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Article

Key factors influencing university hospital development in China: A qualitative study based on public value theory

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Abstract: Over the last two decades, governance for global health has garnered more attention from policymakers, decision-makers, and scholars from several disciplines. The health sector has also become more dynamic and complicated as a result of several factors that have influenced organizational development. The issue of sustainability is clearly raised with specific emphasis and urgency in the context of the global healthcare system. Some countries have been altering their healthcare systems to improve healthcare performance. University hospitals as the main providers of high-quality healthcare services in China, have an irreplaceable role in promoting the construction of healthy China. This study strategic triangle as an analytical framework to identify the key factors that influence university hospital in China and better comprehend how public value is conceptualized and implemented in practice. The study was conducted by qualitative method, five university hospitals designated as "Grade A tertiary hospitals" and semi-structed interviews were carried out with 33 participants, including experts, university hospital leadership level, and basic level. The study revealed that there are eight (8) major factors influencing the development of university hospitals in China. University hospital administrators must be prepared to assess and respond to factors that enhance or hinder implementation continuously and methodically. These insights can be used to improve early preparedness, but additional study in this area is required to better understand the driving factors, action models, and techniques for achieving sustainable development in university hospitals.

Keywords: healthcare system; university hospital; strategy management; hospital development; factors

1. Introduction

Over the last two decades, governance for global health has received increased attention from policymakers, decision-makers, and scholars from several disciplines (Jones et al., 2020). Concerning global health systems, the issue of sustainability is clearly raised with a specific emphasis and sense of urgency. In 2015, the World Health Organization created a map of the 100 core health indicators, which includes access indicators, quality and safety care indicators, health workforce indicators, health information indicators, and health financing indicators (WHO, 2015). When it comes to providing effective, safe, and high-quality care while also meeting the interests of numerous stakeholders (Guise et al., 2024), as well as taking into account global health challenges (Elias, 2021; Haynes et al., 2020).

Researchers have grown increasingly interested in the healthcare industry in recent years, whether in the corporate or public sector, looking for solutions to current problems or aiming for modernization. Since the 1990s, major countries throughout

the world, including the United States, Japan, Germany, and China, have gradually increased the pace of changing their healthcare systems. Despite China's brilliant achievements and obvious progress in medical and healthcare reform and development, public criticism of the unbalanced development of medical and healthcare services, the pursuit of medical quality and level, and the expectation of medical fairness and efficiency are gradually increasing (Jakovljevic et al., 2023).

China's transition from a planned to a market economy has drawn increased attention to its rapid transformation into a global power, igniting international interest. Over the last 40 years, China's healthcare industry has witnessed a remarkable metamorphosis. To realize the goal of national comprehensive universal health insurance coverage, the Communist Party of China Central Committee and the State Council issued a policy document titled "Deepening the Health System Reform" in March 2009. This policy seeks to achieve this goal by providing safe, effective, and economically priced basic healthcare to the entire population. These initiatives resulted in a consistent growth in the coverage of publicly sponsored health insurance systems in China, from 29.7% in 2003 to 87.9% in 2008 and 95.7% in 2011 (Meng et al., 2015). In 2012, medical insurance covered 1.34 billion people (Yip et al., 2014). To create a universal basic medical program in 2016, the Chinese government combined the New Rural Cooperative Medical Care Scheme and the Urban Residents Basic Medical Scheme (Pan et al., 2015). By the end of 2021, 136,297 million individuals had enrolled in basic medical insurance across the country, with participation rates remaining consistent at more than 95% (Zheng et al., 2022).

Although China has attained universal health coverage in recent years, benefits have remained low, and the quality and scope of care and coverage vary greatly (Nofri, 2015). According to the Economist Intelligence Unit (EIU) report, the country's annual health spending would rise by an average of 11.8% each year from 2014 to 2018, reaching $892 billion (Deloitte, 2018; Nofri, 2015). While this represents a lower percentage of GDP (5.6%) than in most affluent countries. Furthermore, the pandemic-related inflation, cost-of-living issue, and economic slump have impacted health system expenses, service levels, and backlogs. Health systems are witnessing a large increase in input costs for service delivery (Morgan and James, 2022).

China's healthcare system faces particular challenges due to the unique role that public hospitals play. Public hospitals are facing expanding challenges, including an increasing number of institutions, poor financial conditions, inequities, inefficiency, and a need to increase volume and service quality (Deloitte, 2018). First, the pandemic-related inflation, cost-of-living crisis, and economic downturn have all had an impact on health-care costs, service levels, and backlogs. Health systems are seeing a significant increase in service delivery input costs (Morgan and James, 2022). According to the latest recent projections, China spends less than 6% of GDP on health, or almost 20% less per person than the OECD average (OECD, 2021). Furthermore, according to the China Health Statistics Yearbook (**Table 1**), between 2017 and 2022, China's hospitals grew at an average annual rate of 3.6%. However, tertiary hospitals achieved only a 0.8% annual growth rate. Public hospitals provide 90% of all outpatient and inpatient care, with the majority being provided by tertiary hospitals with more than 500 beds (Yip et al., 2012). Public hospitals were overworked because of this extensive service supply and increased public confidence in larger public

hospitals over neighbourhood clinics (Li et al., 2023). This led to major systemic inefficiencies.

Table 1. Overview of China's healthcare system.

Hospital Organization	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Total	31,056	33,009	34,354	35,394	36,570	36,976
By Economic Classification						
Public Hospital	12,297	12,032	11,930	11,870	11,804	11,706
Private Hospital	18,759	20,977	22,424	23,524	24,766	25,230
By Hospital Level						
Level Three Hospital	2340	2548	2749	2996	3275	3523
Third-Class Hospital	1360	1442	1516	1580	1651	1716
Level Two Hospital	8422	9017	9687	10,404	10,808	11,145
Level One Hospital	10,050	10,831	11,264	12,252	12,649	12,815

One disadvantage of this system is that many resources and patients in urban areas tend to gravitate toward larger secondary hospitals. As a result, junior doctors working in large hospitals are now expected to see 60 to 100 outpatients in addition to their regular patient load each day. Furthermore, it causes rushed consultations, lengthier wait times, and an increased risk of misdiagnosis (Chang, 2018). Besides, the healthcare system provides no incentive to consult locally because patients can go to any hospital of their choice, which has been fueled by an increase in demand for hospital consultations. University hospitals account for more than 90% of inpatient admissions and more than 50% of outpatient consultations, with each physician performing 60 to 80 consultations each day (Milcent, 2018).

Hsiao (2007) divides the issues affecting China's healthcare system into four main categories: under-funding and under-provision of preventive and public health services, excessive healthcare costs, inaccessible healthcare, and medical poverty. According to the Global Health Initiative, a large joint international research program run by Harvard University, the performance of the healthcare system and sustainable development are linked to three key issues: equitable access, efficiency and effectiveness, and quality and responsiveness (Chen et al., 2014). It is clear how the concept of healthcare system sustainability relates to several interconnected, but potentially competing factors and goals. Within this context, the researcher seeks to grasp the key factors influencing university hospital in China, with the goal of presenting broader theoretical and methodological questions concerning the pace of reform.

University hospitals did not dominate China's public hospital system. As of the end of December 2021, China has 11,804 public hospitals, with 585 linked with universities and teaching hospitals, accounting for only 4.96% of the total number (Cheng, 2022). However, university hospitals are a critical and fundamental component of tertiary hospitals, and they are currently over-utilizing high-tech equipment. In China, over 90% of hospitals with more than 800 beds are university-affiliated, and many national and provincial key disciplines and key laboratories are established in university-affiliated hospitals, accounting for more than 80% of

scientific research results (Luo, 2018). Compared to other public hospitals, university hospitals are the bedrock of the national healthcare system since they concentrate superior medical resources and are primarily responsible for the diagnosis and treatment of complex disorders. As the main providers of healthcare services in China, university hospitals play an irreplaceable role in promoting the construction of a healthy China. The transformation of the governance structure and improvement of governance abilities of public hospitals is of great significance for achieving the goals of healthcare reform and promoting the realization of Healthy China.

The researcher believes that more changes in the healthcare sector will occur in the coming five years than in the previous fifteen years. The efficiency with which rational procedures achieve results is determined by specific organizational elements. The basic purpose of strategy is to lead a company to growth and long-term success (Carter et al., 2008). As a result, while implementing strategic management to consider a hospital's long-term prospects, it must include added value, such as increased performance and high-quality, trustworthy medical care. Within the context of the "Healthy China" strategy and continuously deepening medical reform, public hospitals, particularly university hospitals as the main providers of high-quality healthcare services in China, have an irreplaceable role in promoting the construction of healthy China. How to provide high-quality medical services for the implementation of the national health strategy, while taking advantage of strategic dividends to improve its development, has put higher demands on the new development of public hospitals (Fang, 2021).

2. Materials and methods

2.1. Public value theory

Public value theory is management thinking that prioritizes achieving the expectations of society in addition to efficiency. It is an alternative governance model developed in response to the shortcomings of previous public management and the NPM paradigm (Sami et al., 2018). The literature (Alford and Greve, 2017; Kelly et al., 2002; O'Flynn, 2007; Stoker, 2006) demonstrates that the theoretical foundations of public value are an alternative to New Public Management, which was itself an alternative to traditional public administration (Stoker, 2006). For this study, public value has a clear criterion, that is, all activities and behaviours carried out by the hospital must be aimed at achieving the public interest of the hospital and must effectively overcome the individual and sectoral interest deficiencies in healthcare services. The ultimate goal of public hospitals is to actively create public value for society, and there are two main criteria for examining whether and to what extent public hospitals have created public value: first, whether the medical services provided by public hospitals meet the public's demands and expectations; Second, whether the operating costs of hospitals are scientifically reasonable to meet such demands and expectations, and whether they impose a heavy burden on the public.

Due to the complexity and multidimensionality of healthcare, conducting research on university hospital strategic management is methodologically tough. The study included thirty-three participants, each with their own set of interests and concerns. Participants include managers ranging from the middle and upper level,

specialists in university hospitals, some related policymakers, and stakeholders such as Health Commission, Healthcare Security, and Medical University managers. This sort of respondents can reflect the horizon for managing and influencing hospital sustainable development precisely. The primary data collection method for this qualitative case study was a series of interviews with internal staff members and external experts on strategic management in university hospitals. The interview outline, interview guide, and interview protocol were just a few of the data-collection tools developed to make the interviewing process more efficient and purposeful. Nine (9) participants are selected, three (3) from each university hospital including hospital director, chief accountant, and medical department manager. Each respondent's opinions are represented throughout the semi-structed interview and evaluation, allowing for the collection of findings on factors influencing university hospitals. To select the right enabling factors and collect the necessary data, two sets of interview were designed. A select group of professionals pretested the interviews to ensure that the questions were comprehended. The interview schedule includes open-ended questions that allowed participants to answer from a variety of perspectives. Participants were asked to identify the factors that aid university hospital strategic management.

This study conducts the typical university hospitals involving the General Hospital of Ningxia Medical University as the main research objective compared with Xiangya Hospital Central South University, The First Affiliated Hospital of Xi'an Jiaotong University, Lanzhou University Second Hospital, People's Hospital of Ningxia Hui Autonomous Region as an understanding of strategic management and management control practices about public value. These selected five (5) university hospitals are Grade-A tertiary hospitals. At the same time, each university hospital owns more than 2500 beds and 3000 employees which means they are similar in terms of overall scale and number of employees, so they have a lot of experience worth learning from each other. In-depth interviews with legislators, managers, medics, and patients were carried out (see **Table 2**). Besides, the chosen hospitals were suitable for highlighting the strategy management, public value theories and how public healthcare system approaches were developed after recent reforms, acquiring related indicators to provide practical insight.

In this study, face-to-face interviews and online meetings were conducted with respondents to better comprehend the nature of the study, which was influenced by their experiences with how the social environment is viewed, understood, experienced, produced, or constructed. Each interview should take no more than approximately 40–50 minutes to complete. A semi-structured interview was designed with a series of questions regarding how hospital and operations strategy was developed, implemented, and tracked, as well as how and why the strategic triangle was used. All interview transcripts were thematically examined and coded using NVivo 12 Plus. The coding system was informed by pre-existing information indicated in the topic guide, early readings, and preliminary transcript coding.

Table 2. Number of interviews and the codes.

Groups	Participants and Codes	N
Expert Level	Individual interview with one policymaker Individual interview with one medical insurance department supervisor Individual interview with one medical university expert	3
Leadership Level	Individual interview with five hospital directors Individual interview with five chief accountants Individual interview with five medical department managers	15
Basic Level	Individual interview with five clinical department managers Individual interview with five clinical representative staff Individual interview with five representative patients	15

2.2. Demographic profile of participants

Respondent demographics were examined in terms of gender, educational background, qualification, specialization, and years of work experience. This is crucial for providing an initial overview of the project's members.

Table 3 summarizes the profiles of the participants in this interview. The study included thirty-three participants, three of whom were experts from the Health Commission, the Healthcare Security Administration, and the Medical University. Whereas fifteen individuals represented each level of leadership at the university hospitals. Fifteen participants represented each university hospital's basic level, including five patients (relatives of medical staff). As stated in the previous section, the inquiry focuses on five (5) university hospitals. As a result, the interviews on participant profiles are relevant to each of the university hospital.

Table 3. Demographic profile of participants.

Number	Gender	Qualification	Years of Working Experience	Hospital
A-1	Female	Professor of Medicine	28	General Hospital of Ningxia Medical University
A-2	Female	Senior Accountant	23	
A-3	Male	Professor of Medicine	25	
A-4	Male	Professor of Medicine	28	Xiangya Hospital Central South University
A-5	Female	Professor of Medicine	22	
A-6	Female	Associate Professor	19	
A-7	Female	Senior Accountant	30	The First Affiliated Hospital of Xi'an Jiaotong University
A-8	Female	Intermediate	10	
A-9	Male	Intermediate	13	
A-10	Female	Associate Professor	18	Lanzhou University Second Hospital
A-11	Male	Intermediate	21	
A-12	Male	Professor	20	
A-13	Male	Professor	17	People's Hospital of Ningxia Hui Autonomous Region
A-14	Female	Professor of Pharmacy	27	
A-15	Male	Attending Doctor	16	

Table 3. (*Continued*).

Number	Gender	Qualification	Years of Working Experience	Hospital
A-16	Male	Professor of Management	24	Expert
A-17	Male	Senior Economist	22	
A-18	Male	Department Leader	25	
A-19	Male	Senior Technologist	28	General Hospital of Ningxia Medical University
A-20	Male	Pharmacist-in-charge	15	
A-21	Female	Senior Accountant	16	Xiangya Hospital Central South University
A-22	Female	Professor of Pharmacy	25	
A-23	Female	Senior Accountant	17	The First Affiliated Hospital of Xi'an Jiaotong University
A-24	Female	Professor of Medicine	35	
A-25	Female	Senior Accountant	13	Lanzhou University Second Hospital
A-26	Female	Professor of Medicine	22	
A-27	Female	Nurse-in-Charge	9	People's Hospital of Ningxia Hui Autonomous Region
A-28	Female	Intermediate	9	
A-29	Female	/		Patient
A-30	Female	/		Patient
A-31	Male	/		Patient
A-32	Male	/		Patient
A-33	Female	/		Patient

2.3. Profile of organization

This study uses five university hospitals to represent the healthcare system sector. Each university hospital profile includes information such as the date of establishment, the number of employees, the number of beds, patient visits, the number of discharged patients, the number of surgeries, and the average duration of stay. The University Hospital's profile is listed in **Table 4** as below.

Table 4. Profile of university hospitals.

Item	General Hospital of Ningxia Medical University	Xiangya Hospital Central South University	The First Affiliated Hospital of Xi'an Jiaotong University	Lanzhou University Second Hospital	People's Hospital of Ningxia Hui Autonomous Region
Founding Time	1935	1906	1937	1928	1934
Number of Staff	5648	6391	5656	5600	3487
Number of beds	3500	3500	2600	3294	2630
Patient Visits	3,094,000	2,000,000	3,475,300	2,139,700	20,548,000
Number of Discharged Patients	156,000	152,000	151,700	118,600	92,500
Number of Surgeries	65,000	50,000	57,500	66,300	42,700
Average Length of Stay	6.47	5.27	5.83	6.86	8.64

3. Results and discussion

Today's hospital managers face crucial challenges such as increased operating costs, internal inefficiencies, and a growing need for diversification (Mattila, 2021).

Various approaches have been implemented to improve hospital performance in countries with diverse healthcare systems. Based on previous research, a few characteristics associated with hospital performance have been found. These include quality improvement strategies. A range of factors influence Chinese university hospitals' expansion, treatment quality, research capacities, and overall success.

The research revealed that there are eight (8) major factors that influence the development of university hospitals in China. The findings were validated by comparing them to expert, leadership, and fundamental viewpoints from the university hospital. Individual changes, practical working experiences, and operational knowledge acquisition, as well as expert, staff, and patient acceptance, were examined through the eyes of thirty-three (33) people. Furthermore, the findings supported the beliefs and views of five university hospitals. More information on how the findings were presented can be found in the next subsection. **Table 5** summarizes the findings that support the factors influencing university hospital development.

Table 5. Summary of findings for factors influence university hospital development.

No.	Key Themes	Sub-themes	Participants	Number of Responses
1	Core Competitiveness Advantage	Advanced Equipment & Treatment Capability Quality of Healthcare Services Hospital Influence & Brand Power Maintaining Teaching & Research Strengths Top Talent & Team Building Operation Management	24	51
2	National & Local Policies Impacts	Policy & Operational Guidance Financial Support Source of Funds Comprehensive Reform of Health Insurance Payment Methods	11	26
3	Geographic & Demographic Situation	Area Distribution Strategic Development Planning Optimization of Resource Allocation	19	25
4	Management Efficacy	Enhancing Governance Effectiveness Performance Management & Appraisal	15	19
5	Hospital Culture	Patient Needs Oriented Patient Satisfaction	13	18
6	Management Structure	Management Systems & Operational Mechanisms Synergistic Development of Medical Education & Research	9	12
7	Leadership Characteristics & Decision-Making Styles	Leadership Style Team Building	7	11
8	Human Resources Management	Personnel Management Talent Building	8	10

Table 5 above shows that there are eight (8) factors that have been identified to have influenced the development of university hospitals in China in this study. Besides,

from thirty-three (33) participants' perspectives, 24 mentioned that Core Competitiveness Advantage is the major factor influencing university hospital development, and the rest of factors and response of participants can be acquired from **Table 5**.

Figure 1 illustrates the summary of factors that influence the development of university hospital in China.

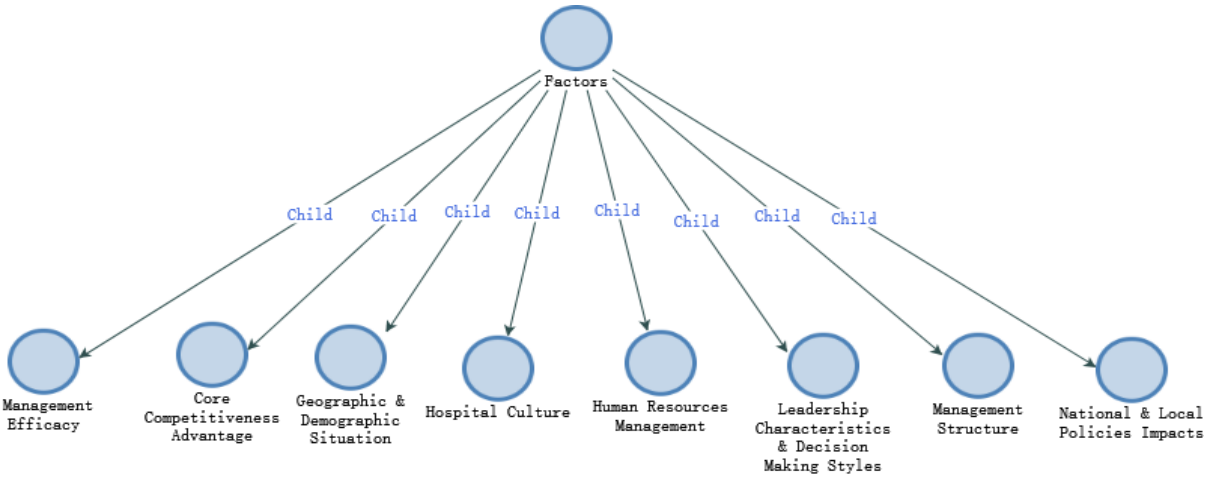

Figure 1. Factors influence university hospital development—key themes.

3.1. University hospital core competitiveness advantage

According to the findings in **Table 5**, 24 participants agreed on the efficiency of factors impacting the development of university hospitals. University Hospital's primary competitive advantage stems from its combination of medical competence, innovative facilities and equipment, and excellent collaborations (Huang et al., 2018). This enables the hospital to provide comprehensive and specialized medical care, ensuring that patients receive the best possible treatment and results. The findings demonstrate that University Hospital's Core Competitiveness Advantage, as one of the core themes, is made up of six sub-themes as follows: Advanced Equipment and Treatment Capability, Quality of Healthcare Services, Hospital Influence and Brand Power, Maintaining Teaching and Research Strengths, Top Talent and Team Building, Operation Management. These factors combine to provide patients with the highest quality care and ensure the hospital remains at the forefront of medical advancements.

3.2. Geographic and demographic situation

The second major subject explored in this study is the geographical and demographic situation. According to the findings in **Table 5**, 19 participants agreed on the efficiency of factors impacting the development of university hospitals. Hospitals can be found in a wide range of geographic locations, from metropolitan to rural. Because of increased population density and availability to modern medical facilities, urban areas usually have larger and more specialized hospitals. Rural hospitals are typically smaller and offer less specialized services. Population size, age distribution, socioeconomic status, and cultural diversity all influence the demographic condition surrounding hospitals (Zhang et al., 2023). The findings demonstrate that Geographic and Demographic Situation, as the primary topics, is comprised of three parts such as

Area Distribution, Strategic Development Planning, and Optimal Resource Allocation. Several quotes from respondents obtained from the finding were emphasized as below:

> *Some of the hospitals in Shanghai, including Ruijin Hospital and Huashan Hospital, are developing more rapidly, owing to their unique geographic location. Shanghai is, after all, an international metropolis, and it serves as a window, allowing them to engage with the international community early* (A-4, Xiangya Hospital Central South University).
>
> *University hospitals face competition from other health care providers, including other public hospitals, private hospitals, and multinational health care organizations. The intensity of the competitive environment also depends on the geographical location* (A-17, Expert).

Based on the findings, it is pertinent for the hospital university to note that geographic locations are typically chosen to optimize synergies between the university and its affiliated hospitals, as well as to assist the integration and development of medical education, research, and clinical services.

3.3. University hospital management efficacy

The third major subject explored in this study is university hospital management efficacy. According to the findings in **Table 5**, 15 participants agreed on the efficiency of factors impacting the development of university hospitals. Several indicators can be used to assess the effectiveness of university hospital management, including patient outcomes, operational efficiency, financial success, and staff satisfaction. The findings suggest that Management Efficacy, as a key theme, consists of two components: improving governance effectiveness and performance management appraisal. Several quotes from respondents obtained from the finding were emphasized as below:

> *The baton's performance is being examined. Hospital performance appraisal evaluation, also known as the "national examination," is to guide the direction of the development of hospitals "baton," to promote hospital management boosters, to test the effectiveness of hospital reform and development of an important yardstick, but also to measure the high quality of hospital development. It is also an essential factor in determining high-quality hospital development* (A-2, General Hospital of Ningxia Medical University).
>
> *It actively draws on classical theories and advanced management methods in quality management, focuses on the hidden dangers in medical work and the difficulties and priorities of quality control work, and constructs a three-dimensional mesh-type comprehensive medical quality management system with a patient-centred, six-orientation (organizational construction, quality culture, rules and regulations, disease type quality control, information system construction). Four levels of quality control organizations, and one supervisory system in the hospital, apply quantitative management, and emphasizes the entire process of continuous quality control, to further strengthen medical care quality management* (A-12, Lanzhou University Second Hospital).
>
> *Hospitals, as a comprehensive organization, have a diverse set of resources, including human, financial, and material. Strategic development goals can help hospitals distribute resources more scientifically and more efficiently* (A-28,

People's Hospital of Ningxia Hui Autonomous Region).

Based on the findings, it is pertinent for the hospital university to note that university hospital's management efficacy can be evaluated based on improving governance effectiveness and performance management appraisal. By excelling in these areas, management can ensure the hospital's success in delivering high-quality care and maintaining its competitiveness in the healthcare industry.

3.4. University hospital culture

This study's fourth key theme is university hospital culture. According to the findings in **Table 5**, 13 participants agreed on the efficiency of factors impacting the development of university hospitals. The concept of University Hospital Culture refers to the common values, beliefs, customs, and practices that exist in the hospital setting. It includes the attitudes and behaviors of hospital employees, as well as the overall ambiance and climate of the hospital (Ying and Gong, 2023). The findings suggest that University Hospital Culture, as a key topic, is made up of two components: Patient Needs Oriented and Patient Satisfaction. Furthermore, university hospital culture has a significant impact on both patient and staff experiences. A good and supportive culture can improve patient outcomes, increase staff satisfaction, and create a more effective and efficient healthcare system. Several quotes from respondents obtained from the finding were emphasized as below:

> *University Hospital is dedicated to patient-centered care. Our strategy focuses on satisfying the individual needs and preferences of each patient. We work hard to establish a therapeutic environment that encourages comfort, safety, and well-being* (A-1, General Hospital of Ningxia Medical University).
>
> *Hospital culture development should be tightly focused on the "patient-centered" service concept; all hospital work should be a comprehensive, multi-level review and evaluation, with hospital culture shaping, enhancing, cohesion, and guiding employee values, codes of conduct, and moral norms* (A-14, People's Hospital of Ningxia Hui Autonomous Region).
>
> *Patient experience and care have emerged as key competitive elements in hospitals. Hospitals must improve their awareness of patients' needs, offer tailored medical services, and care, and increase patient happiness and loyalty. Hospitals must prioritize patient participation, communication, and feedback mechanisms in their strategic management* (A-16, Expert).
>
> *University hospitals should pay special attention to society's evolving needs and provide suitable medical services based on patient needs to meet society's medical needs* (A-24, Lanzhou University Second Hospital).

Based on the findings, it is pertinent for the hospital university to note that university hospitals should prioritize patients and provide high-quality medical care. Strengthening and standardizing medical services to ensure that patients receive high-quality care. Simultaneously, patient experience and satisfaction surveys are being tracked to improve service operations and quality in a timely manner.

3.5. National and local policies impacts

The fifth major subject explored in this study is the impact of national and local

policies. According to the findings in **Table 5**, 11 individuals agreed on the efficiency of factors impacting the development of university hospitals. National and municipal policies have a wide range of implications for university hospitals. Policies may have an impact on the hospital's financial support, extent of medical services, staffing and training, research and education missions, and other areas. The breadth of medical services that the hospital can provide will be determined by the government's medical policy and planning, which may also influence the hospital's development orientation and the selection of important specialties (Li et al., 2022). The findings suggest that the primary topics, National and Local Policies Impacts, are made up of four elements: Policy and Operational Guidance; Financial Support; Source of Funds; and Comprehensive Reform of Health Insurance Payment Methods. The impact of national and local policies on university hospitals is far-reaching, and policy changes will have a direct impact on hospital operations and development, therefore hospitals must pay close attention to policy changes and respond appropriately.

> *This policy and operational guidance apply to all staff, healthcare professionals, students, and visitors of the university hospital. It covers all aspects of hospital operations, including patient care, administration, facilities management, and emergency preparedness* (A-10, Lanzhou University Second Hospital).
>
> *Health insurance policies have a significant impact on the development of university hospitals. With the advancement of payment reform, health insurance management should fully consider the rationality of the clinical pathway and further improve the cost-effectiveness of medical services based on the rationality of the clinical pathway and medical behaviour and the responsibility of health insurance management has been significantly increased.* (A-16, Expert).

Based on the findings, it is pertinent for the hospital university to note that the policy aims to ensure the delivery of high-quality patient care, promote patient safety, and provide a conducive environment for medical education and research.

3.6. University hospital management structure

This study's sixth key theme is university hospital management structure. According to the findings in **Table 5**, 9 individuals agreed on the efficiency of factors impacting the development of university hospitals. The university hospital operates as an independent legal entity, with its own management team and organizational framework. The hospital's Board of Management oversees formulating and implementing the hospital's policies and programs, collaborating closely with the University. The University may send members to the hospital's management committee to ensure that the hospital's operations are in line with the University's mission and values. The findings demonstrate that University Hospital Management Structure, as a core subject, is made up of two components: Management Systems and Operational Mechanisms; Synergistic Development of Medical Education and Research. Several quotes from respondents obtained from the finding were emphasized as below:

> *As a directly affiliated hospital, the hospital has great scientific research and teaching capabilities that can help to advance medical science and technology, as well as talent development. We also provide comprehensive clinical skills*

training, which can provide a better platform for the growth of medical talent (A-6, Xiangya Hospital, Central South University).

While university hospitals require financial stability, they must ensure that adequate resources are invested in public services and activities for the greater good. This could include prioritizing projects that directly affect public interest in budget planning and resource distribution. This allows university hospitals to ensure that their operations and development objectives are in line with a public values philosophy that promotes public health improvement, social well-being enhancement, and social equality promotion (A-7, The First Affiliated Hospital of Xi'an Jiaotong University).

Based on the findings, it is pertinent for the hospital university to note that university hospital has great scientific research and teaching capabilities that may help medical science and technology innovation, as well as talent development. We also provide a comprehensive clinical skills training facility, which can provide a more conducive environment for the development of medical talent.

3.7. University hospital human resources management

The seventh major subject explored in this study is university hospital human resource management. According to the findings in **Table 5**, 8 participants agreed on the efficiency of factors impacting the development of university hospitals. University Hospital Human Resources Management oversees administering the hospital's human resources functions. This encompasses hiring and onboarding, benefits and compensation, performance management, employee relations, and training and development (Zhang and Tan, 2022). The findings suggest that University Hospital Human Resources Management, as a key theme, consists of two components: Personnel Management and Talent Building. It is crucial in managing the hospital's most asset, its personnel, and assuring their support and empowerment to provide high-quality healthcare services. Several quotes from respondents obtained from the finding were emphasized as below:

There are qualified individuals in the appropriate roles, as well as professionals capable of doing specialized tasks. The process is also rather uncomplicated, which is beneficial to both the patient and the hospital staff. It's simply a matter of following the procedure (A-11, Lanzhou University Second Hospital).

In terms of human resources, the hospital has a great number of senior intellectuals and a high proportion of highly educated people, but it does not provide enough possibilities and platforms for everyone's personal development. At the same time, because the hospital is in the western region, the hospital platform is almost unattractive in attracting high-level human resources, particularly top talents such as Yangtze River Scholars (A-20, General Hospital of Ningxia Medical University).

Based on the findings, it is pertinent for the hospital university to note that university hospital personnel management is responsible for managing the hospital's workforce to ensure that it is staffed with competent and engaged employees who can provide high-quality healthcare services to patients. Besides, it is critical to ensuring a positive work environment, and overall operational efficiency in the hospital context.

3.8. University hospital leadership characteristics and decision-making styles

The eighth key theme explored in this study is leadership characteristics and decision-making at university hospitals. According to the findings in **Table 5**, 7 individuals agreed on the efficiency of factors impacting the development of university hospitals. Leadership abilities and characteristics are those that allow someone to effectively guide, motivate, and influence people toward common goals or objectives (Li, 2010). The findings suggest that Leadership Characteristics and Decision-Making Styles are the primary themes, which are made of two elements: Leadership Style and Team Building. Effective leaders usually possess a combination of these attributes, which may differ based on the context and scenario. Effective hospital leadership is critical for delivering high-quality care, managing resources, and maintaining patient and employee safety. Several quotes from respondents obtained from the finding were emphasized as below:

> *Each hospital has its own specialty, each hospital has its own style, especially the top university hospitals in China, which have their own inheritance, whether it is medical, scientific research, or teaching, which gives me the feeling of a lineage, thinking is very active, doing things in a very robust style. The primary constraint to hospital development is the leadership of hospital leadership; strategic hospital development is at the top of the leadership* (A-13, People's Hospital of Ningxia Hui Autonomous Region).
>
> *When we look at the leadership of university hospital, we can see that it contains the necessary aspects. For example, the hospital's leader must be incredibly hardworking, which is an important factor. Leaders can make judgmental decisions that help the hospital progress in the right way* (A-19, General Hospital of Ningxia Medical University).

Based on the findings, it is pertinent for the hospital university to note that leaders facilitated the change process by establishing broad norms that boosted the group's overall preparedness for change and putting other essential parts of the strategic change model into practice.

3.9. Factors influence five university hospitals development

The factors that drive university hospital development interact and differ in importance depending on the setting of each university hospital in China. Successful development requires balancing these factors to provide high-quality healthcare, contribute to medical research, and meet the needs of the community. The accompanying **Table 6** and interview content show which elements have the most influence on University Hospital's development.

Table 6. Factors influencing five university hospital.

Factors Influence the Development of University Hospital	Case 1: General Hospital of Ningxia Medical University	Case 2: Xiangya Hospital Central South University	Case 3: Xian Jiaotong University First Affiliated Hospital	Case 4: Lanzhou University's Second Hospital	Case 5: Peoples Hospital of Ningxia Hui Autonomous Region
1. Management Efficacy	1	7	0	6	3
2. Core Competitiveness Advantage	9	8	9	5	6
3. Geographic & Demographic Situation	4	5	6	4	2
4. Hospital Culture	1	2	4	3	3
5. Human Resources Management	2	0	1	4	1
6. Leadership Characteristics & Decision-Making Styles	3	0	0	3	1
7. Management Structure	5	1	3	1	0
8. National & Local Policies Impacts	10	3	4	5	1

4. Discussion

Identifying the factors that influence university hospital development allows for better planning for high-quality and efficient hospital operations. In the qualitative component of this study, the researcher looked into the main elements impacting university hospital development in China. Interviews were conducted to identify factors linked with hospital development. Overlaps in responses occurred progressively throughout the interview process with following interviewees. When the saturation point was achieved, no further interviews were conducted. Interviews with respondents produced a list of factors influencing hospital development based on their knowledge and specialties. After combining these items with university hospital development affecting elements from the literature and removing duplicate codes, eight (8) themes and 23 sub-themes within each theme were identified.

University Hospital expanded Moore's strategic triangle due to its practicality (**Figure 2**). The Strategic Triangle model provides a framework to help leaders and managers in the public sector focus on three complex issues: (i) What significant "public value" did the organization seek to create? (ii) What "sources of legitimacy and support" would be depended on to legitimize the organization's actions and provide the resources required to maintain the attempt to achieve that value? (iii) What "operational capabilities" (including additional investment and innovation) would the organization need to achieve the intended results? These challenging concerns influenced the growth of university hospitals.

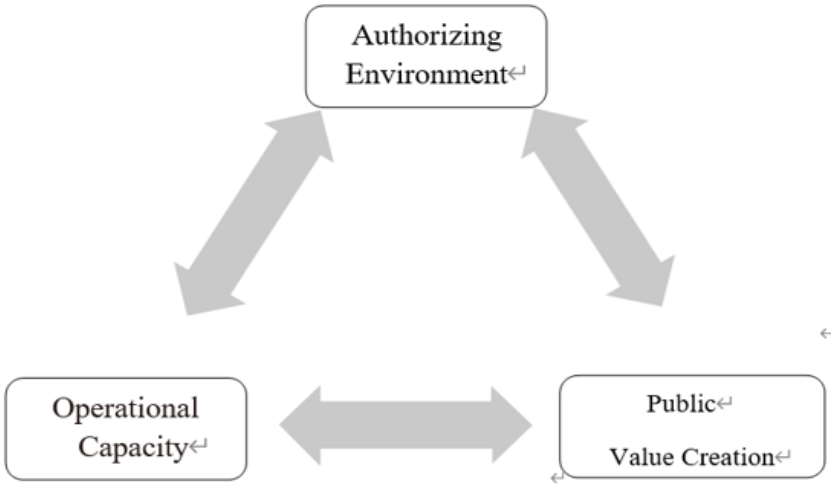

Figure 2. Moore's (1995) public value strategic triangle.
Source: Moore (1995).

According to evidence from the strategic triangle, public value in the public sector is created by the government through services, rules, regulations, and other activities. It is determined by voter choices, which are expressed in a variety of ways and reflected in the decisions of elected officials. Legitimacy and Support include community support and a governing board. Financial, external collaboration, investment, innovation, and staffing components all contribute to organizational capability. As a result, several factors connected with the strategic triangle have been identified in **Table 7** below.

Table 7. Factors influence the development of university hospital based on public value theory.

Legitimacy and Support	Operational Capability	Public Value
Geographic & Demographic Situation	Core Competitiveness Advantage	Hospital Culture
Leadership Characteristics & Decision-Making Styles	Management Efficacy	National & Local Policies Impacts
	Management Structure	
	Human Resources Management	

Through expert semi-structed interviews, classification, and identification of factors in university hospitals, Interactions between influencing and influenced factors were also studied. The study found that five key factors influencing the development of university hospital: core competitiveness advantage, geographic and demographic situation, managerial efficacy, national and local policy influences, and hospital culture. The remaining three impacted factors were management structure, human resource management, leadership characteristics and decision-making styles. As noted by Zhou et al. (2018), the factors influencing hospital development are numerous and diverse, including policy, management, financing, service level, talent, research, and patient requirements. Combine Public value theory with influencing factors, the researcher discusses the factors related with the development of university hospitals and seek to analyse the influence of factors such as hospital management circumstances or even the Chinese healthcare system on the current study's results.

In recent years, university hospitals have grown at a quicker rate, and the

expansion in health resources and services has outpaced the average level of hospitals nationwide. University hospitals can leverage their core competitive advantages and combine advantageous resources to boost hospital health development while also improving the quality of medical personnel training. Under the influence of these factors and public value theory, the university hospitals should focus on one center: to build a modern regional medical center with an international perspective; implement two strategies: talent discipline strategy and cultural casting strategy; pay close attention to three projects: medical technology, quality of healthcare service, management level of the "three enhancement projects"; and achieve the four (4) returns, namely (i) return.

Another significant discovery was that University Hospital expanded Moore's strategic triangle due to its practical applicability. The Strategic Triangle model provides a framework to help leaders and managers in the public sector focus on three complex issues: (i) What significant "public value" did the organization seek to create? (ii) What "sources of legitimacy and support" would be depended on to legitimize the organization's actions and provide the resources required to maintain the attempt to achieve that value? (iii) What "operational capabilities" (including additional investment and innovation) would the organization need to achieve the intended results? These challenging concerns influenced the growth of university hospitals.

5. Limitation and implications for further research

One significant limitation of this study was that the semi-structed interview was conducted in five university hospitals, where university hospital basic levels may have influenced each other's responses, particularly on the "hospital managerial characteristics" theme, due to the hierarchical relationship between leadership and basic levels. To address this constraint, respondents were assured that their identities and opinions would remain confidential.

The study revealed that certain factors drive university hospitals to shift their development strategies. They cannot, however, affect change in the health sector and must be based on theories or models to guide strategic changes. Some aspects and factors must be relevant to the university hospital's contextual development. The establishment of public value for the university hospital's essential components, as well as their legitimacy and support, organizational capabilities, are critical to achieving strategic change. Therefore, understanding the problems and how they interact with the constraints of strategic change is crucial for the hospital's systemic growth. It is critical to incorporate the strategic model into China's public healthcare delivery system, namely university hospitals.

6. Conclusion

The study aimed to examine the elements that influence university hospital development in China. According to the findings, university hospital development in China is influenced by core competitiveness advantage, national and local policy impacts, geographic and demographic situation, management efficacy, hospital culture, management structure, leadership characteristics and decision-making styles, and human resource management. These are the factors that combine content, context, and

technique. Through semi-structed interviews, the researcher acquires a deeper understanding of the relationships between numerous variables and how they may influence the university hospital's healthcare service expansion and healthcare reform scenario. According to the study's findings, university hospital administrators must be prepared to assess and respond to factors that enhance or hinder implementation continuously and methodically. These insights can be used to improve early preparedness, but additional study in this area is required to better understand the driving factors, action models, and techniques for achieving sustainable development in university hospitals. Identifying the factors that affect university hospital development is essential for planning high and effective hospital operations from a Public Value Theory perspective. It enables hospitals to create value for their stakeholders, allocate resources efficiently, and engage with stakeholders effectively, ultimately leading to improved healthcare services and outcomes.

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