saúde EM DEBATE

REVIEW

Improving efficiency in healthcare: An integrative review on governance, evaluation, auditing, and corruption control

Melhorando a eficiência na saúde: uma revisão integrativa sobre governança, avaliação, auditoria e controle da corrupção

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ABSTRACT The analysis of healthcare efficiency highlights the interdependence between governability, governance, and service quality, demonstrating how corruption affects the effectiveness of healthcare policies. This article aims to identify governance, evaluation, auditing, and corruption control mechanisms to improve healthcare efficiency. The integrative review was conducted in the databases of PubMed, Scientific Electronic Library Online (SciELO), and Latin American and Caribbean Health Sciences Literature (LILACS), using related descriptors. The results were organized into two categories: the role of governability and governance in the evaluation and auditing of healthcare policies, and the challenges of overcoming corruption in healthcare systems. The research reveals the need for further studies on the effectiveness of healthcare policies and the adaptation of international models of governance, governability, and control in healthcare institutions.

KEYWORDS Health policy. Health administration. Program evaluation. Health governance. Corruption.

RESUMO *A análise da eficiência na saúde destaca a interdependência entre governabilidade, governança e a qualidade dos serviços, mostrando como a corrupção afeta a eficácia das políticas de saúde. Este artigo visa identificar arranjos de governança, avaliação, auditoria e controle da corrupção para melhorar a eficiência na saúde. A revisão integrativa foi realizada nas bases de dados PubMed, Scientific Electronic Library Online (SciELO) e Literatura Latino-Americana e do Caribe em Ciências da Saúde (Lilacs), utilizando descritores relacionados. Os resultados foram organizados em dois grupos: importância da governabilidade e da governança na avaliação e na auditoria de políticas de saúde; e desafios de superação da corrupção na área de saúde. A pesquisa revela a necessidade de estudos adicionais sobre a eficácia de políticas de saúde e a adaptação de modelos internacionais de governança, governabilidade e controle nas instituições de saúde.*

PALAVRAS-CHAVE *Políticas de saúde. Administração em saúde. Avaliação de programas e projetos de saúde. Governança em saúde. Corrupção.*

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Introduction

Efficiency in the use of health resources remains a central concern for managers, policymakers, health professionals, and users of the Brazilian Unified Health System (SUS)[1]. Assessing efficiency goes beyond simply measuring allocated resources, also encompassing the quality of care delivered, the governance and governability of health services, and the effects of corruption on health policies. These dimensions are essential to ensuring that health investments translate into meaningful improvements in population health.

The relationship between the quality and efficiency of health policies is complex and multifaceted, requiring further in-depth investigation. Corruption is widely recognized as a persistent barrier to efficiency in the health sector[2]. Evidence from the literature shows that it not only distorts resource allocation but also undermines policy outcomes and overall system performance[2,3]. Understanding how corruption interacts with health policies is therefore crucial for designing effective strategies to reduce its impact and strengthen transparency and accountability[4].

Preventing corruption within the SUS is a collective undertaking that relies on a broad set of institutions and mechanisms, particularly given the scale of resources involved and the high level of public scrutiny surrounding integrity initiatives. Key actors include health councils at different levels of government, which perform oversight and advisory functions; intergovernmental coordination and negotiation mechanisms through the Tripartite (CIT), Bipartite (CIB), and Regional (CIR) Interagency Commissions; and the national auditing and ombudsman systems of the SUS, led by the National Department of SUS Auditing (DenaSUS) and the SUS Ombudsman General Office (OuvSUS), along with their counterparts at state and municipal levels. Oversight is further reinforced by public accountability institutions such as the Office of the Comptroller General (CGU) and the Courts of Accounts at federal (TCU), state (TCE), and municipal (TCM) levels, as well as legal and rights-protection bodies, including the Federal and State Public Prosecutor's Offices. In addition, key regulatory frameworks—including the Access to Information Law (LAI), the Administrative Improbity Law, the Anti-Corruption Law, and the Conflict of Interest Law—both expose irregularities and contribute to strengthening public trust in the health system.

The relevance of this study for the evaluation, analysis, and auditing of health policies lies in its contribution to clarifying and further substantiating previous findings on the relationship between efficiency control and the assessment and auditing of health policies. Examining governability and governance in this context underscores the importance of the active involvement of all stakeholders committed to the SUS as a state policy, including health professionals, managers, and the wider community[4]. Such engagement is essential to the effective implementation of health policies[4,5]. Research on governance maturity models offers a useful analytical framework for assessing and monitoring management practices in health policy, serving as an important instrument for strengthening policy performance[5]. Likewise, analyzing disparities in health outcomes is key to understanding how different socioeconomic contexts shape health policy efficiency[6]. Identifying population groups according to governance quality and health system efficiency can provide valuable insights for designing policies aimed at reducing inequalities and promoting equitable access to health services[7-9].

Understanding the conclusions and innovations produced in the evaluation, analysis, and auditing of health policies is essential to grasp the responsiveness and organizational capacity of health systems. In this context, this article aims to identify the main arrangements that have been developed, both in isolation and in an articulated manner, to enhance the efficiency of health policies. Through an

integrative review, the study seeks to understand how these arrangements may contribute to improved policy outcomes, fostering a participatory, efficient, and high-quality approach aligned with population needs.

Material and methods

This is an integrative literature review aimed at examining the current state of research, the challenges, and the findings of studies addressing the influence of corruption control on health efficiency. The integrative review approach has emerged as a significant methodological strategy in health research, particularly when compared to narrative and systematic review designs[10]. Although each of these approaches has its own characteristics, the integrative review enables the inclusion of diverse methodologies while maintaining methodological rigor, identifying knowledge gaps, and supporting comprehensive analysis. For these reasons, it is considered the most appropriate design for this study.

This integrative review followed the six-step methodology proposed by Dal et al.[11], and the findings are reported in line with the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)[12].

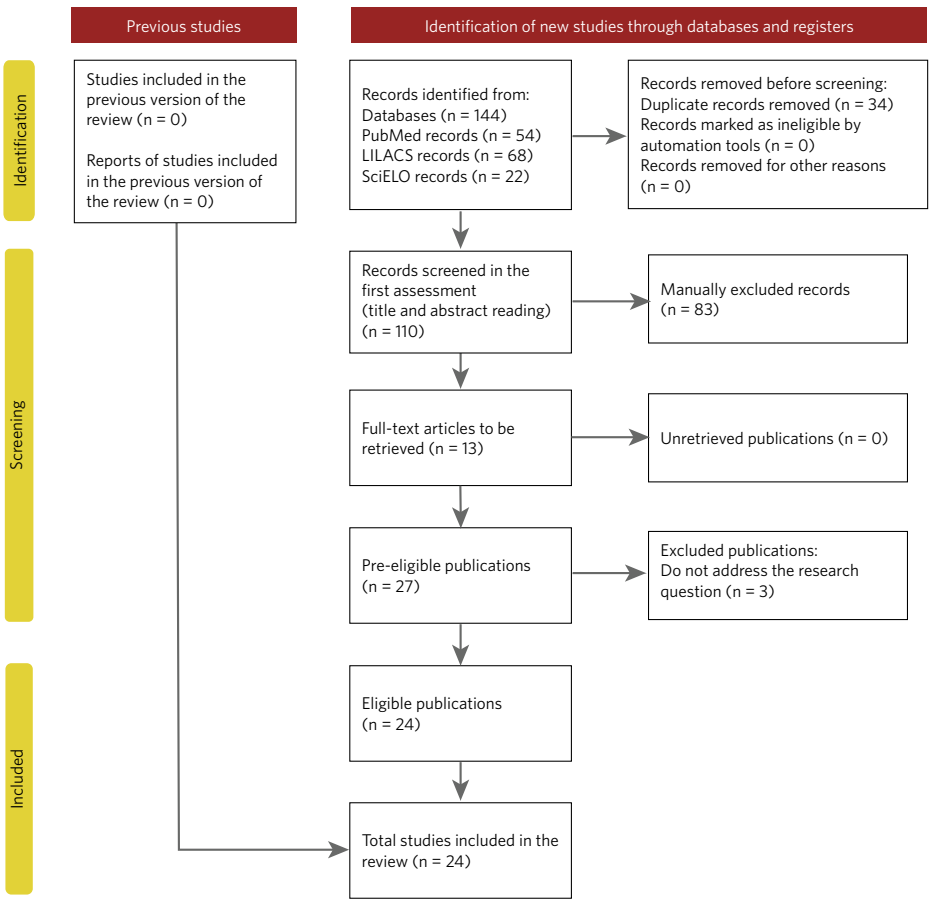
This study addresses the following guiding question: 'How can effective corruption control and the implementation of an integrity program in health policies increase efficiency in the health sector?'. The term 'control' encompasses different dimensions such as governance, oversight, regulation, evaluation, and the auditing of activities. Its purpose is to guide, measure, and assess the effectiveness and compliance of actions and programs.

Between May 17 and 25, 2025, scientific publications were searched in three databases: Latin American and Caribbean Health Sciences Literature (LILACS), Scientific Electronic Library Online (SciELO), and PubMed. Only publications available in full text and published or produced between 2016 and 2025 were considered. In both Portuguese and English, the following combinations of descriptors from the structured vocabularies Medical Subject Headings (MeSH) and Health Sciences Descriptors (DeCS) were used: i) "*Governabilidade*" and "*Governança*" and "*Saúde*"; and ii) "*Corrupção*" and "*Políticas de Saúde*". Subsequently, duplicate records were removed, and during the first half of June, the studies were assessed based on their titles and abstracts to determine whether they contributed to answering the research question. Articles selected through this initial screening were read in full to verify their eligibility. As an inclusion criterion, all publications that contributed to answering the research question and were written in English, Portuguese, or Spanish were included. Studies were excluded if they did not directly address the guiding question; if they focused on specific health sectors (hypothalamus, protons, phlebitis, wounds, diabetes, surgery, homicides, catheters, hemodialysis, antibiotics, mitochondria, drugs, etc.); if they focused on legal issues (judicialization, budgeting, insurance, sanitation, among others); or if they addressed management, regionalization, environmental issues, politics, or operational controls without establishing a connection to corruption, governance, or governability.

Results

After the search was conducted using the aforementioned criteria, 144 records were identified. Of these, 34 were removed due to duplication, leaving 110 records. After screening titles and abstracts, 27 publications were selected for full-text reading, while 83 publications were excluded. Following full-text review, a further 3 studies were excluded for not clearly addressing the link between the health field and control. In the end, 24 publications were included in the review, and their data were analyzed (*figure 1*)

Figure 1. Flowchart of article selection



Source: Authors' elaboration, adapted from PRISMA.

Most of the articles included in this review were published in English (20 studies), followed by 4 articles published in Portuguese. The locations of the primary studies were: Brazil (7 studies); South Africa, Bangladesh, the United States of America, and the United Kingdom (2 studies each); as well as Canada, China, the Netherlands, India, Ireland, Japan, Mexico, Nigeria, and Vietnam (1 study each). Regarding publication dates, 7 articles were published between 2016 and 2020, and 17 articles between 2021 and 2025.

The strategy of including different types of studies aimed to achieve a broader understanding of the topic, as incorporating diverse perspectives and approaches allows for a richer comprehension of how studies addressing governance, governability, corruption, and health are developed, enabling the identification of both convergences and gaps. Furthermore, by bringing together this body of evidence produced across different studies, it becomes possible to present the core concepts of the guiding question from the perspective of what has already been investigated by other authors. Accordingly, the analysis of the information collected from these articles allowed for the identification of themes and insights, resulting in the grouping of two sub-questions, which are analyzed and discussed below: the importance of governability and governance in the evaluation and auditing of health systems; and the challenges posed by corruption in the evaluation and auditing of health systems. *Table 1* presents, in detail, the main findings of the studies included in this review.

Table 1. Summary of main results

Author	Yea	Study location	Methodology	Main results
Aivalli et al.[13]	2025	Ireland	Review	Intersectoral collaboration, power dynamics, implementation, low- and middle-income countries, governance, governability, health
Aiwerioghene et al.[14]	2024	United Kingdom	Review	Health, maturity models, hospital management, optimization, maturity level, assessment of maturity level
Caldas et al.[15]	2016	Brazil	Mixed methods	Corruption, composition of government expenditure, corrupt actors, health, and education
Cardoso et al.[16]	2020	Brazil	Mixed methods	Political appointments, bureaucratic performance, municipal bureaucracy, state capacity, governance, governability
Castro et al.[17]	2022	Mexico	Review	Governance, health policy, pandemic (COVID-19), public policy, government
Cecílio et al.[18]	2020	Brazil	Mixed methods	Comprehensive health care, emergency hospital services, patient-centered care, governance, governability
Dincer et al.[19]	2021	United States	Mixed methods	Corruption, trust, social capital, public health, social distancing
Ewurum[20]	2022	Nigeria	Mixed methods	Public health expenditure, per capita CO_2 emissions, quality of governance, health status, and health spending control
Fana et al.[21]	2021	South Africa	Qualitative	Corruption, health
Dursky et al.[22]	2016	United States	Review	Corruption, global health, health system strengthening, systems thinking approach, low- and middle-income countries
Jakovljevic et al.[23]	2022	Japan	Mixed methods	BRICS, Sustainable Development Goals, UN, Brazil, Russia, India, China, South Africa, health expenditure, projections, spending, health policy, health financing, health cost containment
Joshi et al.[5]	2025	Canada	Mixed methods	Physician engagement, primary care, health systems, Ontario health teams, grassroots approach, governance, governability
Krakowiak et al.[24]	2024	Brazil	Mixed methods	Corruption, administrative inefficiencies, social observatories, municipal fiscal health, public expenditure
Machoski et al.[3]	2020	Brazil	Mixed methods	Corruption, public health, economic growth, and municipalities
Madon et al.[25]	2022	India	Mixed methods	Community health governance, primary health care, India
Mello et al.[26]	2017	Brazil	Review	Regionalization, decentralization, health service reform, health policy, governance, governability
Mouteyica et al.[8]	2024	South Africa	Mixed methods	Health expenditure control
Naher et al.[27]	2020	Bangla-desh	Review	Corruption in the health sector, good governance, frontline health services, frontline health service providers, low- and middle-income countries
Nguyen et al.[28]	2022	Vietnam	Mixed methods	Corruption, economic growth, GMM estimation, government expenditure, threshold model, health
Rahman et al.[1]	2025	Bangla-desh	Mixed methods	Health expenditure, governance, SDG 3, quality institutions, health cost control
Santos et al.[29]	2024	Brazil	Mixed methods	Corruption, public finance, public spending, health, and municipalities
Scholten et al.[30]	2019	The Netherlands	Qualitative	Decision-making arrangements, dual governance, Dutch hospitals, hospital governance, structuring
Sohns et al.[31]	2024	United Kingdom	Mixed methods	Corrupt behavior, health, COVID-19, political alignment, United Kingdom
Yi et al.[32]	2023	China	Mixed methods	Home and community-based services, hospital utilization, hospital expenditure, governance, substitution effect, health effect

Source: Authors' elaboration.

Discussion

The importance of governability and governance in the evaluation and auditing of health systems

To compare the information from each article selected in this stage of the research, *table 2* presents a structured summary of the main ideas contained in each publication. This is followed by a more detailed analysis of each article.

Table 2. Synthesis of selected articles on governability and governance

Authors	Year	Synthesis
Mello et al.[26]	2017	Reviewed studies on SUS regionalization and found that prioritizing a culture of political negotiation over systematic planning is a challenge. This undermines management efficiency, highlighting the need to reassess governance and planning practices.
Scholten et al.[30]	2019	Discusses the complexity of hospital governance, emphasizing the importance of collaboration and trust between managers and physicians. They highlight the role of 'connector' positions among medical managers to support decision-making; however, a lack of clarity in these roles may reduce efficiency.
Cardoso et al.[16]	2020	Investigates how political appointments of commissioned civil servants affect municipal management in Brazil. Results show no clear relationship between the qualification or number of appointees and municipal performance, highlighting the complexity of public administration at the local level.
Cecílio et al.[18]	2020	Medical authority within health organizations impacts governability, as it involves both scientific authority and power relations with other professionals. Ethical issues in the use of this authority may affect the effectiveness of hospital services and workplace dynamics.
Castro et al.[17]	2022	Analyzes 15 articles on health policy governance during emergencies such as COVID-19. The findings emphasized the importance of coordination, national planning, and risk communication. Effectiveness improves when governance is aligned with local needs and community engagement.
Ewurum[20]	2022	Highlights the importance of increasing health expenditures and improving governance to achieve better health outcomes. A 1% increase in public spending reduces infant and under-five mortality rates.
Jakovljevic et al.[23]	2022	Studies on health governance examine how decisions are made to ensure access to and quality of services. BRICS countries are shaping the global health market, while rising demand driven by aging and disease requires careful analysis of resource allocation efficiency.
Madon et al.[25]	2022	In India, Community Health, Sanitation, and Nutrition Committees help understand decision-making processes in health. The study shows improved coordination between health workers and communities, promoting accountability and self-help in health, sanitation, and nutrition.
Yi et al.[32]	2023	Home and community-based health services can reduce hospital admissions and costs among older adults with disabilities in China. These services also improve physical and mental health, suggesting the need for broader accessibility and service diversification
Aiwerioghene et al.[14]	2024	Presents 19 maturity models for hospital management used to assess performance and identify improvements. These models address cooperation, quality, patient safety, and data analysis. The authors call for further research on their effectiveness across different health contexts.
Mouteyica et al.[8]	2024	Reveals significant health inequalities across African countries, posing challenges to global health security and SDGs 3 and 10. Governance and public financing are key determinants of these disparities.
Aivalli et al.[13]	2025	Analyzes how power influences health system governance, highlighting the importance of community involvement. It concludes that inclusive policies reduce inequalities, committed leadership enhances collaboration, fair norms build trust, and interpersonal relations help balance power dynamics.

Table 2. Synthesis of selected articles on governability and governance

Authors	Year	Synthesis
Joshi et al.[5]	2025	Highlights the importance of physician engagement in the governability of primary care. The research suggests that engagement should be collaborative, involving administrators and support staff, and proposes strategies to increase participation and reduce burnout.
Rahman et al.[1]	2025	Analyzes the relationship between health expenditure, governance, and SDG 3 in the BRICS economies from 2000 to 2023. Findings show that public health spending improves health outcomes and SDG 3 achievement, while increased private health expenditure may have negative effects.

Source: Authors' elaboration.

Governability and governance are essential pillars for the effectiveness of health systems. The capacity to govern is fundamental for policies to be implemented effectively. Medical power can negatively influence work dynamics and the quality of care[8]. Therefore, it is crucial to understand how medical ethics and authority influence health service outcomes.

In relation to governability, the role of physicians within health organizations is a broad topic, and research has focused on physicians' scientific authority, which establishes a power relationship with other health professionals. Even when such authority is not grounded in a rational-legal framework, ethical issues in the use of this authority may interfere with the outcomes of improvements designed for hospital processes and workflows[8,9]. This occurs because, in settings such as hospitals, medical power can influence work dynamics, relationships with patients, and interactions among different types of hospital staff.

Joshi et al.[4] examine the importance of physician involvement in the governability of primary care, highlighting that, despite existing research, gaps remain in understanding how this engagement occurs in system-level initiatives[4]. The findings emphasize that, at the analyzed level, physician engagement should be seen as part of a broader collaborative effort, as it must also involve health administrators and support staff. The study, which included interviews with physicians, administrators, and staff, as well as document analysis, showed that local leadership, governance structures, and system-level support are essential for physician engagement. The study concludes by considering strategies to increase engagement, reduce burnout, and ensure long-term participation.

The analysis of how power operates in health system governance is also addressed in another article[13], which highlights the importance of meaningful community engagement and the need to avoid the creation of parallel systems that may undermine governance. To understand power dynamics, experiments were conducted in low- and middle-income countries. The study concludes that: (i) inclusive policymaking processes help reduce power inequalities but require mediation to prevent the marginalization of less powerful groups; (ii) leadership commitment and alignment of shared goals increase collaboration but may also generate competition; (iii) laws ensuring fair resource distribution help build trust but may create tensions with groups already in power; and (iv) strong interpersonal relationships help balance power asymmetries, promoting accountability and adaptive solutions to problems.

Turning to governance, scientific research addresses how decisions are made and implemented in health systems, aiming to ensure access, quality, and efficiency in health services. BRICS countries (Brazil, Russia, India, China, and South Africa), as well as Saudi Arabia, Egypt, the United Arab Emirates, Ethiopia, Indonesia, and Iran, are influencing the global health market, both in

the demand for and supply of pharmaceutical products and medical services. The growing demand for these products and services, driven by population ageing and the persistence of infectious diseases, requires careful analysis of how these resources are being used[10]. The relationship between expenditure and quality of care is complex and requires further in-depth investigation.

Rahman et al.[1], for example, examine how health expenditure, governance, and Sustainable Development Goal 3 (SDG3) are related in BRICS economies between 2000 and 2023[1]. Investment in health and the maintenance of good governance are highly important, particularly in BRICS emerging economies. This suggests that when governments perform effectively and allocate adequate resources, population health outcomes can improve. This relationship is central to achieving the health and well-being objectives established by the United Nations SDG3, which aims to ensure healthy lives and promote well-being for all by 2030. Accordingly, this study[1] argues that simultaneous investment in health and governance is necessary. Its results show that a 1% increase in public health expenditure can improve SDG3 outcomes by up to 2.86%. However, increased private health expenditure may have a negative effect, reducing SDG3 outcomes by 0.677%. This is explained by the fact that private health services may be costly and not accessible to all, and therefore may not meet the needs of the entire population. For this reason, a more detailed analysis of different dimensions of governance and their impact on health is needed in future research. The main focus of this study was to create an econometric model to measure the relationship between multiple indicators, including health and well-being, current health expenditure, public health expenditure, private health expenditure, governance, unemployment, number of hospital beds, and number of physicians. For this purpose, data from the five countries studied were aggregated at the macroeconomic level and analyzed within a broader context

Ewurum[20] assesses the importance of increasing health expenditure and improving governance to achieve better health outcomes in Nigeria[20]. The connection between public health expenditure and governance quality in relation to population health is evaluated using the Infant Mortality Rate (IMR) and the Under-5 Mortality Rate (U5MR). The results indicate that: (i) a 1% increase in public health expenditure reduces IMR and U5MR by 0.03%; and (ii) economic growth, measured by Gross Domestic Product (GDP) per capita, shows a negative effect on health outcomes, suggesting that in some cases, income growth does not translate into health improvements.

The analysis of disparities in health outcomes and how public health financing and governance influence these differences is also addressed in the study by Mouteyica and Ngepah[8]. Health progress in Africa has been uneven, with substantial differences across countries. This poses challenges to global health security and hinders progress toward SDG3 and SDG10, as well as Universal Health Coverage. A comparative analysis of health outcomes in 40 African countries between 2000 and 2019 found no evidence of overall convergence in health outcomes, although the formation of specific clusters was confirmed. Governance quality and public health expenditure were identified as important factors influencing the likelihood of a country belonging to a given cluster.

In India, the functioning of Community Health, Sanitation, and Nutrition Committees enabled an assessment of how decisions are made in community health governance[12]. A theoretical model considering community governance as an evolving phenomenon was evaluated, emphasizing the importance of interactions among committee members and how these interactions can lead to improvements in community health. The findings showed that the committees increased horizontal coordination between health workers and the community, with a growing focus on accountability and self-help to improve health, sanitation, and nutrition.

A systematic review addresses the role of governance in health policies during emergencies such as the COVID-19 pandemic[13]. The review was conducted using PRISMA methodology[12], covering publications from the past five years, and included studies addressing health governance in emergency contexts, resulting in 15 analyzed articles. The studies highlight the importance of strong coordination and planning at the national level, as well as risk communication and community engagement in health emergency management. In conclusion, to improve the effectiveness of health policies in emergencies, the study indicates that governance structures must align their approaches with local needs, promote community participation, and strengthen governance capacity at the national level.

A literature review on maturity models applicable to hospital management is presented by Aiwerioghene et al.[14]. Maturity models are frameworks that define different levels of proficiency or effectiveness in a specific domain, allowing organizations to assess their current performance and identify areas for improvement. The review identified 19 maturity models relevant to hospital management, covering areas such as hospital collaboration, process quality, patient safety, and health data analytics. As a conclusion, the authors suggest that further research is needed to better understand the effectiveness of maturity models in hospital management and their application across different healthcare contexts[14].

Another study presents a systematic review focused on the regionalization process of the SUS[15]. The findings show that regionalization is now a consolidated feature across all levels of government; however, it continues to face a set of persistent challenges in different contexts across the country. Among these, a prevailing culture that prioritizes political negotiation over systematic planning emerges as a key factor sustaining a vicious cycle that undermines the technical efficiency of management. This highlights the need to reassess governance and planning practices within SUS regionalization to promote more integrated and effective management.

Yi et al.[32] examine whether home- and community-based health services can reduce hospital admissions and expenditures among older adults with disabilities in China[32]. Using national survey data, the authors estimate the causal effects of these services on healthcare utilization and costs, assessing their potential to substitute for hospital-based care. The results indicate that the use of home- and community-based services is associated with significant reductions in the likelihood of hospitalization, the number of admissions, and length of stay. Total expenditures, out-of-pocket payments, and reimbursed costs also decline. Overall, the findings suggest that these services not only reduce reliance on hospital care but also contribute to improvements in the physical and mental health of older adults, potentially lowering hospitalization rates. The authors recommend prioritizing these services within formal care systems, ensuring accessibility and diversity, particularly for vulnerable populations. The study underscores the importance of investing in community- and home-based care to improve quality of life and reduce pressure on health systems.

Scholten et al.[30] explore the complexity of hospital governance, emphasizing the importance of collaboration, trust, and interpersonal skills in decision-making[30]. Governance arrangements are shown to reflect structural interdependence between managers and physicians, allowing both groups to maintain a degree of autonomy. To bridge this interface, intermediary 'connector' roles are created to facilitate consensus-based decision-making. However, ambiguity in these roles may enhance the perceived legitimacy of decisions while also posing risks to efficiency and effectiveness. Reliance on individual competencies is identified as a potential weakness, as governance becomes vulnerable to interpersonal dynamics. The hospital governance model in the Netherlands, which enables physician participation without their formal integration

into management structures, is highlighted as distinctive in comparison to other European countries. Ultimately, the authors call for quantitative studies to better understand trends in hospital governance and the impact of dual governance arrangements on efficiency and the balance of power between managers and physicians.

Finally, a study examining the impact of political appointments of commissioned civil servants in Brazilian municipalities[16] was included due to its relevance to the research question. The article analyzes how political dynamics shape bureaucratic structures at the municipal level, with particular attention to both the quantity and quality of commissioned positions. It assesses variation in the allocation of these positions across municipal administrations, as well as the educational profile of appointed public servants. An independent samples t-test is then applied to compare performance between municipalities with higher- and lower-capacity commissioned staff, as well as between those with larger and smaller numbers of such positions. The findings highlight the complexity of municipal public administration, as no statistically significant differences were observed, and the evidence remains inconclusive regarding the role of staff qualifications and staffing levels as predictors of improved municipal performance.

Challenges posed by corruption in the evaluation and auditing of health systems

As in the previous subsection, *table 3* provides a structured summary of the main ideas in each publication included in this second set, which are then analyzed in greater depth below.

Table 3. Synthesis of selected articles on corruption

Authors	Year	Synthesis
Caldas et al.[15]	2016	Reveals that corruption is associated with higher spending on education and health in Brazilian municipalities. Despite mandatory minimum investment requirements, corruption does not explain insufficient health funding, highlighting the need to combat corruption without reducing essential investments.
Dursky et al.[22]	2016	Analyzes corruption in the health sector in low- and middle-income countries, aiming to identify effective strategies to combat it. The review includes several studies highlighting financial fraud, embezzlement, and counterfeit supplies as the main issues, aiming to guide future actions to reduce corruption.
Machoski et al.[3]	2020	Examines how corruption in public health affects municipal economic growth in Brazil. Findings show that corruption is linked to a decline in GDP, reduced vaccination coverage, and increased fetal mortality, suggesting the need for audits and policy interventions to improve the situation.
Naher et al.[27]	2020	Corruption is described as a complex problem involving the abuse of power for personal gain. It occurs in both public and private sectors, undermining the right to health and negatively affecting the quality of health services provided.
Dincer et al.[19]	2021	Analyzes how corruption affects compliance with social distancing orders during the COVID-19 pandemic in the United States. More corrupt states show lower compliance. The research highlights that trust in institutions is crucial for adherence to health policies and the need to address corruption during crises.
Fana et al.[21]	2021	Research on corruption control in healthcare analyzes how corruption occurs and which strategies can be adopted. The objective is to improve the quality of public spending in this area, ensuring that resources are used appropriately and efficiently.

Table 3. Synthesis of selected articles on corruption

Authors	Year	Synthesis
Nguyen et al.[28]	2022	Identifies health system areas most vulnerable to corruption, including infrastructure construction, procurement and distribution of medicines, and health workforce training. Although strategies exist to combat corruption, outcomes remain uncertain, underscoring the need for stronger transparency and accountability mechanisms.
Krakowiak et al.[24]	2024	Analyzes how social observatories improve public expenditure control. Findings show reduced per capita spending, especially in smaller municipalities, with significant decreases in personnel and equipment costs in cities under 50,000 inhabitants.
Santos et al.[29]	2024	Examines the impact of discretionary budgetary practices on economic development, focusing on health spending in Mato Grosso during the 'Ambulance Mafia' scandal. Findings show that corruption undermined the quality of health services, highlighting the need for stronger transparency and anti-corruption measures to improve governance and accountability.
Sohns et al.[31]	2024	Studies COVID-19 vaccination coverage in the United Kingdom and its relationship with public attitudes toward corruption. Results show that 28% of British people consider bribery acceptable, and 34% view nepotism as an acceptable way to obtain early vaccination access.

Source: Authors' elaboration.

Corruption is widely recognized as a complex phenomenon for which no universally accepted definition exists. It involves the abuse of power by individuals in public or private positions for personal or group gain and often results in the violation of others' rights[27]. Corruption in the health sector is a significant problem that affects the quality of healthcare services[19]. Existing research on corruption control in the health sector examines how corruption occurs and what control strategies can be used to improve the quality of public health expenditure[17-19].

In Brazil, four studies were selected that address evaluation and auditing in health systems as mechanisms for controlling corruption risk. Machoski[3] investigated how corruption in the public health sector affects economic growth in Brazilian municipalities, using audit data from the Office of the Comptroller General (CGU) covering the period 2009–2010[3]. The study was conducted in two stages: first, it analyzed the relationship between audit performance and municipal economic growth using Ordinary Least Squares (OLS) regression; second, it examined the effects of corruption in public health on economic growth using quantile regression. All three corruption indices analyzed showed a negative association with GDP growth. The analysis also indicated that corruption disproportionately affects municipalities experiencing economic expansion. Evidence was also found linking corruption to reduced vaccination coverage and increased fetal mortality, suggesting that corruption in the health sector directly impacts population health. The author calls for further research on interventions to address corruption in the health sector, with emphasis on whether audits and transparency mechanisms improve governance and municipal economic performance in Brazil.

Another article discusses the impacts of discretionary budgetary policy and the possibility that its excessive use may generate adverse effects on economic development[20]. It specifically examines the impact of such policies on public health expenditure in municipalities in the state of Mato Grosso during the period of the so-called 'Ambulance Mafia' scandal (2001–2006). The findings indicate that corrupt practices affecting municipal health budgets had significant negative consequences for the quality of services delivered to the population. This relationship is evidenced by the negative correlation observed between the FIRJAN Social Development Index in Health and the budgetary policies analyzed.

As individuals engaged in corrupt practices divert resources to private interests, there is a clear tendency toward the deterioration of social development, particularly in the health sector. The study concludes by emphasizing the urgent need to implement effective anti-corruption measures and strengthen mechanisms of control and transparency in public resource management.

The article by Krakowiak and Seixas[21] was included for its relevance to the research question[21], highlighting the emergence of theoretical frameworks on social control of public spending that may help mitigate undesirable effects on the quality of expenditure. Drawing on agency theory and a statistical approach used to estimate the causal effect of social observatory interventions as a public policy, the authors compared treated and control groups and tested two hypotheses: (i) the presence of social observatories significantly reduces municipal per capita expenditures; and (ii) the impact of social observatories is more pronounced in smaller municipalities with fewer than 50,000 inhabitants. The findings confirm the effectiveness of social observatories across Brazil, particularly in smaller municipalities. In municipalities with fewer than 50,000 inhabitants that implemented a social observatory, reductions in 'Personnel' and 'Equipment and Permanent Goods' expenditure categories reached 42.6% and 11.8%, respectively, compared to national averages.

Ultimately, within this group of Brazilian studies, research conducted by Caldas et al.[22] examines the relationship between corruption and the structure of government spending in Brazilian municipalities[22]. The findings reveal a positive and statistically significant association between corruption and expenditures on education and health. This pattern can be largely attributed to the discretionary power exercised by municipal administrators over budgetary allocations, combined with existing legislation that mandates minimum investments in education and health as fixed percentages of municipal revenue. As a result, higher levels of corruption are associated with increased spending in these sectors—a paradoxical outcome, particularly in the health sector, which has long been characterized by chronic underfunding. From this perspective, it is essential to recognize the importance of ensuring adequate financing for health while simultaneously addressing the need for effective anti-corruption measures, without allowing corruption to be used as a justification for reducing investments that are fundamental to population well-being.

A study by Nguyen and Bui[23] identifies the areas within the health sector that are most vulnerable to corruption, including the construction and maintenance of health facilities; procurement of equipment and supplies, including medicines; distribution of medicines and supplies in the provision of services; management of care quality; training courses for health professionals; and medical research[23]. Although existing studies propose a range of strategies to address corruption in the health sector, their impacts remain uncertain. The literature highlights significant limitations regarding which control methods, regulatory mechanisms, and other interventions—such as transparency and accountability—are truly effective in mitigating the effects of corruption and ethical challenges associated with professional power structures on the quality of health expenditure.

Durski et al.[22] focus on corruption in the health sector, particularly in low- and middle-income countries[22], with the primary objective of identifying successful strategies that have contributed to reducing corruption and informing future interventions. Their systematic review includes a wide range of study designs, such as randomized controlled trials, time-series analyses, and case studies, all centered on anti-corruption interventions. The most frequently identified forms of corruption included improper financial dealings, billing fraud, theft and embezzlement, frequent and unauthorized absenteeism, counterfeit supplies, and direct misappropriation of funds,

with over-the-counter cash withdrawals at bank branches.

Dincer et al.[19] investigate the relationship between corruption and compliance with social distancing orders during the COVID-19 pandemic in the United States[19]. The study's central finding was that adherence to stay-at-home orders varied substantially across U.S. states, with lower compliance observed in states with higher levels of corruption. The analysis draws on data from all 50 states, combining corruption measures based on convictions and media reports with a compliance index capturing population behavior related to social distancing. Communities where corruption is endemic face greater challenges in implementing effective pandemic containment and mitigation strategies, particularly in contexts of already precarious health infrastructure. Trust in government institutions emerges as a critical determinant of compliance with public health policies, as low trust reduces individuals' willingness to follow public health guidance. Government legitimacy—understood as the perception that authorities act fairly and appropriately—also influences compliance, with more legitimate governments being more successful in enforcing social distancing measures. Corruption erodes both trust and legitimacy and may further weaken civic engagement and social capital, thereby hindering collective action during crises. The findings suggest that more corrupt states require additional efforts and resources to ensure compliance with public health policies, particularly during emergencies.

Finally, Sohns et al.[31] analyze data on COVID-19 vaccination coverage across different regions of the United Kingdom, examining the relationship between public attitudes and corrupt behavior[31]. The results indicate a moderate level of tolerance toward corruption among Britons, with 28% considering cash bribery acceptable and 34% viewing nepotism as an acceptable means of securing early access to vaccination.

Final considerations

An integrity program consists of a set of policies, practices, and procedures adopted by an organization to promote ethics, transparency, and compliance with laws and regulations33. Its purpose is to prevent, detect, and respond to inappropriate conduct, such as corruption, and it is therefore a key instrument for mitigating corruption risks. Such programs are an integral part of good governance, as they establish clear guidelines for employee conduct and contribute to governability by fostering an environment in which decisions are made fairly and transparently, thereby reducing the risk of corruption and enhancing administrative efficiency.

This integrative review identified and examined studies that provide evidence to address the central research question concerning corruption controls and integrity programs: 'How can effective corruption control and the implementation of integrity programs in health policies increase efficiency in the health sector?'. The reviewed studies identified a set of governance and governability strategies, along with corruption control mechanisms, which, taken together, have the potential to improve health system efficiency. These mechanisms and strategies were organized into two groups: one emphasizing the role of governability and governance in the evaluation and auditing of health systems, and another focusing on the challenges that corruption poses to these processes. Taken together, these groups offer satisfactory answers to the proposed research question.

A key point to highlight is that the search strategy adopted in this review enhanced the sensitivity of the integrative review, allowing for a substantial body of scientific literature to be captured. This included conceptual studies, case studies, analyses of implementation strategies, proposals for evaluation methods, as well as discussions of corruption cases within health policies.

Evidence that a 1% increase in public expenditure can significantly improve health

indicators, together with analyses of how power operates within health system governance, suggests that insufficient monitoring and evaluation may compromise outcomes. The implementation of social observatories, which demonstrated a reduction in per capita expenditure in smaller municipalities, underscores the importance of social accountability mechanisms in improving health system efficiency, as they promote transparency and public engagement. The findings also indicate that both governability and governance are essential to the effectiveness of health policies, requiring collaborative engagement between managers and health professionals.

Corruption, understood as the abuse of power for private gain, exacerbates inequalities and undermines health system efficiency, as illustrated by the so-called 'Ambulance Mafia' scandal in Mato Grosso, which negatively impacted social development, particularly in the health sector. It is essential to recognize the need for adequate health financing without allowing corruption to justify reductions in essential investments. Anti-corruption efforts must be accompanied by stronger institutions and the creation of effective systems to detect and sanction irregularities. This ensures that resources are used fairly and equitably, helping to build a stronger and more efficient health system.

Based on the findings of this integrative review, several research gaps have been identified and point to future directions. First, more in-depth studies are needed to systematically examine how different anti-corruption mechanisms can positively impact health system efficiency. Second, although this review highlights the existence of governance maturity models in hospitals, there is a lack of research exploring their adaptation and implementation in Brazilian or Latin American contexts. In addition, the relationship between evaluation, auditing, governance, and corruption in health systems requires further investigation, particularly regarding workflows designed to prevent, mitigate, and eliminate corruption. Fourth, more detailed studies are needed on how social observatories and other forms of social accountability can enhance transparency and reduce corruption across different health contexts. In conclusion, studying cases in which governance and the ethics of healthcare professionals have demonstrated greater effectiveness in improving health services may reveal practices that are replicable in other contexts, thereby enriching the debate on and strengthening public health governance.

Authorship contributions

Souza AA (0009-0002-7783-775X)* and Chioro A (0000-0001-7184-2342)* contributed equally to the manuscript preparation. ■

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