JQRHS

Journal of
Qualitative Research in Health Sciences

https://jqr1.kmu.ac.ir
doi:10.34172/jqr.1697
J Qual Res Health Sci 2026;15:1697

Original Article

Investigating the Impact of the Health Transformation Plan on Performance Indicators in University and Non-University Hospitals: A Qualitative Study of Kerman University of Medical Science

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Abstract

Introduction: The Health Transformation Plan (HTP) was launched in May 2014 in hospitals affiliated with the Ministry of Health, with the objectives of financial protection, equity in access, and improvement of service quality. Hospitals, as key units of the health system, require performance evaluation using hospital indicators such as bed occupancy rate, number of surgeries, length of stay, and mortality. This study aimed to investigate the factors influencing changes in hospital performance indicators following the implementation of the HTP in both university and non-university hospitals.

Methods: A qualitative study employing a content analysis approach was conducted. Semi-structured interviews were held with 22 experts (hospital managers, faculty members, quality improvement specialists, and accreditation experts) from October to December 2023 until data saturation was reached. Sampling was conducted using a combination of purposive and snowball techniques. The data were analyzed using MAXQDA 2020 software.

Results: Fifteen main categories of influential factors were identified. These factors included support for chronic and vulnerable patients, reduction in out-of-pocket payments, increase in the number of insured individuals, increase in the elderly population, quality of services, nature of the disease, staff shortages, increase in beds, equipment shortages, tariff changes, referral system, accreditation, major surgeries, and nature of hospital wards/specialties. Solutions proposed included optimizing admission/discharge processes, personnel training, and bed management.

Conclusion: The Health Transformation Plan increased demand but also exacerbated supply-side challenges due to resource shortages and the COVID-19 shock. Strengthening hospital capacity and implementing adaptive managerial interventions—such as workforce planning, process optimization, and resource reallocation—are essential for sustaining the plan's achievements.

Keywords: Health transformation plan, Performance indicators, University and non-university hospitals

Citation: Jafari Y, Amini E, Mardani M, Behzadi A. Investigating the impact of the health transformation plan on performance indicators in university and non-university hospitals: a qualitative study of Kerman university of medical sciences. J Qual Res Health Sci 2026;15:1697. doi:10.34172/jqr.1697

Received: October 22, 2025, **Accepted**: January 19, 2026, **ePublished**: February 25, 2026

Introduction

The health system plays a primary role in improving the quality of people's lives (1). The main mission of this system is to enhance the level of health and respond to the needs of the public and society. These needs are constantly changing, influenced by economic, social, and political conditions. Moreover, diseases and risk factors are continually evolving, experiencing very rapid transformations, especially in the current era (2). Over the past decades, many countries have undertaken reforms aimed at improving access to medical services and increasing financial protection against catastrophic healthcare costs (3).

The Ministry of Health and Medical Education, as the main authority for the country's health system, practically implemented the Health Transformation Plan starting May 5, 2014 (15th of Ordibehesht 1393) in its affiliated hospitals, with three approaches: Financial protection for the public, creating equity in access to health services, and improving the quality of services, which is still ongoing.

The HTP was executed in eight service packages to provide dignified health services to the Iranian people (4).

Hospitals, as the largest units of the health system and as an economic enterprise, are complex organizations that require a powerful economic structure because they utilize a large portion of financial and human resources and hold significant importance in health economics, especially in developing countries. Furthermore, regardless of their nature, hospitals must have clear and comprehensive standards for providing health and medical services, and for effective oversight, they require the preparation and use of appropriate indicators (5).

Therefore, to achieve the objectives of the Health Transformation Plan (HTP) and evaluate progress in the health sector, hospital performance should be systematically assessed using key performance indicators. These indicators—such as bed occupancy rate, average length of stay, number of surgeries, and inpatient mortality—reflect hospital efficiency, productivity, and quality of care. They serve as essential tools for comparing performance over time, benchmarking against standards or similar institutions, and informing evidence-based management decisions (6,7). In addition, financial performance indicators help identify the strengths and weaknesses of the health system and support strategic planning. The COVID-19 pandemic, as an external shock, created unpredictable demand pressures on hospitals in 2020 (7). Accordingly, this study aimed to assess hospital performance indicators before and during the COVID-19 pandemic to identify trends, evaluate the impact of external shocks, and provide insights for improving the efficiency and resilience of the healthcare system.

Methods

Participants included four hospital managers, three university faculty members, twelve heads and experts of hospital quality improvement, and three specialists in supervision and accreditation at the university vice-chancellery. Sampling was conducted using a combination of purposive and snowball techniques, aiming to include individuals with diverse roles and perspectives to ensure maximum variation and enhance the transferability of findings.

Inclusion criteria were: (1) at least two years of experience in hospital management, quality improvement, or health policy; (2) familiarity with the Health Transformation Plan (HTP); and (3) knowledge of hospital performance indicators. Exclusion criteria were: (1) lack of willingness to participate, or (2) insufficient experience or knowledge related to the study topics.

Interviews continued until data saturation was achieved, resulting in a total of 22 participants. Data were analyzed using conventional content analysis based on the approach proposed by Graneheim and Lundman (2004) (8).

The semi-structured interview guide included eight questions addressing changes in hospital performance indicators after the HTP, and one question focused on proposed strategies for improvement. The time and location of interviews were determined in consultation with participants. All interviews were conducted between October and December 2023 (Mehr to Azar 1402), lasted between 20 and 60 minutes, and were recorded after obtaining participants' informed consent.

All interviews were transcribed verbatim immediately after completion to determine ambiguous points and the time of data saturation. The typed and organized transcripts were then sent to the interviewees for their approval. Following this stage, the interview texts were entered into the MAXQDA 2020 software for analysis.

The qualitative data obtained from individual interviews were analyzed using conventional (inductive) content analysis, following the approach proposed. This approach was chosen because it allows categories and themes to emerge directly from the data rather than being guided by preexisting theories or frameworks. The goal of qualitative content analysis is to categorize the obtained information. The occurrence, repetition, and relationship of the categories are analyzed, and then the messages within the text are inferred. The participants reviewed the texts multiple times from beginning to end to ensure the researcher's immersion in the extracted data. Then, the process of identifying meaning units began, which continued until the point of saturation. These meaning units were aligned and matched with the entire text several times. In this way, keywords and main points related to the HTP and hospital indicators were identified. After identifying the meaning units, which can be referred to as the extracted sub-themes, they were categorized.

Lincoln and Guba's criteria, including validity, transferability, consistency, and confirmability, were considered in this study (9). To ensure the validity or accuracy of the findings, after analyzing each interview, the participants were referred back to the participants, and the accuracy of the content was confirmed, and necessary changes were made. To ensure the validity, the researchers tried to avoid interfering with their previous assumptions as much as possible in the process of data collection and analysis. The opinions of the observers were used to estimate the confirmability. The interviews and codes were reviewed by two colleagues. To achieve the reliability or adequacy of the data analysis process and the researcher's decision-making processes, this study was conducted as a team and with the guidance of experts, and the colleagues were asked to code and re-classify the text of some of the interviews and compare them with the codes and categories of the research group, and the necessary agreement was obtained. To increase the transferability of the findings, in addition to avoiding any bias or bias regarding the phenomenon under study before and after the interview, participants who were different from each other were included.

Results

The findings of this section show a wide range of factors influencing changes in performance indicators. The findings were organized into 15 main categories (Table 1).

Support for Chronic and Vulnerable Patients

One of the major categories influencing hospital indicators following the HTP was support for chronic and vulnerable patients. The implementation of HTP enhanced the accessibility of healthcare services for low-income and high-need populations, leading to increased hospital utilization. Related sub-categories included *increased bed occupancy rate*, *increased number of surgeries*, and *increased patient length of stay*. "In the beginning, due to the benefits defined for the HTP, more people were encouraged to visit hospitals, especially university hospitals… this plan led to greater access to medical services for the public, especially the vulnerable and those with limited resources" (Participant 4).

Table 1. Main Categories and Sub-Categories

Main Categories	Sub-Categories
Support for Chronic and Vulnerable Patients Increased Bed Occupancy Rate	Increased Number of Surgeries
	Increased Patient Length of Stay
	Increased Bed Occupancy Rate
Reduction in Out-of-Pocket Payments (OOP)	Increased Number of Surgeries
	Increased Patient Length of Stay
	Increased Patient Admission Ratio per Bed
	Increased Bed Turnover Interval
Increase in the Number of Insured Individuals	Increased Bed Occupancy Rate
	Increased Number of Surgeries
	Increased Bed Turnover Rate
	Increased Patient Admission Ratio per Bed
Increase in the Elderly Population	Increased Bed Occupancy Rate
	Increased Number of Surgeries
	Increased Bed Turnover Interval
	Increased Patient Mortality
	Increased Patient Length of Stay
Quality of Health Services	Increased Bed Occupancy Rate
	Increased Bed Turnover Interval
	Increased Patient Mortality
Nature of the Disease (e.g., COVID-19)	Increased Bed Occupancy Rate
	Decreased Number of Surgeries
	Increased Bed Turnover Interval
	Increased Patient Mortality
	Increased Patient Length of Stay
Failure to Meet Physicians' Financial Demands	Decreased Number of Surgeries
	Decreased Bed Occupancy Rate
Staff Shortages and Increased Workload	Increased Patient Length of Stay
	Decreased Number of Surgeries
Increase in the Number of Hospital Beds	Decreased Number of Surgeries
	Increased Bed Occupancy Rate
Equipment and Facility Shortages	Decreased Surgery-to-Operating Bed Ratio
	Decreased Bed Occupancy Rate
Tariff Changes Decreased the Number of Surgeries	Increased Bed Occupancy Rate
	Increased Number of Surgeries
	Increased Patient Admission Ratio per Bed
Referral System	Increased Bed Turnover Rate
	Increased Bed Occupancy Rate
Impact of Hospital Accreditation System Implementation	Increased Bed Occupancy Rate
	Increased Number of Surgeries
	Decreased Mortality Rate
Increase in the Number of Major Surgeries	Increased Patient Length of Stay
	Decreased Number of Surgeries
Nature of Hospital Wards and Specialties	Decreased Number of Surgeries
	Increased Patient Length of Stay

Reduction in Out-of-Pocket Payments (OOP)

Another major category was a reduction in out-of-pocket payments, which encouraged more patients to seek inpatient care and surgical services. As hospitalization became more affordable, hospital utilization indicators showed a clear upward trend. The sub-categories included an *increased number of surgeries*, *increased patient length of stay*, *increased patient admission ratio per bed*, and *increased bed turnover interval*. "After the HTP, some services became free… even patients with weak financial conditions wanted to be hospitalized—the price was so reasonable that even a guest house would cost more" (Participant 9).

Increase in the Number of Insured Individuals

The increase in the number of insured individuals following the HTP expanded access to healthcare and led to greater demand for inpatient and surgical services. Related sub-categories included *increased bed occupancy rate*, *increased number of surgeries*, *increased bed turnover rate*, and *increased patient admission ratio per bed*. "People who were uninsured before the plan became insured after the HTP, and this caused more people to visit teaching hospitals… the large influx increased hospitalizations and surgeries" (Participant 11).

Increase in the Elderly Population

The increase in the elderly population was another factor affecting hospital indicators. The aging demographic led to higher demand for hospitalization, surgeries, and treatment of chronic diseases. Related sub-categories were *increased bed occupancy rate*, *increased number of surgeries*, *increased bed turnover interval*, *increased patient mortality*, and *increased patient length of stay*. "The number of surgeries can also be related to the number of elderly people; the more this population is, the more they need care and surgeries… mortality is higher among this group" (Participant 3).

Quality of Health Services

The quality of health services significantly influenced hospital performance indicators. Improved quality was expected to reduce patient stay duration and increase bed turnover, though inconsistencies in implementation sometimes led to the opposite. Sub-categories included *increased bed occupancy rate*, *increased bed turnover interval*, and *increased patient mortality*. "The issue of service quality definitely has an impact… the better the

quality, the faster the patient is discharged, and the next one admitted" (Participant 6).

Nature of the Disease (COVID-19)

The nature of diseases, especially during the COVID-19 pandemic, greatly affected hospital indicators. Longer treatment periods and increased mortality rates changed hospitalization dynamics. Sub-categories included *increased bed occupancy rate*, *decreased number of surgeries*, *increased bed turnover interval*, *increased patient mortality*, and *increased patient length of stay*. "The COVID-19 disease increased the length of stay because these patients usually stayed for 10 to 14 days… it increased both the bed turnover interval and the occupancy rate" (Participant 8).

Failure to Meet Physicians' Financial Demands

The failure to meet physicians' financial demands negatively affected hospital performance, as some physicians moved to private practice, reducing service capacity. Sub-categories included *decreased number of surgeries* and *decreased bed occupancy rate*. "After some time, the promises made to physicians were not fulfilled… some shifted to private clinics, which significantly impacted the number of surgeries and hospitalizations" (Participant 2).

Staff Shortages and Increased Workload

Staff shortages and increased workload were significant challenges after the HTP due to higher patient volume. These issues delayed care processes and prolonged hospitalization. Sub-categories were *increased patient length of stay* and *decreased number of surgeries*. "Due to the high volume of admissions after the HTP, especially in public hospitals, the workload increased… diagnostic and therapeutic services took longer, extending patients' length of stay" (Participant 7).

Increase in the Number of Hospital Beds

The increase in the number of hospital beds aimed to accommodate the higher patient demand caused by HTP incentives. This change affected both service capacity and utilization indicators. Related sub-categories included *decreased number of surgeries* and *increased bed occupancy rate*. "After the HTP, hospitals with high referrals increased their inpatient beds to meet demand—especially maternity, ICU, and special care beds" (Participant 10).

Equipment and Facility Shortages

Shortages in equipment and facilities hindered hospital efficiency and directly influenced performance indicators like turnover intervals. Sub-categories were *decreased surgery-to-operating-bed ratio* and *decreased bed occupancy rate*. "The more equipped a hospital is, the faster patient care is completed, and the next patient is admitted… facilities and equipment definitely influenced the bed turnover interval" (Participant 5).

Tariff Changes

Tariff changes for physicians and hospital services after HTP implementation motivated more hospitalizations and surgeries, although inconsistent revisions created fluctuations in hospital indicators. Sub-categories included *decreased number of surgeries*, *increased bed occupancy rate*, *increased number of surgeries*, and *increased patient admission ratio per bed*."The tariff announced for physicians at the beginning of the HTP led to more willingness to admit patients… this increased the bed occupancy rate in hospitals" (Participant 1).

Referral System

The referral system introduced under the HTP played a significant role in redistributing patients across hospitals. It increased the number of referrals to higher-level hospitals and affected several key indicators. Related sub-categories included *increased bed turnover rate* and *increased bed occupancy rate*. "After the plan, many patients were referred from smaller areas to larger hospitals where they received their services… the referral system increased bed occupancy and turnover rates" (Participant 14).

Impact of Hospital Accreditation System Implementation

The implementation of the hospital accreditation system influenced service quality and patient safety. Hospitals that actively pursued accreditation showed improved performance in certain indicators. Sub-categories included *increased bed occupancy rate*, *increased number of surgeries*, and *decreased mortality rate*. "Accreditation can have an impact because it pays a lot of attention to patient safety… hospitals that followed accreditation standards showed better performance" (Participant 12).

Increase in the Number of Major Surgeries

An increase in the number of major surgeries was observed after the HTP, which affected overall surgery counts and hospital stay duration. Sub-categories included *increased patient length of stay* and *decreased number of surgeries*. "When the number of major surgeries increases, the total number of surgeries decreases because these operations take longer and require longer hospitalization" (Participant 15).

Nature of Hospital Wards and Specialties

Finally, the nature of hospital wards and specialties affected hospitalization patterns and turnover intervals, especially in teaching and specialized hospitals. Sub-categories included *decreased number of surgeries* and *increased patient length of stay*. "University hospitals have specialized wards—infectious diseases, pediatrics, psychiatry—where patients are not discharged quickly, so the turnover interval is naturally higher" (Participant 13).

Proposed Solutions for Enhancing and Improving Hospital Indicators

In this stage of the study, experts presented proposed solutions for enhancing and improving each of the hospital performance indicators. The findings from this section are presented in Table 2.

Table 2. Proposed Solutions for Enhancing and Improving Performance Indicators

No.	Performance Indicator Title	Proposed Solutions for Enhancing and Improving the Corresponding Performance Indicator
1.	Bed Occupancy Rate	• Optimizing patient admission and discharge processes to reduce the length of patient stay. • Improving diagnostic and treatment processes to minimize the duration of patient hospitalization. • Ensuring an adequate number of healthcare specialists, including physicians, nurses, and support staff, to effectively manage patient care and minimize delays in patient admission and discharge. • Collaboration and coordination among medical and nursing teams, as well as between hospitals and other healthcare centers, to improve services and reduce patient waiting times for care, ultimately optimizing the bed occupancy rate. • Effective bed management is crucial for optimizing the bed occupancy rate, such as implementing efficient bed allocation systems that prioritize patients based on medical needs. This includes close monitoring and coordination of bed availability, and planning for patient discharge from the hospital.
	Patient Admission Ratio per Bed	• Enhancing patient admission processes, including patient information registration, medical examination, and patient transfer to different hospital wards. • Improving communication among different hospital care teams to reduce delays in admission processes. • Utilizing medical information systems to improve patient admission tracking and management. Hospitals can improve the patient admission ratio by optimizing bed allocation. • Hospital managers can focus on streamlining discharge processes to expedite the discharge of patients who require acute care no longer. By implementing efficient discharge processes, hospitals can quickly free up new inpatient beds. • Hospitals can collaborate with other healthcare centers to ensure a smoother transition of patients across different levels of care. This can help prevent unnecessary hospital admissions and optimize bed utilization.
	Average Patient Length of Stay (ALOS)	• Providing post-discharge care for patients, including follow-up and care after discharge from the hospital, can help reduce the need for long-term stay. • Streamlining and improving admission, diagnosis, treatment, and discharge processes can significantly reduce the length of stay. • Emphasizing preventive measures to reduce the likelihood of hospital admission, such as promoting healthy lifestyles, vaccinations, disease screening, and managing chronic conditions to prevent the progression of diseases that may require hospitalization.
	Percentage of Surgical Patients to Inpatients	• Ensuring the provision of optimal healthcare and quality of post-operative services using standards. Enhancing personnel knowledge in the field of surgical and post-operative care and management. • Improving communication and coordination among physicians, nurses, and medical staff to increase the quality of care. Establishing a system for continuous monitoring and analysis of surgical patient admissions, as well as creating accurate plans for surgeries and patient hospitalization, and optimizing the allocation of surgical beds based on demand and patient needs, ensuring suitable resources and equipment are available. • Striving to reduce surgical waiting times, improve pre-operative assessment methods, and optimize operating room utilization.
	Ratio of Surgeries Performed to Operating Beds	• Optimizing patient transfer processes from various hospital wards to the operating beds section. • Appropriate and optimal planning for the management of equipment and resources related to the operation, as well as developing productivity plans for the optimal use of operating beds. • Promoting coordination and cooperation among different medical team members to provide better patient care. • Collaboration between hospitals and outpatient centers can help reduce the load on operating beds. Some surgeries can be performed in outpatient settings, freeing up surgical beds in hospitals for more complex procedures. Streamlining pre-operative processes can help reduce patient waiting times for surgery.
	Net Mortality Rate	• Pursuing continuous professional development for healthcare providers through ongoing educational and training programs. • Ensuring a skilled and sufficient workforce and personnel to provide quality care is crucial. Implementing comprehensive safety measures such as strict hand hygiene practices, effective infection control protocols, and standardized procedures. • Establishing a chronic disease management process that includes prevention and early diagnosis programs. Creating strict standards for patient care and monitoring their proper implementation can help reduce the mortality rate. • Upgrading the skills and knowledge of physicians, nurses, and other medical staff through training programs to provide better and more effective care. Educating patients and their families about their diseases and how to care for them at home can help accelerate the recovery process.
	Bed Turnover Rate	• Implementing effective discharge planning processes can help accelerate the discharge of patients who require acute care no longer. This involves coordination with various departments, including nursing, physicians, and social workers. • Improving processes for patient transfer between wards and inpatient beds, as well as optimizing patient admission, discharge, and transfer processes, can help reduce delays and improve bed turnover. This may include implementing electronic health record systems that simplify documentation and communication. • Real-time monitoring of bed availability, implementing bed management systems, and optimizing staffing levels to ensure appropriate bed utilization. Identifying and addressing factors that contribute to long-term hospital stays can help improve bed turnover. This may include implementing quality improvement plans to reduce healthcare-associated infections, prevent medication errors, and enhance care coordination, among other areas. • Productivity training in the use of appropriate medical and nursing equipment. Identifying and eliminating barriers that may cause delays in patient discharge.
	Bed Turnover	• Interval providing comprehensive training to healthcare staff on efficient bed turnover techniques can significantly impact the bed turnover interval indicator. • Regular training programs can reinforce these skills. Increasing coordination between medical and nursing teams to improve the patient discharge process. • Establishing alert systems to identify and prevent problems that may lead to discharge delays. Hospitals can optimize their workflow processes. • This includes streamlining communication and coordination between different healthcare providers involved in the process, such as physicians, nurses, nursing assistants, etc.

Discussion

The qualitative data analysis in this study revealed that multiple factors have influenced changes in hospital indicators following the implementation of the Health Transformation Plan (HTP) in hospitals affiliated with Kerman University of Medical Sciences. The findings suggest that although the plan has achieved significant progress in public health and service access, challenges remain in financial protection, equity, and sustainability of healthcare delivery.

Financial Protection for Vulnerable and Chronic Patients

One of the key positive effects observed after implementing the HTP was the financial protection provided to patients with chronic and severe conditions. According to the Ministry of Health's report to the World Health Organization (WHO), the proportion of households facing catastrophic health expenditures decreased from 2.9% before the reform to 2.4% after its implementation (10). Similarly, data from the National Institute of Health Research indicated that the rate of catastrophic health spending in rural areas declined between 2013 and 2015, although it started to rise again in the first nine months of 2015 (11).

Data from the Iranian Statistical Center showed that the share of health expenses in urban household expenditure increased from 9.18% to 10.67% following the plan (12).

Reduction of Out-of-Pocket Payments

Another major factor affecting hospital indicators was the reduction in out-of-pocket (OOP) payments by patients. Studies consistently reported a significant decrease in patient payment burdens in public hospitals. For example, in Alzahra Hospital in Shiraz, the OOP payment for cardiac surgery decreased from 10 million to 6 million Rials, while insurance coverage increased (13). In Kurdistan province, OOP payments for cesarean sections decreased from 16% to 4.3% and then 2.5% in subsequent phases (14). Another study also confirmed substantial OOP reductions. However, this also led to induced demand, as decreased patient costs encouraged higher service use, while inadequate expansion of the family physician and referral systems left this demand largely uncontrolled (15).

Expansion of Insurance Coverage

A considerable increase in the number of insured individuals followed the HTP. Approximately 6.8 million previously uninsured citizens received free health insurance. However, coverage expansion occurred without proper income-based contribution mechanisms, leading to sustainability challenges. The number of people insured under the Iranian Health Insurance Organization increased from 2.6 million in 2013 to 9.4 million in 2014 (12). Although this extended service access, the lack of proportional financing mechanisms created fiscal stress on the insurance system.

Population Aging

The growing elderly population emerged as another influential factor. A study (16) emphasized that aging and non-communicable diseases threaten the sustainability of healthcare reforms if not adequately addressed. Therefore, planning for elderly care and chronic disease management is vital for maintaining the reform's sustainability.

Quality of Health Services

Quality of care is a critical determinant of hospital outcomes. High-quality services reduce infections, mortality, and readmissions. Abedi et al. (17) found that factors such as education, service quality, financial support, and clear communication significantly influenced the success of the HTP. Hence, prioritizing continuous quality improvement is necessary to enhance hospital performance indicators.

Nature of Diseases and the COVID-19 Pandemic

Changes in disease patterns, including the emergence of chronic and infectious diseases such as COVID-19, significantly affected hospital indicators. Singhal reported that one infected person could transmit COVID-19 to an average of 3.5 others, potentially infecting over 70% of the population. The case fatality rate among hospitalized patients ranged from 4–11%, and 2–3% overall. By March 30, the WHO reported 248,349,127 global cases and 5,937,872 deaths. COVID-19 imposed severe costs on the healthcare system, particularly affecting elderly and comorbid patients (18). Thus, the changing disease landscape has become a central challenge for sustaining healthcare reforms.

Physician Financial Dissatisfaction

The lack of sustainable financial support for physicians was another negative factor. Inadequate incentives led some specialists to shift to private practice, reducing participation in public hospitals. Financial support and fairness were found to have significant positive effects on reform success (17). Hence, ensuring equitable compensation and motivation for healthcare providers is crucial for maintaining hospital performance.

Human Resource Shortages and Workload Pressure

Shortages of medical staff and increased workloads were consistently reported as barriers. Rapid implementation of the reform, financial constraints, and insufficient infrastructure created significant stress for personnel. Studies noted decreased patient satisfaction with clinical care and less consultation time after the reform (19,20). High workload, weak human resource management, and unfair payment systems reduced staff motivation and performance (21,22). Consequently, addressing workforce distribution and motivation is essential to sustain improvements in care quality.

Increase in Hospital Beds

Many hospitals expanded bed capacity and operating

rooms to accommodate higher patient inflow. Research in Isfahan showed a significant increase in bed occupancy rates after the reform (23). This indicates more efficient use of hospital resources, although it also highlights growing service demand that requires proportional staff and infrastructure support.

Equipment and Infrastructure Deficiencies

A recurring challenge in several hospitals was the lack of adequate medical equipment and infrastructure. While HTP focused on financial reform, insufficient attention to intersectoral collaboration and technical infrastructure weakened its impact (24). Poor diagnostic facilities and outdated equipment were associated with prolonged patient stays and lower bed turnover rates. Thus, strengthening hospital infrastructure is a prerequisite for achieving the intended outcomes of the reform.

Tariff Adjustments

Changes in medical tariffs substantially influenced hospital and physician behavior. The relative value of medical services increased sharply, up to 460% in public and 833% in private inpatient services. Outpatient tariffs in public facilities increased by an average of 202.8%. This led to higher insurance expenditures, with total health insurance spending rising from 43,513 billion Rials in 2013 to 86,086 billion Rials in 2014 (25). However, the fee-for-service payment model created incentives for induced demand and contradicted upstream health policies promoting performance-based payment systems.

Referral System Inefficiencies

The referral and family physician systems were inadequately integrated into the HTP. Reports emphasized that the reform did not fully align with Articles 32–38 of the Fifth Development Plan, which mandate prioritizing primary care and referral mechanisms (26). Although service access improved for vulnerable urban populations (27), the absence of a strong referral system led to inefficient resource use and unnecessary hospital visits. Future reforms should strengthen gatekeeping and strategic purchasing mechanisms.

Hospital Accreditation

Implementation of hospital accreditation programs was intended to improve service quality and organizational performance. Studies demonstrated positive effects on institutional culture, clinical performance, and care quality. Weak managerial competence and political influence in leadership appointments also limited accreditation effectiveness (28). Therefore, consistent monitoring and adherence to accreditation standards are critical for sustaining quality improvement.

Increase in Major Surgeries

The increase in complex and high-cost surgeries following the reform also affected hospital performance. These procedures required longer postoperative care, increasing average patient stay and hospital resource use (29). Although such interventions may reflect improved service capacity, optimizing surgical scheduling and post-operative management can help control hospital costs and length of stay.

Hospital Type and Specialty Differences

Finally, variations in hospital specialties and missions influenced outcomes. For instance, psychiatric hospitals naturally reported longer average stays (30). Military hospitals faced budget limitations due to their specific missions and lower cost-effectiveness. Similarly, physicians in private hospitals performed fewer surgeries than in public hospitals after the reform (31,32). These findings indicate that policy implementation should consider hospital type, specialty, and organizational mission to ensure equity and efficiency across the healthcare network.

Conclusion

The Health Transformation Plan (HTP) aimed to reduce out-of-pocket expenses, enhance equity in access, and improve healthcare quality. This study found that although the HTP increased demand for inpatient and surgical services and improved efficiency indicators such as bed occupancy rate, it also created major supply-side challenges. Human resource shortages, work overload, lack of equipment, and the COVID-19 pandemic threatened the sustainability of its achievements, showing that expanding financial coverage without strengthening service capacity can overburden hospitals and undermine care quality. To sustain and enhance the achievements of the Health Transformation Plan (HTP), the health system must adopt evidence-based and adaptive management. Reforms should include revising payment and incentive systems, improving patient flow processes, strengthening referral mechanisms, and utilizing artificial intelligence for performance monitoring. Furthermore, developing resilient infrastructure and a well-prepared healthcare workforce is vital to ensure long-term equity, efficiency, and quality, particularly in the face of external challenges such as pandemics.

Authors' Contribution

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Competing Interests

There are no conflicts of interest.

Ethical Approval

The ethical approval was obtained from Kerman University of Medical Sciences (Ethical Approval code: IR.KMU.REC.1401.335)

Funding

No fund has received

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