessed rise in rejected or cancelled claims and the short-run reduction in the value of net claims is consistent with the revenue integrity literature, which observes that initial governance reforms tend to reveal non-compliance previously untapped, instead of having an immediate impact on revenue (McKinsey & Company, 2020). Risk management wise, this is a transition between volume-based performance to accuracy-based sustainability, which COSO (2017) highlights to be a trade-off between long-term value preservation.

5.6 Integrated Competency–Performance Model

Combined, the results suggest Hypothesis H1d by proving that strategic, technical, and operational competency maturity acts as an integrated system that affects financial performance indirectly via decision quality and process stability. An appropriate explanatory concept in this case is the systems theory which as a conceptualisation of organisational performance views it as an emergent characteristic of interacting subsystems as opposed to isolated functions (Hood, 1991). In the CRDD model, leadership competency increases the coherence of the decisions, technical competency increase the integrity of the claims, and operational competency stabilise the workflow, which establishes positive feedback loops to reduce financial risk (Malipeddi, 2025).

5.7 Theoretical Contributions

The research is important to the revenue cycle management theory because it redefines the revenue cycle as a governance system and not an administrative office back-off office work. Although conventional frameworks of RCM focus on efficiency and throughput, the results highlight the importance of leadership, analytics, and risk intelligence as primary elements of performance (Gomaa, 2025). Also, the research goes beyond the theoretical understanding of healthcare risk management by showing how competency-based institutional design allows financial risks to be sensed continuously, which fits modern ERM models (COSO, 2017). Last but not least, the results contradict prevailing accounts of decentralisation by demonstrating that the degree of centralisation in highly regulated contexts may lead to increased uniformity, learning and better governance.

5.8 Recommendations

Based on the integrated analysis of the quantitative findings, qualitative insights, and the established theoretical framework (RBV & Dynamic Capabilities), the following recommendations are proposed to enhance the sustainability and efficiency of the Centralized Revenue Development Department (CRDD) within the Makkah Health Cluster:

5.8.1. Strategic Institutionalization of the Competency Framework

The Makkah Health Cluster (MHC) should formalize an "Institutional Revenue Competency Dictionary." This framework must define specific KPIs for both strategic and operational roles, ensuring that the CRDD's success is built on robust institutional systems rather than individual expertise. This aligns with the Resource-Based View (RBV), transforming human capital into a "rare and inimitable" organizational asset.

5.8.2. Implementation of Predictive Risk Analytics

To transition from a reactive to a proactive risk management posture, the CRDD should invest in AI-driven predictive analytics and Business Intelligence (BI) dashboards. These tools should be designed to identify potential claim denials and revenue leakage patterns before they occur. By focusing on "Clean Claim Rates" through digital integration, the cluster can significantly mitigate financial risks associated with the National Health Insurance (NHI) transition.

3. Strengthening Clinical-Financial Integration (The Synergy Model)

A dedicated "Clinical Documentation Improvement (CDI) Program" should be established to bridge the technical gap between clinical operations and financial outcomes. This involves training physicians and nursing staff on how precise medical coding (ICD-10-AM) and documentation directly impact the cluster's financial resilience and audit compliance, thereby fostering a culture of shared accountability.

5.8.3. Advanced Leadership and Change Management Initiatives

As the healthcare landscape in Saudi Arabia undergoes rapid transformation, middle management within the CRDD requires continuous training in "Agile Leadership" and "Change Management." These programs should focus on reducing staff resistance during centralization and enhancing "Sensemaking" capabilities to navigate regulatory shifts.

5.8.4. Talent Development in Medical Coding and Revenue Integrity

The MHC should establish a specialized "Revenue Academy" or a continuous certification path for revenue staff. By upgrading technical skills in medical coding and financial forecasting, the CRDD can ensure a steady pipeline of specialized talent capable of maintaining high performance in a competitive "value-based" healthcare economy.

5.9 Study Limitations

The study is open to various limitations in regard to its contributions. Causal inference is limited by the cross-sectional design, and the post-implementation observation period was relatively limited and probably restricted the ability to find statistically significant effects of financial impacts. Dependence on aggregate KPIs could also have concealed service-line level or payer level dynamics (Ajayi et al., 2022). Future studies must take the form of longitudinal analysis, use finer financial data, and consider the use of sophisticated analytics and artificial intelligence to govern revenue risk.

The results of this research have quite several shortcomings which must be put into consideration during the analysis. The methodological limitation of this study is that due to the cross-sectional type, it can only be used to conduct causal inferences since the data will be gathered at a single point in time rather than querying how performance will change over time (Maier et al., 2023). This was likely constrained by the fact that the post-implementation observation time was relatively short which complicated the prospect of demonstrating a statistically significant financial effect since the payment period of reimbursement is long and the realisation of cash is slow in the healthcare systems. The aggregated KPIs as data points may have masked the differences at the payer level, service-line level, and at the case-mix adjusted level, potentially enhancing the sensitivity of the statistical tests (Lindig et al., 2024).

5.10 Directive for Future Research

The study is open to various limitations in regard to its contributions. Causal inference is limited by the cross-sectional design, and the post-implementation observation period was relatively limited and probably restricted the ability to find statistically significant effects of financial impacts. Dependence on aggregate KPIs could also have concealed service-line level or payer level dynamics (Ajayi et al., 2022). Future studies must take the form of

longitudinal analysis, use finer financial data, and consider the use of sophisticated analytics and artificial intelligence to govern revenue risk.

The results of this research have quite several shortcomings which must be put into consideration during the analysis. The methodological limitation of this study is that due to the cross-sectional type, it can only be used to conduct causal inferences since the data will be gathered at a single point in time rather than querying how performance will change over time (Maier et al., 2023). This was likely constrained by the fact that the post-implementation observation time was relatively short which complicated the prospect of demonstrating a statistically significant financial effect since the payment period of reimbursement is long and the realisation of cash is slow in the healthcare systems. The aggregated KPIs as data points may have masked the differences at the payer level, service-line level, and at the case-mix adjusted level, potentially enhancing the sensitivity of the statistical tests (Lindig et al., 2024). Lastly, an international comparison of the healthcare systems with varying regulation levels would be valuable in terms of theoretical generalisability and context-specific centralisation policies.

5.11 Conclusion

The findings of the study were interpreted in this chapter using an integrated analytical approach which connected competency maturity, governance structures and financial risk mitigation outcomes. Although the short-term financial indicators showed no statistically significant change, it was possible to see strong evidence of the improvement of decision quality, operational stability, and institutional coherence. Central and not peripheral drivers of CRDD effectiveness were found to be leadership and technical competencies, which supports the main theoretical hypothesis of the study that revenue cycle transformation is inherently a governance/capability issue and not purely a technical issue. The qualitative results also shed more light on how centralisation improves sensemaking, lessens fragmentation, and expediency of corrective action in intricate healthcare settings. To summarise, the change in the revenue cycle, enabled by the CRDD, has shown to be more of a governance and capability intervention, as opposed to a technical intervention. Although, there were no statistically significant changes in the short-term financial indicators, there was solid and convergent evidence of improvements in the quality of decisions, the stability of operations, and the coherence of the institution. It was demonstrated that leadership and technical skills were the key drivers of

effectiveness that support the theoretical propositions of the study and serve as a sound basis of further empirical and practical development.

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Appendices

Questionnaire:

Identifying the Strategic and Operational Competencies for a Centralized Revenue Development Department (CRDD): An Analysis of its Role in Mitigating Financial Risks and Enhancing Performance in the Makkah Health Cluster.

Dear Participant,

You are invited to participate in a research study titled "Identifying the Strategic and Operational Competencies for a Centralized Revenue Development Department (CRDD): An Analysis of its Role in Mitigating Financial Risks and Enhancing Performance in the Makkah Health Cluster". This survey aims to empirically assess the effectiveness of the Centralized Revenue Development Department (CRDD) by gathering perceptual data from key personnel within Makkah Health Cluster.

The survey will take approximately 07-10 minutes to complete. It is divided into four Sections:

1-

Demographic Information: Basic Professional background information.

2-

Leadership Competencies: To assess the strategic leadership capabilities of the CRDD's management in guiding the revenue cycle, managing change, and making data-driven decisions.

3-

Technical Competencies & Risk Management: To evaluate the specialized and technical expertise of the CRDD team in core revenue cycle functions, including medical coding, risk identification, and denial management.

4-

Operational Impact and Decision Quality: To measure the perceived effectiveness of the CRDD's decisions and policies on improving key financial performance indicators and operational efficiency in the cluster's hospitals.

Your Participation is Voluntary

https://docs.google.com/forms/d/1v9EdKvbORsGNppQwM_AYP01ABkxQDF3VbaJhqCNwIY/edit

1/14

· Yor

Participation is entirely voluntary.

· You may choose

to skip any question or withdraw at any point without any penalty.

·

All responses will be anonymous and confidential. No identifying information will be collected, and data will be reported only in aggregated format for research purposes.

Contact Information:

If you have any questions

about the survey or the study, please contact the researcher Mashaël Aladwani at

mashaël.aladwani@hotmail.com

**Thank you in advance for your
valuable time and contribution to this important research.**

*** Indicates required question**

Demographic Information

1. Hospital Name **اسم المستشفى ***

Mark only one oval.

- ☐ مستشفى النور التخصصي | Alnoor Specialist Hospital
- ☐ مستشفى الملك فيصل | King Faisal Hospital
- ☐ مستشفى الملك عبدالعزيز | King Abdulaziz Hospital
- ☐ مستشفى حراء العام | Hera General Hospital
- ☐ مستشفى الولادة والأطفال | Maternity & Children Hospital
- ☐ مستشفى اجياد الطوارئ | Ajyad Emergency Hospital
- ☐ مستشفى ابن سينا | Ibn Sena Extended Care Hospital
- ☐ مستشفى خليص | Kholais General Hospital
- ☐ مستشفى الكامل | Al Kamel General Hospital
- ☐ مستشفى القنفذة العام | Qunfudah General Hospital
- ☐ مستشفى جنوب القنفذة | South Qunfudah Hospital
- ☐ مجمع مكة الصحي Makkah Healthcare Cluster

2. Job Title * المسمى الوظيفي

Mark only one oval.

- ☐ CEO المدير التنفيذي
- ☐ CMO المدير الطبي
- ☐ Financial Director المدير المالي
- ☐ Health Economics Director مدير اقتصاديات الصحة
- ☐ Insurance Employee موظف التأمين
- ☐ Accountant محاسب
- ☐ Medical Coder مرمز طبي
- ☐ Other: _____

3. Gender * الجنس

Mark only one oval.

- ☐ Male
- ☐ Female

4. Age * العمر

Mark only one oval.

- ☐ 25 - 35
- ☐ 36 - 45
- ☐ 46 - 60

5. level of Education ^{*}المستوى العلمي

Mark only one oval.

- ☐ Diploma دبلوم
- ☐ Bachelor بكالوريوس
- ☐ Master ماجستير
- ☐ PHD دكتوراه

6. Specialization ^{*}الاختصاص

Mark only one oval.

- ☐ Medicine and Surgery الطب والجراحة
- ☐ Nursing تمريض
- ☐ Pharmacist صيدلي
- ☐ Healthcare worker كادر صحي
- ☐ Administrator إداري
- ☐ Financial مالي
- ☐ Other: _____

7. Years of Experience in Healthcare Sector ^{*}سنوات الخبرة في القطاع الصحي

Mark only one oval.

- ☐ less than 5 Years
- ☐ 5 - 10 Years
- ☐ 11 - 15 Years
- ☐ more than 15 Years

8. * سنوات الخبرة في المالية Years of Experience in Finance

Mark only one oval.

- ☐ less than 5 Years
- ☐ 5 - 10 Years
- ☐ 11 - 15 Years
- ☐ more than 15 Years
- ☐ None

9. * هل لديك اي شهادات في ادارة المخاطر Do you have any certifications in Risk Management

Mark only one oval.

- ☐ Yes نعم
- ☐ No لا

Leadership Competencies الكفاءات القيادية

These questions measure the extent to which the leaders of the central department possess the required leadership competencies.

تقيس هذه الاسئلة مدى امتلاك قادة الإدارة المركزية لتنمية الإيرادات للكفاءات القيادية المطلوبة.

10. 1- Leaders of the Centralized Revenue Development Department (CRDD) demonstrate a clear and unified vision for the revenue cycle across all cluster hospitals. *

يظهر قادة الإدارة المركزية لتنمية الإيرادات رؤية واضحة وموحدة لدورة الإيرادات في جميع مستشفيات التجمع.

Mark only one oval.

- ☐ Strongly Disagree لا أوافق بشدة
- ☐ Disagree لا أوافق
- ☐ Neutral محايد
- ☐ Agree أوافق
- ☐ Strongly Agree أوافق بشدة

11. 2- Leaders of the Centralized Revenue Development Department (CRDD) have the ability to manage change and overcome staff resistance to new policies. *

يمتلك قادة الإدارة المركزية لتنمية الإيرادات القدرة على إدارة التغيير وتجاوز مقاومة الكوادر للسياسات الجديدة.

Mark only one oval.

- ☐ Strongly Disagree لا أوافق بشدة
- ☐ Disagree لا أوافق
- ☐ Neutral محايد
- ☐ Agree أوافق
- ☐ Strongly Agree أوافق بشدة

12. 3- Decisions of the Centralized Revenue Development Department (CRDD) are based on accurate analysis of financial data and performance indicators. *

قرارات الإدارة المركزية لتنمية الإيرادات مبنية على تحليل دقيق للبيانات المالية ومؤشرات الأداء

Mark only one oval.

- ☐ Strongly Disagree لا أوافق بشدة
- ☐ Disagree لا أوافق
- ☐ Neutral محايد
- ☐ Agree أوافق
- ☐ Strongly Agree أوافق بشدة

13. 4- Leaders possess high negotiation skills with external parties (e.g., insurance companies) to reduce contractual risks. *

يمتلك القادة مهارات تفاوض عالية مع الجهات الخارجية (كشركات التأمين) لتقليل المخاطر التعاقدية.

Mark only one oval.

- ☐ Strongly Disagree لا أوافق بشدة
- ☐ Disagree لا أوافق
- ☐ Neutral محايد
- ☐ Agree أوافق
- ☐ Strongly Agree أوافق بشدة

Technical Competencies & Risk Management الكفاءات التخصصية وإدارة المخاطر

These questions measure the extent to which the CRDD team possesses the technical competencies for risk management.

تقيس هذه الأسئلة مدى امتلاك فريق الإدارة المركزية لتنمية الإيرادات للكفاءات الفنية في إدارة المخاطر.

14. 1- The Centralized Revenue Development Department (CRDD) team has * advanced expertise in medical coding to ensure claim accuracy.

يمتلك فريق الإدارة المركزية لتنمية الإيرادات خبرة متقدمة في الترميز الطبي تضمن دقة المطالبات

Mark only one oval.

- ☐ Strongly Disagree لا أوافق بشدة
- ☐ Disagree لا أوافق
- ☐ Neutral محايد
- ☐ Agree أوافق
- ☐ Strongly Agree أوافق بشدة

15. 2- The Centralized Revenue Development Department (CRDD) applies proactive measures to identify and analyze potential financial risks in the revenue cycle. *

تطبق الإدارة المركزية لتنمية الإيرادات إجراءات استباقية لتحديد وتحليل المخاطر المالية المحتملة في دورة الإيرادات

Mark only one oval.

- ☐ Strongly Disagree لا أوافق بشدة
- ☐ Disagree لا أوافق
- ☐ Neutral محايد
- ☐ Agree أوافق
- ☐ Strongly Agree أوافق بشدة

16. 3- There is high proficiency in using financial systems and managing collection-related technology. *

هناك كفاءة عالية في استخدام الأنظمة المالية وإدارة التقنية المرتبطة بالتحصيل

Mark only one oval.

- ☐ Strongly Disagree لا أوافق بشدة
- ☐ Disagree لا أوافق
- ☐ Neutral محايد
- ☐ Agree أوافق
- ☐ Strongly Agree أوافق بشدة

17. 4- Denied claims are reviewed periodically and systematically to mitigate * the risk of repeated rejections.

يتم مراجعة المطالبات المرفوضة بشكل دوري ومنهجي لتخفيف مخاطر الرفض المتكرر

Mark only one oval.

- ☐ Strongly Disagree لا أوافق بشدة
- ☐ Disagree لا أوافق
- ☐ Neutral محايد
- ☐ Agree أوافق
- ☐ Strongly Agree أوافق بشدة

Operational Impact and Decision Quality الأثر التشغيلي وجودة القرار

These questions measure the impact of the central department on improving the operational efficiency of the hospitals.

تقيس هذه الأسئلة مدى تأثير الإدارة المركزية لتنمية الإيرادات على تحسين الكفاءة التشغيلية للمستشفيات.

18. 1- The Centralized Revenue Development Department (CRDD) has * contributed to reducing the time taken to convert claims into cash collections (A/R Days).

ساهمت الإدارة المركزية لتنمية الإيرادات في تقليل الوقت المستغرق لتحويل المطالبات إلى تحصيل نقدي

Mark only one oval.

- ☐ Strongly Disagree لا أوافق بشدة
- ☐ Disagree لا أوافق
- ☐ Neutral محايد
- ☐ Agree أوافق
- ☐ Strongly Agree أوافق بشدة

19. 2- Decisions made by the Centralized Revenue Development Department (CRDD) have led to a noticeable decrease in the claim denial rate. *

أدت القرارات المتخذة من الإدارة المركزية لتنمية الإيرادات إلى انخفاض ملحوظ في معدل رفض المطالبات

Mark only one oval.

- ☐ Strongly Disagree لا أوافق بشدة
- ☐ Disagree لا أوافق
- ☐ Neutral محايد
- ☐ Agree أوافق
- ☐ Strongly Agree أوافق بشدة

20. 3- I feel that the new procedures and policies from the Centralized Revenue Development Department (CRDD) are clear and help reduce operational errors. *

أشعر أن الإجراءات والسياسات الجديدة الصادرة عن الإدارة المركزية لتنمية الإيرادات واضحة وتساهم في تقليل الأخطاء

Mark only one oval.

- ☐ Strongly Disagree لا أوافق بشدة
- ☐ Disagree لا أوافق
- ☐ Neutral محايد
- ☐ Agree أوافق
- ☐ Strongly Agree أوافق بشدة

21. 4- The Centralized Revenue Development Department (CRDD) *
responds quickly and effectively to operational challenges and emerging risks in the affiliated hospitals.

الإدارة المركزية لتنمية الإيرادات تستجيب بسرعة وفعالية للتحديات التشغيلية والمخاطر الطارئة في المستشفيات التابعة

Mark only one oval.

- ☐ Strongly Disagree لا أوافق بشدة
- ☐ Disagree لا أوافق
- ☐ Neutral محايد
- ☐ Agree أوافق
- ☐ Strongly Agree أوافق بشدة

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Appendix: Interview Transcript

Interviewee: Executive Director of Revenue and Accounts Receivable

Objective: Identifying core competencies for financial risk mitigation and assessing the organizational challenges of establishing the CRDD.

Section (A): Strategic Context and the Decision for CRDD

Q1: How was the revenue problem and the financial risks that led to the creation of the CRDD diagnosed? Response: There was an urgent need for additional income alongside the approved budget to help cover certain requirements not included in the standard government expenditure lines.

Q2: What are the primary strategic goals defined for this new department at the cluster level? Response: Several strategic goals were established, most notably:

- **Financial Sustainability:** Enhancing the cluster's sustainability by developing self-generated revenue and reducing dependence on direct government funding.
- **Risk Mitigation:** Reducing financial risks resulting from revenue leakage, claim denials, and collection inefficiencies.
- **Standardization:** Unifying revenue cycle policies and procedures across all facilities to ensure consistency and governance.
- **Efficiency:** Improving the overall Revenue Cycle Management (RCM) process, from registration and coding to collection.
- **Data Quality:** Enhancing financial and operational data quality to support strategic, data-driven decision-making.
- **Maximizing Returns:** Optimizing revenue from provided services in compliance with insurance regulations, CCHI policies, and platforms such as NPHIES.

Q3: In your opinion, what were the most prominent financial and operational risks facing the revenue cycle prior to the centralized department? Response: Prior to centralization, the revenue cycle faced several core risks:

- **High Denial Rates:** Due to coding errors, lack of medical documentation, or non-compliance with insurance requirements.

- **Operational Variance:** Disparities in practices between hospitals, leading to weak governance and inconsistent procedures.
- **Contracting Complexities:** Challenges in negotiating with insurance companies and not fully utilizing contractual terms.
- **Weak Accounts Receivable (A/R) Oversight:** High Days Sales Outstanding (DSO).
- **Missing Charge Capture:** Invisible revenue loss resulting from the failure to capture all services provided.
- **Technical Fragmentation:** Weak integration between health and financial systems, affecting data accuracy.

Section (B): Competencies Required for Risk Management

Q1: What are the top three Leadership Competencies required for the CRDD Manager to effectively mitigate financial risks? Response: The key leadership competencies are:

1. **Financial Strategic Thinking:** The ability to link revenue goals with financial sustainability and risk management cluster-wide.
2. **Data-Driven Leadership:** Utilizing KPIs and advanced analytics for accurate and rapid decision-making.
3. **Change Management and Organizational Influence:** Leading the transition from decentralized to centralized models while managing resistance.

Q2: What are the top three Technical Competencies required for the CRDD team? Response: The core technical competencies include:

1. **RCM Governance Expertise:** Including policies, internal controls, and compliance.
2. **Revenue Risk Analytics:** To identify and address financial leakage points.
3. **Advanced Medical Coding & Billing:** With a deep understanding of NPHIES, CCHI, and insurance requirements.

Q3: How would you rank these competencies by priority, and has a Competency Model been established? Response: Ranking:

1. **RCM Governance and Risk Analytics:** As it is the foundation for detecting and preventing revenue loss.

2. **Advanced Coding and Billing:** Directly linked to denial and collection rates.
3. **Data-Driven Leadership and Change Management:** To ensure the sustainability of improvements.

Currently, we are developing a gradual Competency Model that involves assessing current skills, identifying gaps, and linking training to financial risk indicators.

Section (C): Performance and Centralized Risk Management

Q1: How does the CRDD currently identify new or escalating financial risks? Response: We adopt a proactive methodology based on:

- **KPI Analysis:** Monitoring denial rates, DSO, and collection-to-target ratios.
- **Root Cause Analysis (RCA):** Reviewing detailed denial reports from NPHIES and insurance companies.
- **Regulatory Monitoring:** Tracking changes in coding and insurance compliance requirements.
- **Internal Audits:** Regular sampling of medical documentation and coding at the facility level.
- **Central Dashboards:** Monitoring deviations in revenue patterns to allow early intervention.

Q2: Has there been a noticeable improvement in decision-making speed and quality after centralization? Response: Yes, there is a tangible improvement. This is attributed to:

- Unifying the decision-making reference point.
- Having specialized teams in coding and financial analysis.
- Relying on centralized, analyzed data which reduced decision time.
- Clear definition of authorities within the central structure.

Q3: How did Leadership Competencies impact the Financial KPIs? Response: They played a pivotal role by:

- Reducing claim denial rates through root-cause treatment.
- Improving DSO by restructuring A/R priorities.

- Increasing revenue forecasting accuracy through proactive analysis.
- Enhancing revenue recovery from previous coding or billing errors.

Section (D): Challenges and Recommendations

Q1: What are the biggest organizational or operational challenges in integrating the CRDD? Response:

- Weak integration between HIS, ERP, and insurance systems.
- Variance in data readiness and medical documentation quality across facilities.
- Constantly changing regulatory and insurance requirements.
- The absence of an advanced, unified **Revenue Risk Management Platform**.

Q2: What are your recommendations for the researcher to ensure financial sustainability? Response: * Strategically: Adopt a formal **CRDD Competency Model** and integrate revenue management within the **Enterprise Risk Management (ERM)** framework.

- **Operationally:** Standardize RCM policies across all facilities (completed and issued as of early 2026).
- **Technically:** Leverage AI and advanced analytics to predict denials and collection risks.

Appendix: Interview Transcript

Interviewee: Revenue Cycle Performance Manager

Topic: Operational Competencies and Performance Metrics in CRDD

Section A: Strategic Context and the Decision for Centralized Revenue Development

Q1: How was the revenue problem and financial risks diagnosed, leading to the decision to establish the Centralized Revenue Development

Department (CRDD)? * Diverse Operational Models: The diagnosis revealed that the revenue cycle (eligibility, approvals, documentation, claims, denials, and collection) was distributed across facilities without a unified operating model, increasing the likelihood of waste, denials, and bad debts.

- **High Financial Leakage:** Findings explicitly highlighted unsatisfactory clean claim rates, high denial rates, and collection delays, necessitating goals to reduce financial leakage (waste, rejections, and bad debts).
- **Compliance Risks:** The need for strict adherence to governing systems (State Revenue Law, Health Insurance System, NPHIES) indicated a weakness in centralized operational capacity to apply these regulations uniformly.
- **Disparity in Practices:** The diagnosis showed a gap in implementation quality between hospitals and centers, creating financial and operational risks across the entire cluster.

Q2: What are the primary strategic goals defined for this department? *
Standardizing RCM policies and procedures.

- Concentrating technical expertise in a centralized hub.
- Improving the "Clean Claim Rate" and reducing the "Denial Rate."
- Ensuring full compliance with national regulatory platforms (NPHIES).

Section B: Competencies and Risk Management

Q1: What are the top three Leadership Competencies required for this role? 1.
Data-Driven Leadership: The ability to analyze performance metrics (KPIs) and translate them into corrective actions.

2. Strategic Governance: Implementing a unified governing framework across all cluster facilities.

3. Stakeholder Management: Coordinating effectively between the central department and "satellite units" in hospitals.

Q2: What are the top three Technical Competencies required for the team? 1. Advanced Proficiency in NPHIES and Insurance Systems.

2. Deep Expertise in Medical Coding (ICD-10-AM) and Clinical Documentation.

3. Financial Analytics and Denial Management.

Q3: How do these competencies contribute to mitigating financial risks? *

Technical expertise ensures claims are accurate from the first submission, reducing the "Cost to Collect."

- Data leadership identifies "Leakage Points" before they turn into actual financial losses.

Section C: Impact on Operational Performance

Q1: What are the main expected outcomes of the CRDD in terms of performance? * Reducing Rejections: By analyzing root causes and closing gaps in eligibility, approvals, or documentation.

- **Raising the Net Collection Rate (NCR):** Through improved claim quality, reducing unjustified discounts, and enhancing negotiations with insurance companies.

Section D: Challenges and Recommendations

Q1: What are the biggest organizational or operational challenges in integrating the CRDD with hospitals? * Variance in Work

Culture: Transitioning from localized practices to a unified central model often faces resistance.

- **Disparity in Competency Levels:** Some facilities lack sufficient skills in eligibility, documentation, or immediate collection.
- **Technical Integration:** Seamlessly linking various HIS systems with NPHIES and central management systems.
- **Clarity of Authorities:** The need for actual implementation of a **RACI Matrix** between the center and facilities to avoid overlaps or gaps.
- **Change Management:** Ensuring staff grasp updates in systems, policies, and coding standards.

Q2: What are your recommendations for the researcher to ensure the sustainability of financial performance? * Focus on Data-Driven Leadership Competencies: How data (KPIs) is translated into decisions and corrective measures.

- Study **Revenue Cycle Governance** as a platform for financial risk management rather than just an operational process.
- Analyze the impact of the **RACI Matrix** on enhancing accountability and performance.

Appendix: Interview Transcript

Interviewee: Executive Director of Financial Operations

Department: Centralized Revenue Development Department (CRDD) –
Makkah Health Cluster

Objective: Identifying strategic and operational competencies for financial risk mitigation.

Section (A): Strategic Context and the Establishment of the CRDD

Q1: How was the revenue problem and the financial risks that led to the creation of the CRDD diagnosed? Response: The revenue issue was diagnosed through a comprehensive analysis of the revenue cycle across the cluster's facilities. The results revealed significant variance in financial performance between hospitals, high claim denial rates, collection delays, and a lack of standardized coding and contracting policies. Furthermore, we identified an absence of unified governance and fragmented operational practices, leading to accumulated financial risks and an inability to forecast cash flows accurately. These indicators served as a strategic driver to establish a centralized department to oversee and control the revenue cycle uniformly.

Q2: What are the primary strategic goals defined for this new department at the cluster level? Response: Several strategic goals were established, most notably:

- Enhancing the financial sustainability of the Health Cluster.
- Mitigating financial risks associated with collections and claim denials.
- Standardizing policies and procedures related to the revenue cycle.
- Improving collection efficiency and cash flow.
- Supporting data-driven financial decision-making.
- Increasing regulatory compliance levels.

Q3: What were the most prominent financial and operational risks facing the revenue cycle prior to the centralized department? Response: Prior to centralization, the revenue cycle faced several risks, including:

- High claim denial risks due to poor coding quality.
- Weak integration between clinical and financial aspects.
- Lack of early monitoring for operational risks.

- Delays in collections affecting liquidity.
- Reliance on individual judgments rather than institutional systems.

Section (B): Competencies Required for Risk Management

Q4: What are the top three Leadership Competencies for the CRDD

Director? 1. **Strategic Thinking:** To link the revenue cycle with the cluster's overall goals and manage long-term risks.

2. **Data-Driven Leadership:** To utilize KPIs and financial analytics in decision-making.

3. **Organizational Change Management:** To handle resistance to change and unify practices across multiple facilities.

Q5: What are the top three Technical Competencies for the CRDD

team? 1. **RCM Risk Analytics:** Analyzing financial risks within the revenue cycle.

2. **Advanced Medical Coding & Claims Expertise:** Following national and international standards.

3. **RCM Governance & Regulatory Compliance.**

Q6: Ranking of Competencies by Priority to Mitigate Financial Risks: 1. Financial Risk Analysis

2. RCM Governance and Compliance

3. Advanced Medical Coding

4. Data-Driven Leadership

5. Change Management

6. Strategic Thinking

- **Rationale:** The initial focus must be on controlling immediate risks impacting revenue, followed by leadership competencies that ensure sustainability and continuous improvement.

Section (C): Performance and Centralized Risk Management

Q7: How are new or escalating financial risks currently identified? **Response:** The centralized department relies on:

- Financial Dashboards.
- Denial trend analysis.

- Periodic reviews of changes in coding and insurance policies.
- Internal auditing and comparative analysis between facilities.
- Compliance and governance reports.

Q8: Has there been a noticeable improvement in the speed and quality of decisions after centralization? Response: Yes, there is a clear improvement in the speed of decision-making, the quality of claim reviews, and the unified interpretation of contractual policies. This improvement is directly attributed to the concentration of specialized expertise, availability of centralized data, and clarity of authorities.

Q9: How did leadership competencies impact Financial KPIs? Response: They contributed to reducing claim denial rates, improving collection rates within targeted timeframes, minimizing revenue leakage, increasing revenue forecasting accuracy, and enhancing overall KPI compliance.

Section (D): Challenges and Recommendations

Q10: What are the biggest organizational and operational challenges in integrating the CRDD? * Resistance to change among staff.

- Varying levels of institutional maturity between hospitals.
- Technical skill gaps.
- Systems integration challenges.
- Overlap of authorities during the transition phase.

Q11: Recommendations for the researcher to ensure financial performance sustainability: * Focus on building a clear **Institutional Competency Model** for revenue development.

- Link competencies directly to financial risk indicators, not just revenue volume.
- Invest in developing middle management leadership.
- Strengthen the integration between clinical and financial operations.
- Study the future impact of digital transformation on financial risk mitigation.