

Healthcare Leadership for the Future: Building Sustainable Public Healthcare Systems with the HFSC Model

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Abstract

Original Research Article

Healthcare systems in the United States face persistent challenges in the areas of ensuring balance among key variables such as, financial sustainability, equity, and quality of care. This article introduces the Healthcare Financial Sustainability and Cost-Effectiveness (HFSC) model, which is a leadership centred framework developed for the purpose of strengthening the economic foundation of public healthcare in the United States. The model is made up of five key pillars; financial efficiency, resource allocation, leadership and governance, technology and data-driven insights, sustainability and resilience. Using a qualitative approach like the semi-structured interview method, 15 senior healthcare leaders were interviewed, with the data derived analyzed using the thematic data analysis. This study strives to explore how the HFSC model can be applied in the U.S healthcare systems with a view to addressing wastes and ensuring financial sustainability. Findings of the study indicated, that leadership culture, data-driven decision-making and value-based financing, as well as scenario-based resilience planning are essential for sustainable and result-yielding reforms in the healthcare systems in the U.S.

Keywords: Healthcare financing; Leadership; Sustainability; HFSC model; Financial efficiency; Resource optimization.

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INTRODUCTION

The healthcare system remains one of the most critical and foundational sectors worldwide, including in the United States, where its effective functioning necessitates sustained attention, commitment, and coordinated action among all stakeholders (Shi & Singh, 2022). The need for such vigilance is underscored by persistent and evolving challenges confronting healthcare systems in both developed and developing nations (Chowdhury & Ravi, 2022; Oleribe *et al.*, 2019). Among these challenges, healthcare financing has emerged as a particularly enduring and complex concern, consistently occupying the center of scholarly and policy discussions (Khan *et al.*, 2024). The increasing difficulty of maintaining financial sustainability further compounds the sector's fiscal challenges, especially in the context of the rapidly changing demands and structural pressures of the 21st century (Rafinda *et al.*, 2025; Kedia & Saxena, 2025; Adjagba *et al.*, 2025). In the United States, these financial pressures have become even more pronounced due to escalating operational

costs, variable service quality, inequitable distribution of resources, and the destabilizing influence of demographic transitions and recurrent global health crises (Niles, 2023; Sellers, 2024). Recent economic estimates reinforce the magnitude of these pressures, with U.S. healthcare expenditures reaching approximately \$4.8 trillion in 2023 representing nearly 18% of the nation's gross domestic product (Statista, 2025). Despite the substantial financial investment in the U.S. healthcare system expenditures that surpass those of other high-income nations health outcomes continue to raise significant concerns (Bradley *et al.*, 2017; Dickman *et al.*, 2017; Yedjou *et al.*, 2024). Although multiple reforms, including the Affordable Care Act (ACA), and various cost-containment policies have sought to strengthen and stabilize the sector, persistent inefficiencies and inequities remain deeply entrenched (Yedjou *et al.*, 2024; Wahab *et al.*, 2024; Dwyer *et al.*, 2024). Notably, resource allocation patterns continue to favor urban and resource-rich settings, often to the detriment of rural and underserved populations an

imbalance that has been well-documented in existing literature (Baciu *et al.*, 2017; Dickman *et al.*, 2017).

These structural disparities were further magnified during the COVID-19 pandemic, which exposed systemic weaknesses, overwhelmed health facilities, strained institutional budgets, and illuminated the fragility of the nation's healthcare infrastructure during periods of crisis. The evident disconnect between escalating expenditures and suboptimal outcomes underscores the urgent need for innovative, data-driven, and results-oriented models capable of strengthening the financial foundations of healthcare systems while advancing equity, accountability, and long-term resilience.

Problem Statement

The U.S. healthcare system is often characterized as paradoxical in both operation and performance, as it leads the world in healthcare spending yet continues to yield outcomes that lag those of peer nations (Blumenthal *et al.*, 2024). Despite unprecedented financial investment, substantial evidence points to persistent underperformance relative to comparable high-income countries. Central healthcare programs including Medicare and Medicaid are experiencing mounting fiscal pressures, with projections indicating that national healthcare expenditures may rise from 18% of gross domestic product (GDP) in 2023 to nearly 20% by 2030 (CMS, 2023). This sustained and forecasted escalation in costs raises profound concerns regarding long-term financial sustainability, with potential adverse implications for federal and state budgets. Ultimately, this trajectory threatens to further constrain accessibility and affordability of healthcare for millions of Americans.

Multiple efforts have been undertaken to mitigate inefficiencies and strengthen system performance. Initiatives such as value-based care reforms (Lewis *et al.*, 2023), along with substantial investments in digital health technologies including electronic health records, predictive analytics, and artificial intelligence have contributed to meaningful improvements in some areas (Vassolo *et al.*, 2021; Moro-Visconti & Quirici, 2020). Yet, these advancements have not fully resolved entrenched problems. A key factor underlying this persistent gap is the absence of a comprehensive, leadership-centered framework capable of integrating financial efficiency, resource optimization, technological innovation, governance, and system resilience. This deficiency became particularly visible during the COVID-19 pandemic, which exposed limited organizational preparedness and highlighted vulnerabilities in leadership, coordination, and long-term strategic planning (Walston & Johnson, 2024; Reynolds & Waldrop, 2024).

Considering these challenges, this study proposes the Healthcare Financing and Service Coordination (HFSC) Model as an innovative

framework designed to bridge existing gaps. The HFSC Model aims to unify financial stewardship, operational efficiency, data-driven decision-making, and resilience planning into a cohesive structure capable of addressing the fragmented reforms, persistent fiscal pressures, and systemic operational hurdles confronting the U.S. healthcare sector.

Aim of the Study:

The aim of this study is to examine how the Healthcare Financial Sustainability and Cost-effectiveness (HFSC) Model can provide a comprehensive and integrative approach for addressing the financial sustainability challenges confronting the U.S. healthcare sector.

Revised Research Objectives

1. To analyse the key financial sustainability challenges affecting U.S. public healthcare systems, with specific attention to rising costs, inefficiencies, and structural disparities.
2. To evaluate the influence of leadership and governance on the development of cost-effective, accountable, and resilient healthcare organizations, and how these elements are incorporated within the HFSC Model.
3. To assess how equitable resource allocation contributes to financial sustainability and promotes healthcare equity, particularly in underserved and resource-limited settings.
4. To determine the extent to which resilience planning and preparedness strategies enhance the capacity of healthcare systems to withstand and recover from future shocks, including economic disruptions and public health emergencies.

Research Questions

1. What are the major financial sustainability challenges confronting U.S. public healthcare systems, and how do these challenges impact overall system performance?
2. How do leadership and governance practices contribute to the development of cost-effective, accountable, and resilient healthcare organizations?
3. In what ways does equitable resource allocation support both financial sustainability and the advancement of healthcare equity across diverse populations?
4. How does resilience planning enhance the capacity of healthcare systems to withstand, absorb, and recover from future shocks or disruptions?

Significance of Study

The study is considered significant in so many ways. For instance, it contributes theoretically by bridging the gaps in leadership theory, healthcare management as well as financial sustainability by integrating them into a single framework. Existing studies have addressed these three key aspects of healthcare system in isolation, with limited efforts and

attempts in analysing and conceptualizing their interconnections in promoting and building sustainable healthcare reforms. With the application of the HFSC model in the study, this perceived gap is addressed using empirical evidence.

In addition, the outcomes of the study are also considered to serve as guidance for policymakers, administrators and leaders in the healthcare sector, who are directly or indirectly assigned to managing scarce resources even in the midst of increasing financial commitments and necessity. The emphasis of the model on equity paves the way for deliberate efforts on the part of leaders and management within healthcare system not to aim for financial sustainability at the expense of vulnerable members of the society. Additionally, the integration of technology and resilience as contained in the model ensures, that the healthcare systems design and develop a forward-looking strategy capable of preparing healthcare systems to withstand crisis such as, the pandemic, economic shocks among others.

Justification of the Study

The study and its outcomes justify the choice of the HFSC model as a fundamental tool or framework that creates the necessity to engage in rethinking healthcare leadership and financial reforms, not just as a merely cost-control mechanism, but also as a roadmap for building systems that are equitable, efficient, technologically integrated, as well as resilient even in the face of uncertainty and adversity.

LITERATURE REVIEW

HFSC Model Overview

The Healthcare Financial Sustainability and Cost-Effectiveness (HFSC) model was developed for the purpose of integrating key principles hovering around finance, healthcare administration, and leadership innovation into a coherent framework for sustainable reform. Furthermore, the HFSC model unlike other fragmented approaches that address the three principles in isolation, clearly addresses these three dimensions in healthcare system as interdependent pillars and variables. The model is made up of five key pillars or components, which are; financial efficiency, resource optimization, leadership and governance, technology and data-driven insights, and sustainability and resilience.

Financial Efficiency Component

The financial efficiency pillar exists to ensure the effective maximization of the value derived from healthcare expenditures. Its core purpose is to strengthen financial stewardship by promoting rigorous monitoring of health economics, outcome-driven cost analyses, and performance-based budgeting (Dhamija, 2025; Jaiyeola *et al.*, 2023). Through these mechanisms, the pillar seeks to reduce systemic waste and enhance the return on investment across healthcare organizations.

This component directly addresses long-standing limitations of traditional cost-containment

strategies such as across-the-board budget cuts or fee-for-service payment restrictions which have often led to unintended consequences, including weakened access to care and diminished quality (Khirfan *et al.*, 2019; Liu *et al.*, 2025). Instead, the financial efficiency pillar prioritizes evidence-based cost control, investment in interventions that yield measurable positive outcomes, and targeted waste reduction strategies supported by advanced data analytics (Mandeha *et al.*, 2025).

Additionally, this pillar emphasizes financial transparency, including the publication of hospital budgets and expenditure outcomes, to strengthen public trust and promote stakeholder accountability (Lawal *et al.*, 2024). Ultimately, financial efficiency extends beyond the notion of spending less; rather, it underscores the imperative of spending wisely by aligning financial decisions with demonstrable system-level value.

Resource Optimization Component

Resource optimization represents another foundational pillar of the HFSC Model, designed to address entrenched disparities within healthcare systems. Under this pillar, the equitable allocation of healthcare resources workforce, equipment, infrastructure, and funding constitutes a central priority. The overarching goal is to ensure that resource distribution reflects population needs and the potential for positive health impact, rather than political influence or institutional convenience (Leifland & Nordgren, 2023).

This component utilizes quantitative tools such as needs-based funding formulas, predictive demand modeling, and geographic health assessments to guide resource decisions. At the same time, it incorporates qualitative considerations rooted in ethical principles of fairness, community engagement, and the contextual dynamics of local social determinants of health.

Resource optimization is especially critical in contexts such as the United States, where persistent disparities between rural and urban populations remain well-documented (Buchmueller *et al.*, 2024; Patel *et al.*, 2024; Okundi & Varol, 2024). The ultimate aim of this pillar is to achieve distributive justice by ensuring that underserved communities receive proportional and adequate access to healthcare resources, thereby promoting both operational efficiency and health equity.

3. Leadership and Governance Component

The leadership and governance pillar functions as the central coordinating force of the HFSC Model. Its centrality reflects the premise that without strong, ethical, and strategic leadership, sustainable healthcare reforms cannot be effectively implemented or maintained (Alotaiby, 2025; Mariam Saadu-Ayuba *et al.*, 2019). Effective leadership strengthens the practical realization of the other pillars financial efficiency and resource optimization by ensuring that these initiatives are pursued consistently, ethically, and with long-term

strategic vision (Putra & Adawiah, 2023; Gabriel & Wills, 2024). This component draws substantially from transformational and adaptive leadership theories, emphasizing vision, empowerment, innovation, motivation, and institutional flexibility (Hidayah, 2025). Leaders within the HFSC framework promote a culture in which financial sustainability is embedded as a core organizational identity rather than treated merely as an external compliance requirement.

Governance structures within this pillar further reinforce accountability through mechanisms such as independent oversight, transparent reporting systems, and inclusive stakeholder participation. By embedding accountability and resilience into organizational culture, the leadership and governance pillar ensures that financial reform efforts are not only implemented but sustained over time, extending the longevity and effectiveness of healthcare transformation initiatives.

Technology and Data-Driven Insights Component

Financial practices in modern healthcare systems cannot be separated from data; hence, the role of technology and data-driven insights component. This component makes use of predictive analytics, artificial intelligence, and big data instruments to provide support for real-time decision-making as well as long-term financial planning (Khosravi *et al.*, 2024; Edoh *et al.*, 2024). The importance and necessity of this pillar are premised on the reality, that inefficiencies in finance and resources distribution are not just the lack of resources, but the absence of information and its management. With this pillar, predictive analytics can help to predict patients' inflow, identifies high-cost populations, as well as detect frauds, while AI-enabled dashboards can help in the providing leaders with real-time visibility in relation to costs and outcomes (Khosravi *et al.*, 2024). For emphasis, the use of predictive analytics and other technological tools are just to enable further supports, and not direct replacement of human judgement and efforts. Overall, technology and data-driven insights as a component, plays the role of enhancing and strengthening other components, in the form of providing evidence for financial efficiency, providing data and information for equitable distribution of healthcare resources, as well as providing evidence that supports resilience planning.

Sustainability and Resilience Component

The sustainability and resilience pillar of HFSC model focuses on the need to prepare the healthcare systems for long-term stability and crisis resilience. With this pillar, the HFSC model exists for the purpose of embedding resilience into financial planning using certain instruments and strategies such as, risk management strategies, scenario modelling, and long-term investments, particularly in preventive care (Iqlima, 2024). The COVID-19 pandemic is a justification of the fragility that exists in healthcare financial structures due to the collapse of the sector as a result of sudden strain,

which by implications left so many hospitals overwhelmed and underfunded (Haldane *et al.*, 2021; Murphy, *et al.*, 2020). To this end, this pillar shifts the focus from relative responses to proactive responses and resilience building. Finally, this pillar addresses financial sustainability not as an endpoint, but as a dynamic process that adapts to evolving challenges.

Interconnections of HFSC Model Pillars

The five pillars have their distinct roles and functions, but they are all interdependent. For instance, financial efficiency cannot exist without equity as the absence of equity in financial efficiency can further exacerbate the level of disparities. Similarly, resource optimization needs leadership to function maximally, as the absence of strong leadership can lead to potential collapse, especially under political pressure. Relatedly, technology and data-driven insights requires governance to function effectively in order to prevent occurrence of bias, just as resilience without efficiency can lead to padded expenditures. Inferring from these interconnections, it is quite obvious that the HFSC model integrates these components into a coherent framework. Furthermore, the integration of these five pillars provides healthcare leaders and administrators a clear-cut comprehensive roadmap for the purpose of balancing immediate cost pressures with long-term sustainability and equity. Overall, the integration of the key five pillars of the model, is rightly the innovation embedded in the model.

Conceptual Review

Public healthcare financing in the United States of America, has continued to attract scholarly works and attentions. The growing scholarly attentions and works stem from the concerns in relation to the sustainability of financing in healthcare systems while maintaining quality as well as equity in terms of healthcare systems (Woolf *et al.*, 2025). For instance, the total expenditures of healthcare systems in 2023 stood at 4.8 trillion dollars representing 18% of the country's GDP (Statista, 2025), and with estimated increase by 2030, forecasted to gulp up 20% of the country's GDP (Statista, 2025), it simply implies that there is need for concerted efforts in addressing financial sustainability and equitable distribution of resources (Alonazi & Alkhawtani, 2025). The necessity for equitable distribution of scarce healthcare resources is informed by the perceived inequalities in healthcare systems, especially among vulnerable Americans ((Adekugbe & Ibeh, 2024). The projections of healthcare expenditures having the potential of outpacing the country's GDP growth has necessitated the continuous calls for systemic reforms that will drive the processes of reducing waste, improving outcomes spending, as well as strengthening the level of shocks from crisis through strong practices of resilience.

Efficiency in Financing Healthcare Systems: Evidence and Limits of Current Reforms

Several studies on financial efficiency captured grey areas in financial approach in healthcare systems. Two of the grey areas included the reduction of waste and reorienting payment towards outcomes. Accordingly, the concerns arising from wasteful spending in the U.S healthcare systems ranging from administrative complexity, preventive harm to over-treatment (Martin *et al.*, 2020; Speer *et al.*, 2020), have assumed new dimensional pursuit in terms of reforms, which by extension led to the value-based payment (VBP) models and other practical reforms such as, bundled payments, performance -based budgeting among others (Shenfeld *et al.*, 2024; Figueroa *et al.*, 2025). While there were evidences pointing to the efficacy of the VBP models, especially in the areas of improving certain outcomes, however, the results generated are considered to be too ambiguous just as the context-dependent nature of outcome gains remains another area of constraints as a result of the readiness of the provider among other limiting acts (Golla *et al.*, 2023). Furthermore, financial efficiency is also considered to be an issue as health economic tools such as, cost-effectiveness analysis, ROI metrics among others can actually put forward the top priorities; nonetheless, many organizations, particularly safety-net and small providers are not equipped with analytics capacity needed for the implementation of these health economic tools, which further creates the tendency of having an unequal adoption of financial efficiency in the U.S public healthcare systems. The unevenly adoption of financial efficiency presents the risk of reduced system-level impact.

Resource Optimization and Equity Trade-offs

Existing literature in public healthcare systems in relation to the U.S scenario, pointed out the increasing level of disparities in the distribution of resources, in areas of workforce, infrastructure, as well as funding across regions and among the populations (Woolf *et al.*, 2025; Saadati, 2025). The obvious case of unequal distribution of healthcare resources is more pronounced in rural and low-income urban centers, resulting in shortages of primary care and special healthcare provisions and services (Hector & Pulpon, 2025; Khan & Yancy, 2025). These shortages have unarguably escalated downstream costs as well as increased morbidity rates that are easily preventable with the provision of the right and effective healthcare services (Egede *et al.*, 2024). While needs-based funding formulas, geospatial service planning, predictive demand modelling among others in quantitative approaches can actually lead to improvement of allocation of healthcare resources; however, the results may be inadequate except such approaches are paired with equity-sensitive governance. Considering the pitfalls in quantitative approaches in addressing unequal distribution of resources, having mixed methods (quantitative and qualitative) becomes more important and necessary in order to record equitable and cost-effective resource optimization.

Leadership and Governance: Role in Aiding Sustainable Finance

Available and empirical arguments from existing literatures indicated clearly, that the failure of financial reforms relative to sustainability has continued to experience poor outcomes largely, as a result of leadership and governance factor. This underscores the role of leadership and governance approach in the pursuit of financial efficiency and sustainability in healthcare systems (Chibi & Galea, 2025; Chyu *et al.*, 2025). In essence, it becomes a necessity to have in place leadership approaches and right governance frameworks that are solid enough to address financial sustainability in public healthcare systems in the U.S (Ismail *et al.*, 2025; Chatman, 2025). For optimum outcome in relation to leadership and governance in addressing financial sustainability, evidences from previous studies are suggestive of the potential roles of transformational and adaptive leadership styles as ideal for this purpose. The positivity link of these leadership styles to effective and result-yielding outcomes are informed by the qualities of transformational leadership style, especially in the areas of vision, empowerment and culture-building as well as the qualities of adaptive leadership in areas of learning and flexibility under uncertainty (Rashid & Wahab, 2024; Harbera, 2025). With these qualities, these two leadership qualities are considered to have strong link with improved implementation of change initiatives, increased staff engagement, and better-quality metrics. Over time, empirical reviews in healthcare indicate that transformational leadership facilitates the improvement of staff outcomes and other key improvements in the sector (Thomas, 2025; Luo *et al.*, 2025). Similarly, existing studies also pointed out concerns relating to fragmented accountability, interference from political blocks as well as poor decision-making system, have all impeded systematic budgeting and strategic investments in healthcare systems. Therefore, it is also suggestive in existing literatures, the integration of financial oversight, clinical leadership, and transparent reporting, considered relevant and suitable for transforming episodic cost control, that is well embedded in stewardship.

Technology and Data-Driven Insights: Potentials and Constraints

Technology has assumed an important and relevant aspect in healthcare systems globally, including the United States of America. Growing literatures have presented evidences on how artificial intelligence, predictive analytics, and big data could help in improving decision-making financially, projecting demand, detecting fraud, optimizing scheduling, and even identifying high-cost cohorts for intervention (Pantelli *et al.*, 2025; Alami *et al.*, 2021). In addition, recent studies as reviewed have also indicated the roles of technological tools in the improvements of diagnostic accuracy, accurate predictions of admission, as well as efficiencies in operation through artificial intelligence and predictive models (Loo *et al.*, 2025; Nedeljko *et al.*,

2024). However, the free-flow application of these technological tools could be plagued by certain barriers such as, model bias, data interoperability, lack of local validation, limited digital capacity, especially in small healthcare providers, and even unresolved privacy concerns (Zariff, 2022; Zakerabasali *et al.*, 2021). Considering the role of technology in healthcare systems and its potential benefits, arguments have been advanced in several studies on the need to have technology integrated into governance and workforce development (Tun *et al.*, 2025). The necessity for the integration of technology into governance is premise on the reality, that though data tools and technology generally are considered as enablers for improved healthcare systems, but are never substitutes for leadership, which is a bane of governance that facilitates the translation of insights into policy and effective operations.

Sustainability and Resilience: Lessons from COVID-19 and Beyond

The healthcare systems and the fragility that exist in the systems was exposed as a result of the Covid-19 pandemic. The pandemic exposed the capacity of the healthcare systems in terms of resilience relatively to the absorption of shocks while maintaining core functions effectively and efficiently (Goodarzian *et al.*, 2022; Sundaraman *et al.*, 2021). Various studies through comparative review demonstrated that countries and organizations that were well fortified with strong capacity to handle shocks before the pandemic, were able to operate through series of actions such as, diversifying supply chains, engaging in financial reserves, and practices adaptive governance and leadership, which were all instrumental to maintaining and sustaining essential services, functional operations, which by extension, limited catastrophic financial impacts (Boccia *et al.*, 2020). Following the exposures made by the pandemic as they directly affect the healthcare systems, arguments have been advanced in various quarters and studies, that healthcare systems must develop the tool of resilience in the sector (World Health Organization, 2024; Okyere *et al.*, 2024). Additionally, it is also argued, that building resilience calls for the blending of short-term emergency tools couple with long-term investments in preventive care, stability in workforce, as well as financial contingency planning.

Identified Gaps

While several detailed studies have addressed financial resilience, resource allocation, leadership and governance, technology and data-driven insights as well as sustainability and resilience; all of these discussions have been carried out in isolation. Finding solutions to the issues presented in healthcare systems, especially in areas of funding and others, have led to certain initiatives and models in the sector as evident in the design of value-based payment models, deployment of artificial intelligence, resilience planning, and leadership programs. Nevertheless, these models and initiatives, though have recorded successes and improvements to

certain extents, but they have done little to address system-wide sustainability, which is the central challenge in healthcare systems. To address the challenge of sustainability in sector, repeated calls have been made in several existing studies for integrative frameworks capable of recording strong alignments of payment reform, governance, data infrastructure, and equity objectives in order to have interventions in the sector reinforced as against witnessing counteractions among these pillars. By implications, there is need for frameworks or models that have the capacity to embed outcome-linked financial management with leadership and governance practices; deploy the right data tools to ensure ethical guide of resource optimization; as well as incorporation of resilience as part of routine financial planning. The HFSC model adequately responds to this combined need through the prioritization of leadership and governance as the central pillar of the integrated framework, which guides, monitors and ties financial efficiency to equity, technology and resilience by addressing an important theoretical and practical gap in current studies, administration and policymaking.

METHODOLOGY

Research Philosophy

The current study adopts the interpretivism research philosophy. The choice of this research philosophy is anchored on the ground, that it is suitable for exploring complex social phenomena (Fischer, 2025), such as the subject of discussion, healthcare financial sustainability. Unlike positivism research philosophy that lays emphasis on measurable variables and generalizable laws, interpretivism on the other hand acknowledges the fact, that healthcare financing and leadership are socially constructed, context-dependent, and influenced by values, perceptions, and lived experiences. Considering the position of the HFSC and its integration potential, the interpretivism research philosophy paves the way for a richer understanding of the interactions of these pillars within the practical realities of healthcare systems reform.

Research Approach

For the research approach, this study adopts the qualitative inductive approach. Unlike the deductive research approach that test pre-existing hypotheses, the inductive research approach used in this study intends to develop themes and insights (Kumar and Ujire, 2024) as derived from the narratives of participants of the studies (financial leaders, policymakers, healthcare managers, among others). The suitability of inductive research approach for this study is premise on the reality, that the HFSC model has it as a goal to generate grounded insights as against practicing the imposition of external constructs.

Research Design

The research design adopted for this study is the qualitative exploratory research design. The appropriateness and suitability of this research design are

informed by the fact, that the study seeks to address phenomena that are insufficiently studied. The available healthcare models and initiatives as extracted from reviewed works have all failed to address the core issue of financial sustainability in the healthcare sector. Through this approach, the HFSC model is in better position through the study to have validations through the perspectives of practitioners by making in-depth engagements as against mere surveys and experimental designs.

Sampling Strategy

The purposive sampling was chosen and the essence is to identify participants that have direct experiences in healthcare systems in relation to financial leadership, governance, and decision-making (Ahmad & Wilkins, 2025). For this study, 15 participants were recruited, inclusive are chief financial officers, administrator of hospitals, senior managers in hospitals and policymakers. The selection process included the selection of participants with at least 7 years of experience that is well grounded in financial decision-making and have had direct involvement in cost management, budgeting, or policy design within the healthcare systems or organizations. Furthermore, the samples reflect wider perspectives cutting across private, public and non-profit healthcare organizations. It is worth mentioning that the intention of the study is not to generalize, but to capture depth and diversity of perspectives within the healthcare field.

Data Collection

The collection of data was achieved using the semi-structured interview method of data collection. The interviews were carried out through secured online platforms, with few of them also involving face-to-face conversations. The interview for each participant lasted for about 45-60 minutes, and which followed interview guide and questions that captured the five pillars of the HFSC framework, which are; financial efficiency, resource optimization, leadership and governance, technology and data-driven insights, and sustainability and resilience. The questions in the overall, explored the lived experiences of the participants with regards to financial reforms, the perceptions of barriers, as well as reflection on strategies that promoted or hindered sustainability. For in-depth purpose, documents such as, financial reports, budget summaries, and healthcare policy papers were also analyzed for the purpose of triangulating interview data for the purpose of ensuring credibility.

Data Analysis

Thematic analysis was chosen as a method of data analysis by this study. Thematic analysis according to Braun *et al.* (2006) involved some stages, which are; familiarization with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and writing report. For this study, transcripts were coded manually, with the codes

reflecting the five pillars of the HFSC model, but also allowed for inductive emergence of new themes.

Limitations

One of the limitations of the methodology of this study is the potential bias on the use of purposive sampling, as there could be selection biases. Another limitation is that the findings of the study are context-specific and not statistically generalizable. However, the in-depth nature of qualitative narratives provides insights that complement as well as extend existing literature on healthcare financial sustainability.

Findings

Having critically analyzed the 15 in-depth interviews with healthcare leaders, policymakers and financial managers, five overarching themes were developed from the analysis, and all of these five themes align closely with the five pillars of HFSC model. For each of the themes, there were reflections of the lived experiences of the participants in relation to financial sustainability, challenges arising from governance, as well as innovations in the U.S healthcare sector.

Theme 1: Financial Efficiency and Cost Accountability

Emphasis was laid on the need for disciplined cost control by the participants. According to the participants, there were systemic inefficiencies, especially in large hospital systems and even federal reimbursement structures. Several participants pointed out the wastes that are embedded in duplicated services, administrative overheads, couple with fragmented payment systems. For instance, a hospital CFO, one of the participants noted that:

"For every dollar that is reduced from administrative redundancies should be a dollar that can be redirected to the care of patient. However, on several occasions, the financial decisions within the healthcare systems are often reactive in nature rather than planning such strategically."

The above theme underscores a strong consensus for the adoption of performance-based budgeting as well as outcome-driven cost assessments. Furthermore, the role of external auditing and benchmarking against best practices to hold organizations financially accountable were also discussed by participants. Relatively, participants also raised a major issue of concern, which is political interference during budget allocations in the healthcare systems, a practice that undermines accountability and transparency efforts. Overall, findings as reflected through this theme, an overwhelming point of participants of this study, indicate clearly, that there is need for the adoption of transparent financial reporting,

as well as the adoption of lean financial management practices.

Theme 2: Resource Optimization and Equity in Distribution

Revelations from the participants show, that resource allocation is a deeply contested issue in the U.S healthcare systems. As accordingly argued by the participants, consideration of financial sustainability should also factor in the practice of equity and fairness in relation to the distribution of healthcare resources. For overwhelming percentages of the participants, they expressed frustrations with inequities in terms of access to financial sustainability and healthcare systems between the urban and rural communities as rightly captured in the remark of one of the participants, a policymaker:

"It goes beyond balancing the books, as it's all about making sure that the elderly in rural areas, the uninsured in underserved neighborhoods, and generally, vulnerable members of the society are not left out of the entire scheme."

Inferring from this theme, there is attention on the use of quantitative models and qualitative assessments of the needs of the community; yet there is a huge challenge in striking a balance in terms of equity, and balancing efficiency with fairness. The necessity for balancing is informed by the arguments of some participants, who argued that prioritizing underserved groups may likely create resistance from better-resourced institutions, which may regard measures to ensure equity as financial penalties. Generally, the theme highlighted the obvious disparities between urban and rural settings as well as political negotiation in shaping allocation models.

Theme 3: Leadership and Governance for Sustainable Finance

The participants reemphasize the role of leadership as a fundamental enabling tool of financial reform. In other words, the words of participants reechoed the reality, that financial reforms and sustainability cannot be achieved by mere technical approaches, but by also having in place visionary and adaptive leadership, that is embedded in governance structure across every facet of the healthcare systems. Direct extrapolation from the arguments and perspectives of the participants, clearly indicates that transformational leadership style is considered very effective and essential to attain financial sustainability and reform, as this type drives cultural change within healthcare organizations. For instance, one of the participants, who is a hospital administrator remarked:

"If leaders are more focused on cutting costs, members of staff become more defensive. On the other hand, when leaders direct their thinking

and attitudes to showing that financial reform is linked to improved patient outcomes, at this point, the message as demonstrated from leaders, is that members of staff will definitely consider sustainability as a strong part of the goal, and not just an issue of number game."

Similarly, governance practices were also described to be pivotal as suggested, that boards that focused more on transparency and accountability were considered more successful in ensuring and integrating financial discipline. Contrastingly, a situation of weak governance creates the ground for mismanagement and corruption to thrive. Therefore, strong leadership communication strategies, effective governance reforms as well as ethical dilemmas in financial decision-making become sacrosanct to have leadership and governance embedded in financial sustainability.

Theme 4: Technology and Data-Driven Insights

This was another prominent theme, which explains the role of technology and data analytics in fostering financial sustainability. According to the participants, predictive analytics, artificial intelligence driven demand forecasting, as well as big data are transformative tools that facilitate cost optimization. For example, a CFO of a large healthcare organization explained the impact of predictive tools as:

"It is now possible for us to predict patient inflows during flu season with remarkable accuracy, which of course enables us to ensure smooth allocation of staff and resources efficiently and effectively. As a result of this, savings are recorded from the prevention of overstaffing or underutilization as the case applies."

While this sounds impressive, there are barriers that may hinder its effectiveness. The likes of high upfront costs of technology investment, challenges of data interoperability, and possible ethical concerns around the use of artificial intelligence are some of the challenges that may arise. Furthermore, while participants unanimously agreed that technology facilitates long-term savings, it however, requires cultural shifts in terms of decision-making as well as sustained financial commitment.

Theme 5: Sustainability and System Resilience

The necessity and relevance of resilience as both operational and financial imperatives are deduced from the views of the participants. According to the participants, the Covid-19 pandemic strongly exposed the vulnerability and fragility of healthcare financing system and structures. A unanimous agreement of all participants as extracted from their submissions, is the need for financial sustainability to be forward-looking, while ensuring the integration of risk management and scenario planning. One of the participants, who is a senior health policy advisor explained:

"Covid-19 pandemic was a direct wake-up call. It was realized that financial reserves and contingency planning are actually not luxuries, but lifelines."

Indicatively, resilience from the view of the participants also incorporated workforce stability as a factor that financial and operational sustainability. According to participants, a financial planning that fails to consider and protect frontline staff in time of crisis will definitely undermine system sustainability. For several participants, there was the advocacy for the establishment of financial resilience funds across all governmental structures, and by extension organizational structures.

DISCUSSION

The study has the sole interest in exploring how healthcare leaders, policymakers, and financial managers perceived and operationalize the principles of HFSC model. From the findings of the study, five key interrelated themes, which also addressed the research objectives of the study were developed. Furthermore, the five themes relate directly to the five pillars of HFSC model. The five themes include; efficiency in finance, maximization of resources, leadership and governance, technology, and resilience. The discussion segment situates the various findings within existing literatures, highlights the theoretical and practical contributions, aligns the findings with the research objectives, and identifies implications for the U.S healthcare policy and management.

Efficiency in Finance

The issue of efficiency in finance is an emphasis on the longstanding worries in U.S healthcare systems as revealed in several literatures regarding waste, fragmented financing and funding, and perceived weak accountability structures (Shrank *et al.*, 2019; Glied & Sacarny, 2018). As revealed, almost one-third of U.S healthcare spending represents waste, administrative complexity and over-treatment inclusive (Nsama, 2023). Participants in this current study reinforced these concerns, which juxtaposed existing views on financial inefficiencies, even in the midst of reforms, including the Affordable Care Act (ACA). The HFSC model advances the debate on the need to embed performance-based budgeting and outcome-driven cost assessments into a structured financial framework. This view reflects recent studies that advocates for value-based healthcare, a practice in which financial sustainability is strongly tied to improved outcomes as rather than the volume of services in the sector (Fernandez-Salido *et al.*, 2024; De Mattia *et al.*, 2024). With the interest of the HFSC model in prioritizing accountability by deploying certain mechanisms like, external auditing and benchmarking, the arguments on reforms being too focused on expanding coverage without considerable level of cost management, will be countered going by the expected positive results accountability of cost management will bring. Findings also revealed that financial efficiency in

healthcare systems also experienced push backs as a result of certain factors such as, political interference and cultural push backs within organizations. This revelation confirms the arguments expressed in existing studies, that cost-containment is often not made a success due to some entrenched interests (Peters, 2024). This theme addresses the research objectives that sought to understand the challenges facing financial sustainability in U.S healthcare systems. According to findings, political interference and resistance, cultural push backs, waste, non-accountability and fragile finance approach are the factors posing as challenges to financial sustainability in the U.S healthcare systems.

Maximization of Resources

Over times, the issue of equitable resource allocation has continued to assume a center stage, which underscores the persistent tension between efficiency and fairness in the U.S healthcare systems. Several literatures have documented disparities in access, with evidence suggesting that rural populations, racial minorities and the uninsured have always received structural disadvantages (Dickman *et al.*, 2017; Paredes *et al.*, 2020). The overwhelming agreement of the participants reiterates the fact, that financial sustainability cannot be isolated from equity, thereby marking an important shift, which points to the direction, that financial health must be assessed on two key parameters, which are fiscal balance and distributive justice. The HFSC model advances this conversation by formally integrating equity considerations into the financial framework, making it possible for financial efficiency measures and strategies not to be achieved at the expense of marginalized populations. This advanced position of the HFSC corroborates the call by the World Health Organization (2021) for the adoption of universal health coverage strategies that strike a balance between financial efficiency and equity. However, there is a perceived challenge of this practice of balance between financial efficiency and equity as revealed in the findings. According to the findings, there is a challenge of institutional resistance, especially by those considered to be better-resourced providers, who are always of the view that equitable distribution of healthcare resources are simply punitive acts displayed by the relevant authorities. This likely challenge resonates with the arguments in existing literature on the need for just resource allocation to be transparent, ethically grounded in processes in order to overcome potential distributive conflicts (Saadati, 2025). This theme aligns with the research objectives on how equitable distribution of resources supports financial sustainability and healthcare equity.

Leadership and Governance

The study established through its findings reinforces the perception and argument that leadership and governance are critical facilitators of financial reforms in healthcare sector. This finding clearly juxtaposes existing views and arguments on

transformational and adaptive leadership styles in healthcare systems, which argued that the ability of leaders to shape culture, inspire collective purpose, and manage complexity make the difference (Robbins & Davidhizar, 2020; Hentrich *et al.*, 2017; Jaiyeola *et al.*, 2025).

As deduced from the views of participants, addressing financial sustainability as a connector with patient outcomes remains the brainchild of a transformational and adaptive leaders, unlike a situation where cost-cutting is usually the focus. The HFSC model has been able to incorporate leadership theory into a financial framework, thereby advancing existing models that have their major focus on technical efficiency. Through this process, the HFSC model has successfully bridged the gap in literature, which is the gap that financial tools are ineffective without organizational cultures and governance structures, that support the practices of transparency, accountability, and ethical decision-making. Notwithstanding, this study also highlighted certain barriers such as, governance failures, like political interference and corruption risks. This is a confirmation of the advanced argument, that weakness in governance structure weakens and derails financial reforms.

Technology and Data-Driven Insights

The findings highlighted the role of predictive analytics, AI, and big data in financial sustainability. Research supports this view, showing that data-driven tools can cut waste, anticipate demand, and improve resource use (Dewasiri *et al.*, 2025; Cappelli *et al.*, 2025). Participants reported real savings from predictive staffing models, reinforcing the idea that investing in technology can lead to long-term benefits. However, participants noted several barriers, including high initial costs, scattered data, and ethical issues. These concerns reflect issues in the literature regarding the digital divide in healthcare systems (Meskó *et al.*, 2017). The HFSC Model addresses this by incorporating technology adoption into a framework for financial sustainability. This approach ensures that technology investments focus on long-term savings and fairness, rather than being treated as separate projects.

By connecting data-driven insights to broader governance and efficiency reforms, the HFSC Model offers a more integrated view of technology compared to current frameworks, which often view digital health as a separate agenda rather than a key factor in financial sustainability.

Sustainability and System Resilience

Resilience emerged as the final theme, with participants sharing experiences from the COVID-19 pandemic. Research shows that the pandemic revealed weaknesses in U.S. healthcare financing, including a lack of reserves, poor risk management, and excessive reliance on fee-for-service models (Blavin, 2021; Cutler,

2020; Jaiyeola, 2022). Participants' calls for resilience funds and scenario planning echo these critiques and highlight the need to incorporate long-term thinking into financial systems.

The HFSC Model tackles this directly by defining resilience as a financial pillar. It puts a spotlight on planning for contingencies, managing risks, and being adaptable in crises. This builds on Hollnagel's (2018) resilience engineering perspective, which underscores the ability of systems to anticipate, adapt, and absorb shocks. By prioritizing resilience as both a financial and operational goal, the HFSC Model ensures that sustainability encompasses not just annual budgets but also the capacity to handle crises.

Theoretical and Practical Contributions of the HFSC Model

The study advances the theory by bringing together finance, leadership, and ethics into one cohesive model. Current literature often treats these areas separately cost-control in economics, governance in management, and equity in public health. The HFSC Model stands out for its multidimensionality, offering a complete framework for healthcare sustainability.

In practical terms, the HFSC Model provides policymakers and healthcare organizations with a structured approach to align efficiency, fairness, leadership, technology, and resilience. It offers actionable strategies like performance-based budgeting, needs-based allocation formulas, predictive analytics, and resilience funds. These strategies address gaps in current reforms and promote sustainability as a part of organizational culture rather than just a technical process.

Limitations and Future Research

While the findings offer valuable insights, they are specific to the context and limited by the sample size of 15 participants. As qualitative research, the results cannot be applied broadly. Future studies should test the HFSC Model using mixed methods or quantitative validation in various healthcare environments. Comparative research with international systems could also assess the model's relevance beyond the U.S.

CONCLUSION

This study examined the applicability of the Healthcare Financial Sustainability and Cost-Effectiveness (HFSC) Model as a framework for strengthening the economic foundation of U.S. healthcare systems. Through qualitative analysis of fifteen interviews with healthcare financial leaders, policymakers, and administrators, the study identified five interconnected themes financial efficiency, resource optimization, leadership and governance, technology, and resilience that align with the pillars of the HFSC Model.

The findings demonstrate that financial sustainability is multidimensional, requiring more than isolated cost-containment measures. Participants emphasized that true sustainability emerges when efficiency is integrated with equity, when governance structures embed accountability, and when technological tools are leveraged to generate predictive insights. Furthermore, the COVID-19 pandemic highlighted resilience as an indispensable dimension of financial planning, underscoring the need for forward-looking strategies that protect both institutions and communities.

The HFSC Model advances theory by integrating insights from finance, healthcare leadership, and ethics into a single comprehensive framework. It contributes to practice by offering actionable tools such as performance-based budgeting, needs-based resource allocation, predictive analytics, and resilience funds. Importantly, it positions sustainability not merely as a financial exercise but as an organizational culture and ethical commitment.

Despite these contributions, limitations remain. The study's qualitative design and purposive sampling limit generalizability. Nevertheless, the depth of insights provides a strong foundation for further refinement and testing of the HFSC Model across diverse contexts.

Recommendations

For Policy and Governance

1. Embed Financial Accountability Mechanisms: Federal and state agencies should mandate performance-based budgeting and transparent financial reporting across healthcare organizations to ensure that resources are used efficiently and equitably.
2. Institutionalize Equity in Resource Allocation: Policymakers should develop needs-based allocation formulas that direct resources toward underserved populations while maintaining efficiency, ensuring that financial sustainability aligns with distributive justice.
3. Establish Independent Oversight Boards: Independent governance structures should monitor financial decision-making to reduce risks of political interference and corruption.

For Healthcare Organizations

- Cultivate Transformational Leadership: Hospital administrators should promote leadership development programs that emphasize ethical, adaptive, and transformational approaches, embedding financial sustainability within organizational culture rather than as a cost-cutting exercise.
- Invest in Technology Strategically: Healthcare systems should adopt predictive analytics and AI tools to improve demand forecasting, reduce inefficiencies, and support preventive care, while addressing interoperability and privacy challenges.

- Build Financial Resilience Funds: Organizations should establish dedicated reserves and scenario planning mechanisms to withstand future crises, including pandemics and economic downturns.

For Future Research

- I. Test the HFSC Model Quantitatively: Large-scale, mixed-methods studies are needed to validate the HFSC Model across different healthcare settings.
- II. Explore International Applications: Comparative studies could examine how the HFSC Model translates into other healthcare systems, such as those in Europe or low- and middle-income countries.
- III. Evaluate Long-Term Outcomes: Longitudinal research should assess whether organizations adopting HFSC principles achieve measurable improvements in both financial sustainability and equity outcomes.

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