Performance evaluation of Public Hospitals in China: A case-based account

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Contents

Figure index

Table index

Abstract

Public healthcare provision is a fundamental right of people but also one that has heavy economic burden to society and the State. The shared challenged across the world has been to provide the best possible service without losing financial sustainability. China's latest healthcare reform has been striving to achieve this purpose. Among the policies, the introduction of a systematic performance evaluation of public hospitals in underway. Its nature follows that of an index that comprehends dimensions, measures and KPIs. These are not sufficiently known, and this study is intended to offer a comprehensive view on these conceptions and indicators from three hospitals in China. For that purpose, it reports on the content of 17 interviews and documental analysis. Findings show that the multidimensional nature of organizational performance is integrated into the measurements. They also show that the philosophy shifted into patient orientation with most importance attached to patient satisfaction and efficiency measures that support this satisfaction. Employee satisfaction is also considered but to a lesser extent. The system has implemented the philosophy of the 2009 reform, but the relative importance of dimensions and indicators is yet not fully understood which may create the next challenge for the healthcare system.

Keywords: organizational performance, public hospitals, performance evaluation, healthcare reform in China

Resumo

A prestação de cuidados de saúde públicos é um direito fundamental das pessoas, mas também um direito que tem um pesado fardo económico para a sociedade e para o Estado. O desafio comum em todo o mundo tem sido o de proporcionar o melhor serviço possível sem perder a sustentabilidade financeira. A última reforma dos cuidados de saúde da China tem procurado atingir este objectivo. Entre as políticas, está em curso a introdução de uma avaliação sistemática do desempenho dos hospitais públicos. A sua natureza segue-se à de um índice que compreende dimensões, medidas e KPIs. Estes não são suficientemente conhecidos, e este estudo pretende oferecer uma visão abrangente sobre estas conceções e indicadores de três hospitais na China. Para o efeito, reporta sobre o conteúdo de 17 entrevistas e análises documentais. Os resultados mostram que a natureza multidimensional do desempenho organizacional está integrada nas medições. Mostram também que a filosofia se deslocou para a orientação no paciente com maior importância atribuída às medidas de satisfação e eficiência do paciente que apoiam esta satisfação. A satisfação dos trabalhadores (médicos, enfermeiros e administrativos) também é considerada, mas em menor medida. O sistema implementou a filosofia da reforma de 2009, mas a importância relativa das dimensões e indicadores ainda não é totalmente compreendida, o que pode criar o próximo desafio no sistema de saúde.

Palavras-chave: performance organizacional, hospitais públicos, avaliação da performance, reforma da saúde na China

1. Introduction

Healthcare is a precious good for people as keeping a good health is essential for their ability to work, to enjoy life and fully develop to their maximum possibilities. The importance of health makes it a right and a public good. Therefore, countries strive to create the best public health systems that they can economically sustain.

China has greatly evolved from the early stages of the public health system until now where a new phase focused on health as a public good is gaining momentum after a phase where the market logics prevailed. This primacy of the market created many issues that went against the essential nature of health as a public good and required action. This was acknowledged by the Opinions of the Central Committee of the Communist Party of China and the State Council on Deepening the Reform of the Medical and Health System and the Notice of the Recent Key Implementation Plan for Deepening the Reform of the Medical and Health System in Xi'an City, that established the guidelines for better hospital management. Namely, the implementation of performance evaluation together with "evidence-based policy" research, a definition of the performance objectives of public hospitals, combined with their reform. These documents also explored the key aspects of performance assessment and the main performance management issues of public hospitals and provided strategic suggestions to promote the reform of public hospital supervision mechanism.

In line with this priority, this study is structured from a qualitative standpoint as an exploratory study. The current knowledge requires the convergence of many issues pertaining to the performance evaluation of public hospitals in China. This convergence has not been sufficiently achieved and so, this study is set to offer an integrative view – from an action research perspective (McNiff & Whitehead, 2005) – to offer a depiction of the performance evaluation system of public hospitals with a critical analysis in line with the principles established and the best practice in international research.

In detail, this study aims to: 1) bring together the theoretical basis of performance

evaluation of public hospitals, 2) to characterize the performance framework and the dimensions for public hospitals, 3) to characterize the public hospital performance index system, and 4) to highlight the constrains that such practices have from a critical approach.

The remaining of the thesis is structured so to do a review of literature that relates to performance evaluation of hospitals, offering a comprehensive view of the Chinese public hospitals' context, to explain the methods used to collect data from three hospitals that will be shown in an integrated fashion. The results from interpreting these depictions of performance evaluation will be shown focusing on the emerging categories also taken into consideration those recommended by a national authority in China. Finally, it will offer conclusions about the performance evaluation design that was reported.

So, the model comprehends the performance evaluation framework, its dimensions and the indices comprising KPIs.

2. Literature review

Literature review will cover the most important concepts and theories on organizational performance evaluation, with a focus on healthcare management. It will start by reviewing extant knowledge on organizational performance, moving on to the hospital settings, and narrowing the focus to what is known about this issue in hospitals in China, also offering the background context of these organizations. It will end by highlighting the challenges performance evaluation faces in these settings.

2.1. Organizational performance and public organizations performance

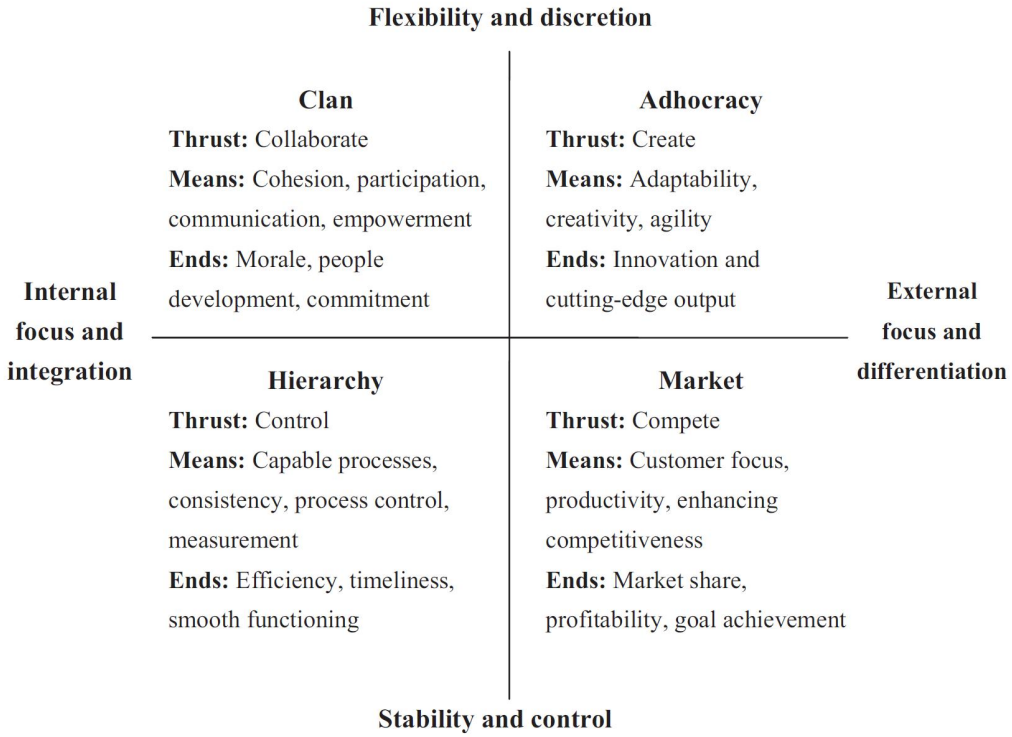
Organizational performance is a construct that embraces a comprehensive set of dimensions that reflect the complexity of any organization. This complexity reflects the many stakeholders a given organization has. The most complex network of stakeholders, the most complex activity of the organization.

Literature on organizational performance inherited the knowledge from a specific line of research on organizational effectiveness. Although the topic has been a subject of interest and research from many decades ago, the first model that integrated the view on distinct facets of organizational performance was the competing values model proposed by Quinn and Rohrbaugh (1981). This model integrated four paradigms in studying organizations based on four theories: the first theoretical perspective highlighted the rules and hierarchical structure of organizations so to promote its operational efficiency, the second theoretical perspective highlighted the excesses of this approach that forgot the human side of organizations, as individuals are the fundamental resource and individuals seek to have good relations, a positive working climate, well-being and a sense of meaning when they are working. This was the humanistic model of organizational effectiveness. Another theoretical perspective put the emphasis on the market and the fact that all organizations are dependent on the market or some external entity that provides resources. This was the market model. Lastly, the fourth theoretical perspective highlighted the

focus on adaptability and innovation because organizations cannot exist for themselves and their environment is permanently changing. So, they must adapt and innovate.

In short, the competing values models depicts four main end purposes of organizations: to foster efficiency, timeliness and smooth functioning, to foster people morale, development and commitment, to foster innovation and cutting-edge output, and to foster higher market share, profitability and goal achievement (Hartnell et al., 2011). These four objectives and their perspectives are not independently linked among themselves. They are bounded by some ideas, and also by adopting opposite views of the organization purpose and what is the priority. Figure 1 shows how they relate with each other.

Figure 1 – Quinn's model of organizational effectiveness



Source: Hartnell et al. (2011: 679)

This model has the merit of showing that not only organizational effectiveness / performance is multidimensional as it is difficult to achieve top values in all the dimensions because they are not all converging in the same direction. For example, the model put opposite

the Internal Process Model (hierarchy culture) to the Open System Model (adhocracy culture). This means that a given organization that wants to have the most top performing index in the internal process (for example by implementing a 100% control system that allows no deviation from rules) is not able to fully implement an open system model that would give people the freedom to create new rules, to try new ways of working or use their creativity to think outside of the box. So, rules performance focused on control seem to go against the innovation performance focused on flexibility.

2.2. Evolution of public hospital management in China

In terms of the historical development process, the nature of public hospitals in China has gone through three stages (Wei & Wang, 2019).

The first stage of thinking about public health went in the period from 1949 to 1979 and established the basic viewpoint and direction of "all for the health of the people". Based on this basic view, a systematic policy for health work was formulated; the social nature of health was established as public welfare; the government assumed the social responsibility of protecting people's health stating that "saving lives and helping the sick" was established as the purpose of the health industry, and the right idea of putting the focus of medical and health work in rural areas was put forward.

During this period, China's health care industry developed from scratch and made remarkable achievements. At that time, despite the poverty and weaknesses as well as the lack of prosperity and of a supportive international setting, the degree of political and societal cohesion in China was strong and health was not a critical issue because the gradual improvement of the health protection system and the concrete embodiment of the purpose of "serving the people wholeheartedly" in health work, played an important role in strengthening the cohesion of the Party and maintaining the political stability of the country while granting affordable healthcare to all people.

The second stage of the evolution of thinking about public health in China started with the reform and opening up in 1979. The transition to a hybrid planned economy and a market economy, brought novelty with the notion of "public welfare" of the medical and health industry giving way to a market-oriented industry where health was treated as a commodity. The reallocation of the budgetary responsibilities from the public funding to healthcare agents being responsible to self-fund gradually disintegrated the universal medical coverage, especially the cooperative medical system. In some places, all public hospitals were sold off, so that now huge amounts of money are invested in rebuilding new public hospitals. The phenomenon of "big fish eating small fish" has emerged among public hospitals, with large hospitals concentrating in big cities huge medical resources, leaving a serious shortage of resources at the grassroots level in communities and rural. Another consequence pertains to the losses in trust and moral between doctors and patients with unprecedented tensions and conflicts that fragilized the healthcare professionals and system.

Acknowledging the excesses that the market-orientation shift brought to the system, the Central Committee of the Communist Party of China and the State Council issued the Opinions on Deepening the Reform of the Medical and Health System (CNDRC, 2009). This started the third stage of Worldview in 2009 where General Secretary Xi Jinping reasserted the commitment of the government to take back its lead, protection, management and supervision primacy for public hospitals. So, the focus returned to the purpose of "saving lives and helping the injured, all for the people's health", the public welfare nature of health care, and the operating mechanism of "national responsibility and government-led". This was sustained on the advancement of the medical reform to a deeper level with the goal of granting equitable access and benefit to the masses. The concrete proposal set priority into strengthening the basic medical insurance system, the primary medical service system and the basic public health service system, to establish a national basic drug system and to promote the public hospital reform pilot.

According to Wei and Wang (2019) the first consequence from the 2009 reform was the universal coverage favored by the medical insurance system covering all residents in urban and

rural areas. The second consequence was a drop in drug prices due to a new procurement mechanism for basic drugs and for the operation of primary medical and health institutions. The third consequence was a reinforcement of the primary medical and health care service system due to training emphasis through the free medical student training program, the increased central government financial investment in standardized training, and the strengthening of resources in grassroot level units. The fourth consequence was a stronger equalization of basic public health services by means of an emphasis on preventive health rather than treating diseases.

2.3. Current status of public hospitals in China

The number of hospitals in China is consistently growing ever since the opening in 1979 with currently (2019) over 34 thousand registered number of hospitals as against 9902 back in 1980 (Chinese Health Statistical Yearbook 2019). This corresponds to 19963 general hospitals, 4221 traditional Chinese Medicine hospitals, and 8531 specialized hospitals. This translates in available total HR growing from 7.3 million (1980) to 12.9 million (2019) of which the health technical personnel comprising licensed physicians, registered nurses and pharmacists were about 2.8 million (1980) growing to 10.1 million in 2019.

Extremely large hospitals with 4000 beds or more now exist in several major urban centers such as Beijing, Shanghai and Chengdu. Urban community health service centers were established in 2002 and grew from 8211 in 2002 to more than 35 000 in 2019. Such rapid growth was possible because many health centers were converted from small urban hospitals.

In contrast, the number of rural township health centers and village clinics declined between 2000 and 2010. With the 2009 health care reform and the incentives to private health care provision, the number of private hospitals increased from 30.7% to 60.4% of total hospitals in China (NHCPRC, 2018) but public hospitals continue to account for the vast majority of total hospital beds (6.8 million out of 8.8 million, 77%) and 96% of outpatient visits and admissions.

As Jing et al. (2019) report, the relatively higher proportion of funding for hospitals observable in China as compared to OECD indicated a need for higher efficiency, which was

attained via greater competitiveness created by the emerging private section. This seems to have been an effective policy as these authors found that public hospitals had greater scale efficiency, private hospitals had greater technical efficiency by 2017. The improvement of technical efficiency in public hospitals is suggested by these authors as being dependent on better management standards.

Despite autonomy in the generation and management of finances, the mode of governance has been more traditional whereby government officials and administrative rules control strategic decisions. At least eight government ministries are involved in financing hospital services, appointment and management of personnel, internal organization and investment decisions (Yip et al. 2012). Thus, according to these authors, hospitals have faced conflicting policies and regulations. For example, while hospitals are encouraged to test alternative methods to recruit and pay health care providers based on merit and performance, the Ministry of Personnel guarantees positions to civil servants regardless of their performance. In addition, the Ministry of Health encourages public hospitals to fulfill their social responsibilities to ensure emergency referral access and public services. At the same time, social responsibilities are unfunded and, thus, hospital directors are preoccupied with generating revenues from sales of service and medicines to cover their basic operational costs. Therefore, alternative governance models form a major part of the public hospital reform agenda.

China is now in a very different position as compared to e.g. 2008. By this time the rational proportion of technical healthcare personnel was questioned. For example (Anand et al. 2008) highlighted that China was one of the rare countries where the number of registered nurses fell below that of physicians. As of 2010 this is no longer true and today the number of registered nurses is 4.4 million to 3. Million licensed physicians.

One of the fundamental pillars of a robust and sustainable healthcare system lies in good primary healthcare services. Acknowledging the primacy of prevention over treatment, especially in the chronic diseases, the authorities have reinforced funding and made policies to strengthening it. According to Li et al. (2020) there are still wide variation of quality in such services. Intending to uncover the causes of such differences they conclude that poor quality of

training for healthcare personnel involved in primary-care, poor performance accountability, and the lack of integration with public hospitals explains the situation.

In recent years, public hospitals in China have established medical quality control centers to strengthen the supervision of medical quality in public hospitals, and to assess the social satisfaction of each public hospital by means of practice reviews and satisfaction surveys of the population served (Zhang et al., 2020).

Public hospitals have also made efforts to improve their performance by introducing international advanced management models such as the JCI hospital accreditation system, Total Quality Management (TQM), ISO quality management standards, Balanced Scorecard (BSC), and goal-based management methods (Hu et al., 2014) which are expected to translate into better healthcare provision (Jha, 2018).

In general, the performance evaluation of public hospitals has a certain practical foundation, but the further work needed is to sort out and consolidate the performance evaluation to form a unified and systematic performance evaluation system.

From the perspective of government-run medical institutions, the significance of conducting hospital performance evaluation, just like seeking to grant accreditations, is (Shu, 2008; Tabrizi et al., 2011; Zhijun et al., 2014):

- The inevitable requirement of establishing a modern hospital governance structure.
- Effective performance of the government to run the main body of health care funders.
- To guide the direction and behavior of public medical institutions to achieve the purpose of public welfare.
- Form effective incentives and constraints for hospital management.
- Ensure the value and efficiency of the hospital's state-owned assets.

2.4. Challenges for organizational performance in Public hospitals in China

The recent reforms in public hospitals have been effective into deploying the governmental policy development but it also brought with it many challenges (Korolev, 2014). The first challenge arises from the change in hospital revenue due to the abolition of drug markup and the implementation of payment by disease. This implied a more stringent management of resources which has led to some medical and nursing staff disputes with patients to control expenses. The establishment of a hierarchical system where simple diseases are directed to grassroot community hospitals and only serious diseases to 2nd and 3rd tier hospitals reduced revenue from lower number of patients in central hospitals. These hospitals had to reflect the revenue decrease on salary levels of medical and nursing staff which has been a demotivating factor. The second challenge arises from the way the performance evaluation systems are designed. Both at the organizational and individual level, some hospitals put too much emphasis on the economic KPIs forgetting the public hospitals' fundamental non-profit nature. Another issue arising from performance evaluation is the lack of consequences and incentives especially at a stage where salaries are reduced instead of increased due to performance. Overall, there is a need to focus on information reform and doctor-patient relations (Dong et al., 2021; Yang & Zhang, 2021) as follows.

Information reform deepening is urgent to enhance the effect of performance management. According to the latest arrangement of the Health Care Commission on the performance reform of each hospital, each hospital is required to complete the construction of the performance management information system and fully carry out the performance assessment by June 2019. With a tight schedule and heavy tasks, hospitals must have clear program measures and reform ideas in order to quickly adapt to the policy requirements within a short period of time. The performance management work itself also involves multiple links and processes of hospital work, and how to automatically extract and effectively collect performance data is the difficulty and focus of performance management work.

Doctor-patient relationship is not harmonious, and conflicts occur frequently. Violent incidents caused by doctor-patient conflicts have been reported in the press from time to time, and public opinion questions whether the hospitals are "sick" (Zhang & Sleeboom-Faulkner, 2011). Many media point directly to the performance management system of hospitals, claiming that over-checking and over-prescribing are the evils of performance assessment, and advocating that only by abandoning performance management can we return to our mission of saving lives and helping the injured. Therefore, the standardization, modernization and scientificization of the internal management model is the way to development. Building stronger patient-doctor relations is a challenge that endures, and findings show trust grows stronger following a sequential mediation that starts with good doctor-patient communication, that positively influences the perceived medical service quality, that increases trust (Du et al., 2020).

Noticeably, job satisfaction of medical and nursing staff is also a key issue. It not only affects personal efficiency and career development, but also has a direct impact on the quality and safety of medical care in hospitals, which in turn affects the satisfaction of patients. There is a direct link between hospital medical staff satisfaction and patient satisfaction (Shin, 1995; Longman & Li, 2011). Medical personnel with high job satisfaction are more likely to provide good health services than those with low job satisfaction. According to a study conducted by Harvard University, for every 3 percentage point increase in health care worker satisfaction, patient satisfaction increased by 5 percentage points (Grogan et al., 1995). For short, the satisfaction of health care workers themselves should not be underestimated, and it is important to pay attention to the satisfaction of health care workers to improve the doctor-patient relationship.

3. Methods

3.1. Methodological approach

Because the purpose of the study is to design the best performance evaluation model for public hospitals in China, the study has a qualitative nature. Supported by qualitative methods, as opposed to quantitative methods, this type of technique, as previously described, attempts to explore opinions and different perspectives on a given topic (Bauer & Gaskell, 2000).

In line with this, the study is based on interviews conducted with qualified interlocutors. The most suitable type of interview to reach the goals is the semi-structured (Kallio et al., 2016). This kind of interview follows a script, but it allows room to introduce other questions in line with the answers so to clarify and open new issues that could be a matter of interest but were not previewed.

Data from interviews should be qualitatively analyzed so to extract the meanings and structure the reality experienced by the interviewees. This process, as in any meaning making process, is prone to subjectivity bias (Denzin & Lincoln, 2008) which requires a systematic approach to counter it. In the process, data analysis is especially sensitive and thus content analysis offers a suitable

3.2. Procedure and sampling

As Bauer and Gaskell (2000) insist, in the absence of an objective selection method, determining the selection criteria for respondents is entirely the responsibility of the researcher through the social scientific imagination. Likewise, the authors defend from the same perspective that the ideal number of respondents may vary from case to case, depending to a large extent on which scenarios are considered relevant and on the available resources for conducting data collection. In order not to overlook any relevant scenarios, it is important to keep the diversity of respondents as a principle of interviewing, collecting different aspects at different levels (McGrath et al., 2019). A guideline to have the right number of interviewees

concerns data saturation. As soon as the interviews are not adding any new relevant information it is inefficient to continue interviewing more individuals, and therefore, once data saturation is achieved, the researchers should stop interviewing (Moser & Korstjens, 2018).

The composition of the sample should be chosen so to find the informants that can offer the richest data about the phenomenon the study is researching (Polit & Beck, 2017). Considering the nature of this study, the interviewees are preferably individuals in charge of public hospital management with a strong inside knowledge of the HR operating system, especially the performance evaluation, its detailed design and its advantages and disadvantages. The Presidents of the hospitals are the most suitable interlocutors because they are the ultimate responsible for establishing the policies and priorities in managing the entire hospital system, for implementing the governmental guidelines, and to guarantee the effective functioning of all the management, including HR. In smaller hospitals, like the 1st tier, the President is also in charge of the HRM at the executive level, meaning, they are the de facto HR directors.

The data collection strategy was mostly based on interviewing key interlocutors namely the president and leaders of different departments. By using the personal network to establish contacts with relevant personnel in the hospital, due authorization was given, and the contacts directly deployed. All are questioned about resources and problems they experience in the hospital that are related to organizational performance and given the chance to offer ideas and suggestions they believe would help solving those problems. Additionally, we have also used documental analysis when the key-figures of hospitals, i.e., the presidents have made seminars or any other form of public statement about hospital performance.

3.3. Sample characterization

The chosen hospitals are all located in Shaanxi Province, in the vicinities of Xi'an, employing between 100 and 2000 professionals and operating in a large metropolitan area. We opted to target distinct profiles of hospitals because this diversity will enrich our understanding of how performance evaluation is being experienced in contrasting settings following a strategy

of maximum variation sampling (Polit & Beck, 2017). This approach, hopefully, allows to infer commonalities and some specificities from the type of hospital. The issues that are common may inform us about systemic aspects.

The first hospital is a 3rd tier, central hospital operating in Xi'an employing around 2000 professionals, the second is a 2nd tier, regional hospital in metropolitan Xi'an employing around 1000 professionals, and the third hospital is a 1st tier, community hospital employing around 100 professionals. Because interviews pertain to specific individuals and due to their characterization, they could be nominally identified, we have opted to name the hospitals as A, B, and C so to preserve the guarantees offered of anonymity and confidentiality. For the same reasons we have also not recorded the interviews and took notes along its duration.

As stated, some key-players would have to be interviewed, namely the presidents and leaders of departments in the hospitals. From hospital A (central) we interviewed nine individuals, the president as well as six department directors (two directors of surgery, two of medicine, one of administration and one of medical technology). From hospital B (regional) we interviewed the president and five department directors (two department directors of internal medicine, one of surgery, one of pediatrics, and one of emergency medicine). From hospital C (community) we interviewed eight individuals, the president and three department directors (surgery, internal medicine, and Chinese medicine). Overall, the sample comprises three hospital presidents and 14 department directors.

The sample (preserving the anonymous nature of the participation) has the following profile (Table 1).

Table 1 – Sample characterization

	Job title	Hospital	Unit	Gender	Previous role	Qualification	Code for study
1	President	A	Hospital	male	Professor	Ph.D.	P1
2	President	B	Hospital	male	Attending Physician	M.D.	P2
3	President	C	Hospital	male	Attending	M.D.	P3

					Physician		
4	Dept. Director	A	surgery	male	Attending Physician	M.D.	D1
5	Dept. Director	A	surgery	female	Associate Chief Medical Officer	M.D.	D2
6	Dept. Director	A	medicine	male	Attending Physician	M.D.	D3
7	Dept. Director	A	medicine	male	Associate Chief Medical Officer	M.D.	D4
8	Dept. Director	A	administration	male	Attending Physician	M.D.	D5
9	Dept. Director	A	medical technology	female	Physicians	M.D.	D6
10	Dept. Director	B	Internal medicine	male	Attending Physician	M.D.	D7
11	Dept. Director	B	Internal medicine	male	Associate Chief Medical Officer	M.D.	D8
12	Dept. Director	B	Surgery	male	Attending Physician	M.D.	D9
13	Dept. Director	B	Pediatrics	female	Associate Chief Medical Officer	M.D.	D10
14	Dept. Director	B	Emergency depart.	male	Attending Physician	M.D.	D11
15	Dept. Director	C	Surgery	male	Physician	M.D.	D12
16	Dept. Director	C	Internal medicine	female	Physician	M.D.	D13
17	Dept. Director	C	Chinese medicine	female	Physician	M.D.	D14

3.4. Instruments – Interview script

The interviews were destined to capture the existing organizational performance evaluation system, practices, and issues that could deserve attention. Therefore, after introducing the purpose of the interview, the interview comprehended three blocks of questions (Figure 2).

Figure 2 - Interview script

Block 1 – Hospital resources

Q1. What is the approximate monthly cash turnover of the hospital?

Q2. How many people does the hospital serve (population)?

Q3. How many patients does the hospital receive per day?

Q4. How many beds does the hospital have?

Q5. How often are large examination equipment used?

Block 2 – HR

Q6. How many doctors and nurses does the hospital have, respectively?

Q7. How many of them are certified to practice medicine?

Q8. How many public health staff and administrators are there in the hospital, and what hospital tasks are they responsible for?

Q9. Is there a good relationship between the clinical staff and the administrative staff of the hospital?

Q10. How is the hospital's staff performance distributed?

Block 3 – Issues

Q11. What are your dissatisfactions with the management of the hospital?

Q12. What do you think can be improved in the hospital?

The first block was designed to characterize the hospital in the most critical dimensions to understand its resources and needs, namely the financial resources, the physical and equipment resources as well as the size of the population served. The second block focused on human resources by asking the size of management and healthcare workforce, its qualification, the relationship between management and staff and a targeted question regarding performance as HR play a central role in healthcare services. HR are important to guarantee a high level of service quality and thus, a high level of organizational performance. The third block comprises two questions and was designed so to gather information about the main issues and suggestions for hospital management improvement.

3.5. Content Analysis

According to Yin (2011) content analysis can be done following different rules. We have opted to characterize the process following Bardin's (2009) definition, where he defines it as a

set of techniques for communication analysis to create indicators which promote knowledge interference, always observing systematic procedures and content description of the messages.

Some fundamental ideas guided the interpretation and codification process. Namely, that hospital performance is multidimensional, i.e. it includes many dimensions of performance, and numerous performance indices. Also, it is complex, i.e. it comprehends many stakeholders, which may not have convergent priorities about the hospital functioning. This means the data analysis should offer an account of the views of each stakeholder and study the objectives and contents of hospital performance evaluation from multiple angles and levels. Additionally, we have also considered that hospital performance should be approached by using the result-process-structure research method (Jing et al., 2017). From this perspective the research object (hospital) should be seen as a system, which consists of a structure (resources, administration, organization), processes (efficiency of human and financial operations) and results (output with medical services as the core). It also should consider that hospital performance should not only focus on the outcome (medical services), but also on the organizational structure of medical services and the operation of its processes. The caveat is the difficulty in drawing the boundary between process and outcome as some processes can also be considered as outcomes. For example, work efficiency (e.g. workload per doctor), is identified as a process concept in this research system, but at the same time, it can be considered as an output of the result. This is in line with the fact that organizational performance is not a concept but rather a construct (Hirsch & Levin, 1999) meaning its conceptualization and measurement is very dependent on social agreement about what are the purposes of the organizations and the intermediate goals that help achieving them.

Data analysis

Because the context was not favorable to recording the interviews, both due to anonymity and confidentiality issues and mostly to guarantee that a strong trust-based situation was created in the interview, we have opted to work on the notes taken which were either composed of small topics and the corresponding idea as well as some excerpts of full sentences that, for some reason, seemed to be central in the answer. Although the number of interviews is considerable

the way the data is structured and the amount of the data, we have opted to do the codification and content analysis without using a software. This may be taken as more vulnerable to subjective bias but, as stated by Burnard et al. (2008, p. 430) using a software for content analysis does "not confirm or deny the scientific value or quality of qualitative research, as they [software programs] are merely instruments, as good or as bad as the researcher using them".

4. Results

This section will be structured so to answer a set of central questions for this thesis. Namely: 1) What are the objectives of performance evaluation in public hospitals?, 2) What are the dimensions of hospital performance?, 3) What are the guiding principles of an effective hospital performance management?, and 4) What are the measures of hospital performance?.

The results will be organized so to offer an understanding of the interviewees opinions and the importance of categories that emerge related to each topic.

4.1. What are the objectives of performance evaluation in public hospitals?

Interviewees have converged in highlighting the idea that a public hospital does not serve a single purpose. It is driven by two important objectives which are the economic and social. Table 2 shows the categorization and offers examples of statements that illustrate each category or subcategory as well as the frequency of occurrence.

Table 2 – Categories for performance evaluation objectives

Category	Subcategory	Example	Frequency	N
OP objectives	Economic focus	"… everything here is run so to bring profit to the hospital and sometimes people forget that some important actions made by doctors do not bring profit but are necessary to provide a high-quality service to the patients". "… there is a great pressure to keep the patients the least possible time in beds. This will lower economic efficiency but sometimes you need to choose between this or relieving a patient only when he or she is sufficient good to go home".	29	17
	Service focus	"...public hospitals are still, broadly speaking, primarily for healthcare purposes, with profit being secondary. The reason for this is that public hospitals enjoy the financial and policy support of the state and do not need to make	22	13

		profit as their drivers of development."		
	Multiple focuses	"The issue of healthcare quality is complex, and the 50 hospital quality indicators developed by the Ministry of Health cover all aspects of the quality of the output of healthcare services…".	15	10

The content of hospital performance evaluation is a relatively complex concept: first, hospital performance is largely reflected in hospital operational performance. The performance of general medical institutions, similar to that of enterprises, is mostly from the perspective of their own operations, more inclined to economic benefits, including the management of people, property and materials and operational efficiency.

As public hospitals are financed by the government, they are responsible for the general functions of medical institutions, but also for the social functions assigned by the government and therefore profit-orientation conflicts with the full range of responsibilities public hospitals must be assume.

"… ultimately the performance is mostly focused on the economic dimension." (D6)

Second, government-run medical institutions must clarify that the public hospitals performance evaluation objectives differ from the private ones. When asked how to reflect the "public" connotation of government-run hospitals through the hospital career, the answers highlighted that the medical services provided by public hospitals should be public service products, that is, whether the public hospital to provide safe, effective, convenient, inexpensive medical and health services to alleviate the problem of expensive, difficult to see a good doctor; to undertake emergency treatment of public health emergencies and major disasters, to complete the organization of disaster relief medical teams and other government-directed tasks.

".. the corporate purpose of private hospitals is still ultimately to be implemented in terms of profitability, after all, unlike public hospitals, there is no policy and economic support for their own profitability in order to develop." (P1)

In contrasting the relative importance of economic and the social purposes of public hospitals, only a single interviewee spontaneously mentioned this. Although it is just from a single interviewee, it is relevant to better understand the reasoning on this important issue.

"the social is as important as the financial, so 50/50" (P1).

"I think sustainability is 19 points, management effectiveness 17, employee recognition 8 and asset operation 6 points". (P1).

"Quality should weight 20 points, public satisfaction 18, and cost-affordability 12 points" (P1).

Judging on the frequencies with which the categories were mentioned, it is interesting to highlight the fact that all interviewees mentioned the economic dimension (F=29, N=17) of the hospital performance but not all mentioned the service dimension (F=22, N=13).

4.2. What are the dimensions of hospital performance?

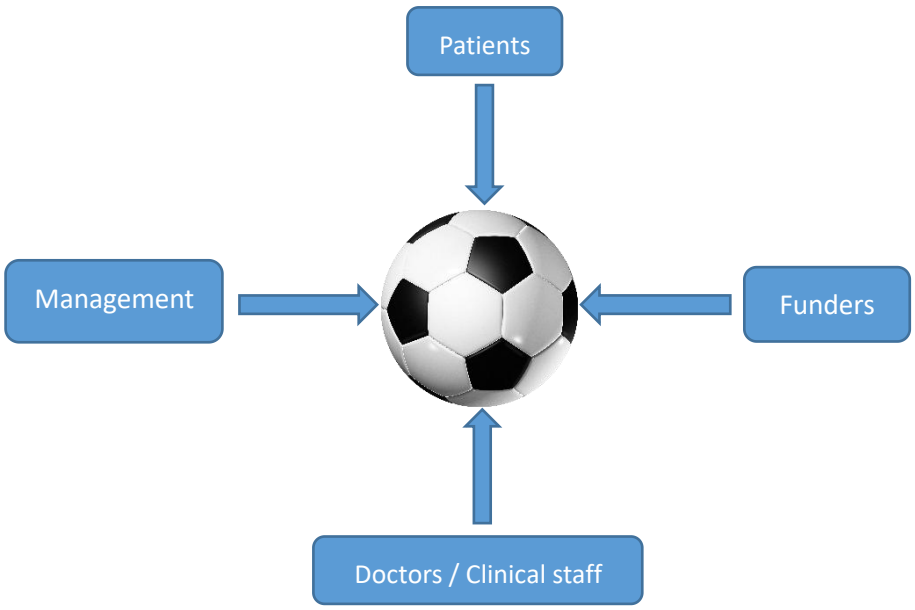
Interviewees referred to four dimensions related to four critical stakeholders of public hospitals. The four stakeholders are the funder (abstraction for those who invest capital in the hospital, in this case the State), the patients (those for whom the hospital exist), the managers (those in charge of guaranteeing the resources and mission), and the professionals (those who serve the hospital purposes either in clinical or non-clinical functions). Table 3 shows the categorization and offers examples of statements that illustrate each category or subcategory as well as the frequency of occurrence.

Table 3 – Categories for performance dimensions

Category	Subcategory	Example	Frequency	N
Dimensions	Funder's perspective	"Our central hospital was established by the government to improve the quality of medical services for patients on a regional scale, to give patients more timely and effective medical care, and in turn to improve the health of people's lives."	6	4
	Patient's perspective	"I believe that the hospital is committed to providing basic and non-basic healthcare services at a cost burden that patients can afford, while continuously improving the quality, level and overall quality of care."	20	17
	Management perspective	"As administrators, we are committed to seeing the hospital get better and better on the road to sustainable development, and more importantly, we want to see it recognised by the community, the government and the industry."	19	17
	Professionals' perspective	"...we clinicians, as part of the hospital, attach more importance to the sustainability of the hospital and its rewards for ourselves" "...for example, the level of medical technology and research and teaching capabilities of the hospital, as well as the level of income and career development that the hospital can offer us, and of course, the career pressure."	25	17

The performance of public hospitals has multi-faceted characteristics and has a multi-dimensional intrinsic nature. In other words, the assessment subject of performance is multi-dimensional and the content is multi-dimensional. Just as a soccer ball is made up of several square pentagons and hexagons arranged according to certain rules. Hospital performance evaluation is also composed of similar elements, i.e., the corresponding framework dimensions of performance evaluation.

Figure 3 – Critical stakeholders



If public hospital performance evaluation is considered as the "soccer" in Figure 3, it has its own focus from different stakeholders. From the point of view of the hospital management body, more attention is paid to the operational efficiency and sustainability of the hospital, including human efficiency, asset efficiency, bed efficiency, and research and teaching tasks.

> "With the limited resources tilted by the government, I believe that any equipment and materials should be used effectively to create more economic and even social value. I cannot understand why some departments in our rural hospitals still have unused equipment and piles of materials in their warehouses when even fewer resources are enjoyed." (D16)

> “The main reason why the resources are on hold is because the demand for patients in our township hospitals is low and critical patients are transferred to the city hospitals for treatment in the first instance; the second reason is because the doctors who would use the machine have left. We will find a solution to this problem in the time to come. If there is no suitable candidate in the short term, the equipment can be temporarily leased to other township hospitals in need.” (P3)

From the point of view of the funders (government), it is hoped that the self-sufficiency rate (ability to fund its own expenses based on revenue that does not come from state budget) of the hospital can be increased as much as possible to reduce the pressure of financial expenditure, and at the same time, public hospitals are required to provide medical services that satisfy the people (including medical quality and medical costs) and to fulfill the government's directive.

> “With limited government resources tilted in favor of our hospital, we have entered into a partnership with a central hospital in a nearby county. The specific content is that we send our excellent talents to help build the hospital in order to develop, and the other party will transfer some critical patients who cannot be solved to our hospital for assistance, thus increasing the hospital's fame and income and achieving sustainable joint development” (P1)

From the patient's point of view, they are more concerned about the quality and affordability of medical services.

> “As a primary care physician, I often encounter situations where patients suspect me of over-care. The popularity of the internet has led to a narrowing of the information gap, and patients are receiving treatment while judging whether there is anything wrong with our treatment methods that is causing them high medical costs.”, (D2)

> “Often we have to consider whether the financial burden of the treatment is appropriate for the patient, and there are many factors to consider as a

doctor...another… that patients always need to have access to affordable drugs if the clinical treatment is to be effective". (D4)

Finally, from the doctor's and clinical staff point of view, they are more concerned about their own income level, the professional pressure, the quality of the clinical provision, and the sustainability of the hospital.

"We doctors, as the main source of revenue generation for the hospital, I cannot accept that hospital administrators enjoy nearly the same level of treatment as we do.", (D8)

"Doctors lack a sense of gratitude while considering their income, and are obsessed with asking hospitals to improve their pay based on the value they create, but never consider that the hospitals consume a lot of costs while training them." (P2)

Overall, findings show that of the four main stakeholders, interviewees have on the topc of their mind three: patient, professionals, and managers. Funders are underrepresented in the categories having been mentioned scarcely (F=6, N=4). Still, all the three presidents interviewed (plus the director of a central hospital) mentioned the perspective of the investors, i.e. the government.

4.3. What are the guiding principles of an effective hospital performance management?

Interviewees have referred to some ideas related to how the performance evaluation system should operate in general terms. We aggregated this information on a large category of "guiding principles" that Table 4 shows, offering examples of statements that illustrate each subcategory as well as its respective frequency of occurrence.

Table 4 – Categories for performance evaluation guiding principles

Category	Subcategory	Example	Frequency	N
Principles	Regular use	"Performance management is indispensable as a means of measuring the direction of hospital development."	22	17
	Social purpose	"...both the medical service and the pharmaceutical industry are public goods of a certain welfare nature…"	15	10
	Sustainability	"...in my opinion, sustainable development mainly refers to the potential and trend of technology and talent development; and finally, staff recognition, which mainly refers to the staff's understanding and support of the hospital's policy."	17	8
	Short-term vs. long-term	"The current hospital performance evaluation method has fewer and less representative indicators that reflect the long-term interests and social contributions of the hospital, which can easily lead to short-term behavior."	10	4
	Participative philosophy	"...today's bottom-up decision-making and top-down implementation approach allows most hospital employees to participate in decisions about the direction of the hospital."	8	3
	Life-cycle	".... recent hospitals will focus on growth while mature hospitals focus on cost control and social satisfaction"	3	2

Information gathered from the interviews converged as regards some principles or views on public hospital functions and performance evaluation in line with the conception of the public hospital purposes. Namely that:

1) Public hospitals are funded by the government, the government's money comes from taxes on the people, public hospitals should be socially beneficial and serve the general public (P1, P2, D3).

2) Hospitals are well run to provide stable medical services to the people, so public hospitals should achieve good operation and sustainable development (P3).

3) Public hospital performance should focus on social benefits and hospital operational efficiency (P3).

4) If hospital performance is simply divided into two aspects: social benefits and operational effectiveness, then in the weight distribution, social benefits should be equal to or exceed the operational effectiveness, at least at 50% (P3).

Concordantly, the interviewees stated some evaluative dimensions in line with their views on what are the purposes of public hospitals.

1) The social benefits of public hospitals can be measured in four dimensions: first, the degree of satisfaction of the patients' clinical services; second, the degree of satisfaction of the patients with the hospital services; third, the quality of medical services received by the patients; and finally, the degree of burden on the patients' medical costs.

"...while the ultimate goal of a hospital is to cure a disease, the patient's mood during the visit also has an impact on recovery." (D7)

"...more than half of all doctor-patient encounters are caused by problems with the service received during the visit, rather than by the clinical diagnosis and treatment." (D11)

2) The operational efficiency of public hospitals can be measured in four dimensions also: firstly, management efficiency, which mainly refers to the efficiency of the utilization of various medical resources; secondly, asset operation, which mainly refers to the value preservation and efficiency of state-owned assets; thirdly, sustainable development, which mainly refers to the potential and trend of technology and talent development; and finally, staff recognition, which mainly refers to the staff's understanding and support of hospital policies.

"... I think it is also an important initiative for the sustainable development of the hospital staff to participate in publicly funded training, after all, the ability of the staff is a determining factor in the height of the hospital." (D6)

"The opening of the president's mailbox is also a disguised manifestation of democratic decision-making. After all, as the president and can not fully take into account all aspects of the hospital." (P1)

As regards the conceptions about how hospital performance should be managed, interviewees largely converged in three ideas:

1) Public hospital performance reviews should be used as a regular tool for investment in and management of public hospitals (F=22, N=17).
2) The guiding objectives of public hospital performance evaluation should be: demand satisfaction, service satisfaction, higher quality, lower cost, effective management, asset preservation, sustainable development, and employee recognition which combine both the social purposes of healthcare public services with the sustainable imperative in managing assets.

Interviewees have a sense that hospital performance is at the key of their duty and concern. Especially the ones with higher managerial responsibilities.

In evaluating hospital performance, the following elements need to be taken into account.

1) ***Short-term and long-term performance***: In the current hospital performance evaluation methods, there are few and unrepresentative indicators reflecting the long-term interests and social contributions of hospitals, which easily lead to short-term behavior.

"... the achievement of short-term goals does not mean that the long-term tasks are qualified. The long-term development of the hospital requires the right orientation and a reasonable interpretation of national policies." (P2)

"The vision of the leader directly affects the long-term development of the hospital, and short-term behavior may have big development hidden dangers." (P1)

Hospitals tend to take the presentation of the current year or current period benefits as the

criterion for decision-making. Likewise, they tend to meet the requirements of hospital staff income growth as another decision-making criterion, which will affect the long-term development and strategy formulation of the hospital at the expense of the overall interests of the hospital.

"We as employees would certainly prefer a long-term stable growth of the hospital rather than short-term vested interests." (D12)

2) Comprehensiveness: Hospital performance evaluation often adopts a top-down procedure, which can make the evaluation one-sided due to limited information or the limitations of the subject's perception. At the same time, there is a lack of participation of the general staff in the assessment of hospital performance.

"Performance evaluation depends on the management level and model of the hospital. A flat hierarchy is more likely to produce good results, but this only applies to small hospitals..." (P3)

"...we leaders need to know more about the opinions of performance evaluation targets, after all, they are better able to know whether the indicator system is reasonable or not." (D5)

Overall, all hospital managers have a reasonable perception of the importance of performance evaluation, and everyone mentions this to a greater or lesser extent. Most hospital managers mentioned that the medical service industry, as a major foundation for the development of people's livelihood in the country, is not aimed at profit and revenue generation at all. The realization of sustainable development requires not only the efforts of the management in terms of development policies, but also the support and cooperation of all doctors and nurses, which is an objective that is still not fully realized. The current hospital management model still has more room for development, and although most of the clinicians learned to become competent managers, there is still much room for improvement from the perspective of long-term development.

4.4. What are the measures of hospital performance?

4.4.1. Dimensions of performance evaluation in public hospital

Interviewees have given many examples of concrete measures of performance that can be useful to operationally define and gauge public hospital performance. Table 5 shows these measures organized into two main categories (measures of social effectiveness and measures of operational effectiveness), offering examples of statements that illustrate each as well as its respective frequency of occurrence.

Interviewees clearly attach more importance to patient satisfaction and complaint rate as visible by the more than double frequency hit to these two subcategories as compared to employee satisfaction (F=9, N=5). Slightly half the interviewees mentioned the reduction in medical cost burden for patients and their families (F=14, N=7) attaching similar importance to outpatient and inpatient responsiveness. Within service quality it is nursing care that deserves stronger attention (F=22, N=12) followed by the quality of clinical diagnosis (F=12, N=9) and treatment (F=10, N=5). As regards operational efficiency, it is bed efficiency that has the greater importance for interviewees (F=15, N=9) followed by physician workload (F=12, N=9) greatly distant from nurse workload (F=6, N=4) and staff workload (F=5, N=3). Most noticeable is the importance given to research outputs within development category which attained a tenfold more frequency (F=20, F=11) than professional to supportive staff ratio (F=2, N=2). Employee recognition deserved a moderate attention with salary equity (F=10, N=7) and career opportunities (F=9, N=5).

Table 5 – Categories for performance measures

Macro level	Category	Subcategory	Example	Frequency	N
Social benefits	Social satisfaction	Patient satisfaction with service	"…we are aware that there is much room for improvement in patient services, but many initiatives are not as effective in the face of the huge number of patients.".	20	13
		Employee satisfaction	"The president's mailbox was established not only to allow hospital staff to participate in decision-making, but also to allow staff to directly reflect problems that exist, in details that many in management do not take into account."	9	5
		Complaint rate	"Although we have implemented many initiatives to reduce the complaint rate, the actual efficiency is often less than ideal in the face of a large patient base."	30	14
		Webscores	"The establishment of the web-based rating system this year has provided an effective way to monitor the quality of hospital services."	7	3
	Social economic burden	Medical cost burden	"...as doctors, we understand that the burden of medical costs for critically ill patients is very high, and we have made great efforts to reduce the cost burden for patients without compromising the quality of treatment. But the most effective way to do this is to expect national reform of health insurance."	14	7
		Drug-to-prescription ratios	"...in order to reduce the cost burden on patients, our hospital has asked doctors to reduce the number of drugs purchased by patients as much as possible when prescribing, while ensuring the basic therapeutic effect, and to decide whether to continue the drugs after a follow-up visit."	9	5
Service quality	Responsiveness	Outpatient response	"The outpatient complaint rate has been the highest in the hospital,	20	13

		Inpatient response	largely because many outpatient physicians diagnose at least hundreds or even hundreds of patients a day, making it difficult to treat every patient." "...in some departments with relatively few patients, patient response is relatively excellent. As the number of patients rises, due to the limited energy of doctors and nurses, there is feedback of dissatisfaction with the quality of inpatient care, and we are doing our best to coordinate this."	17	12
Service quality	Quality of care	Diagnosis quality	"The accuracy of diagnosis of patients directly determines the level of medical care in a hospital. In case of difficult cases, we also recommend patients to be transferred to better hospitals in order to avoid delays in the treatment of patients."	12	9
		Treatment quality	"...the implementation of the return visit system improves the quality of treatment to a greater extent and ensures the recovery of patients after they leave the hospital."	10	5
		Nursing care quality	"The cure of a disease does not only depend on the medication and treatment, but also on the mood of the patient. This is why the quality of service treatment, or care, is also important."	22	12
		Quality warnings	"...in case of frequent medical disputes in a particular department, we ask the department head to make a detailed debriefing report to the hospital management to explain the situation and then choose follow-up measures based on the specific causes."	5	3
Efficiency	HR efficiency	Workload per physician	"Due to the special nature of hospital work, not every doctor can guarantee to work only 8 hours a day. Therefore, the hospital also has extra financial subsidies for doctors in special departments."	12	9
		Workload per nurse	"There are more nurses than doctors, so the work of nurses is easier	6	4

			than that of doctors."		
		Workload per staff	"Except for doctors and nurses who face patients, the work of hospital administrators is relatively regular and quantitative, and there is basically no problem of overtime, except for special periods of course."	5	3
	Physical efficiency	Bed efficiency	"...due to China's national conditions, the efficiency of hospital beds is 100% or even more than 100% most of the time, and hospitals will decide whether to provide additional beds according to the needs of patients."	15	9
		Equipment efficiency	"The efficiency of most basic equipment is over 70%, and some large equipment may have less than 40%."	6	5
	Financial efficiency	Cost-revenue asset efficiency	"The asset efficiency of a municipal tertiary hospital such as ours is relatively high, and the equipment is used efficiently due to the high number of patients. "	4	3
Development	Development resources	Professional / supportive staff ratio	"The number of professional staff is definitely greater than the number of auxiliary staff in a specialized functional unit like a hospital. "	2	2
	Research	Research output	"Most of the department directors will have the opportunity to lead interns in their [research] projects, and those with rich research results will not only be honored by our hospital, but will also be helpful for their title promotion."	20	11
Employee recognition	Salary & Career opportunities	Salary equity	"...the harder you work, the better you get paid..."	10	7
		Career opportunities	"...if conditions permit, we will select some young doctors with potential to go to better hospitals for training every year, which is not only the improvement of doctors' own ability, but also an effective guarantee for the long-term development of the hospital."	9	5

These results can be integrated so to offer a comprehensive but clear view of the aggregate of the interviewees' opinions. We have identified five dimensions and 12 objectives of performance.

Dimension 1: Social satisfaction - social perspective, reflecting the requirements of the public and patients

To achieve good social benefits, there are three performance objectives that should be attained: (i) patients are satisfied with the medical services provided (patient satisfaction); (ii) medical costs are appropriate and acceptable to patients (medical cost affordability); and (iii) quality is superior (service quality).

Dimension 2: Management efficiency - industry perspective, reflecting the operational efficiency and service quality of hospitals

To achieve better management efficiency, there are three performance objectives that should be achieved: (i) high per capita efficiency of the hospital (per capita efficiency); and (ii) high efficiency of bed utilization and turnover. The asset efficiency evaluation content is put into the asset operation dimension (bed utilization efficiency). Finally, (iii) the hospital's ability to control the cost of medical operations and obtain reasonable income compensation (ratio of operational costs / income).

Dimension 3: The asset operation - from the perspective of asset managers - reflects the efficiency of hospital assets in providing medical services, the value of state-owned assets, and other monitoring indicators.

To obtain a satisfactory level of asset operation, there are two performance objectives that should be achieved: (i) high efficiency in the use and turnover of assets (asset efficiency); and (ii) appropriate state of preservation and efficiency of state-owned assets (asset preservation).

Dimension 4: Continuous development - development perspective, reflecting the commitment and importance of the leadership to the hospital's development innovation and momentum.

To obtain a lasting momentum of development and innovation, there are three performance

goals that should be achieved, which are: (i) a reasonable academic structure of professional and technical personnel (staff occupation structure); (ii) a high level of research in the hospital (research output); and (iii) a certain amount of teaching workload (teaching workload).

Dimension 5: Employee recognition - employee perspective, reflecting employee requirements and comprehensive information on personality characteristics. To maintain the cohesiveness and good working condition of the employees, the performance goal should be achieved so to make the employees experience a high degree of self-competence, but their salary levels should satisfy their needs and opportunities for career development must also be felt by the employees.

4.4.2. Indicators of performance evaluation in public hospital

One of the important subjects in the interviews pertained to the concrete performance indicators that interlocutors use, or think should be used, to gauge the true multidimensional performance of public hospitals aligned with their purpose.

The data from these indicators came from documents provided by the interviewees or during the interview. To understand how extensively the indicators cover a multidimensional performance measure, we have adopted the official 20 basic performance evaluation indices formally advanced by the National Health Commission, 2020). Our expectation is that this is yet an ongoing process and so, not all will be represented. Our interest is in understanding how much hospitals reflect more than a single dimension. The table 6 shows the indicators by level. The indicators are analyzed according to four aspects: social benefits, quality of care, operational and financial efficiency, and employee recognition.

Table 6 - Groups of indicators for performance evaluation

Level 1 indicators	Level 2 indicators	Level 3 indicators
Service Delivery	Functional orientation	Number of consultations
		Number of Discharges
		Chinese Medicine Services
		Health Record Management

		Health Education
		Vaccination
		Child Health Management
		Maternal Health Management
		Health Management for the Elderly
		Health Management for Hypertensive Patients
		Diabetes Management
		Management of Patients with Severe Mental Disorders
		Health Surveillance Co-ordination
		Contracted Service Status
	Service efficiency	Average daily number of consultations by physicians
		Inpatient bed days per day
		Bed utilization rate
		Average hospitalization days
	Quality and safety in healthcare	Use of basic medication
		Proportion of antimicrobial prescriptions
		Proportion of intravenous injection use
		Nosocomial infection management
		Handling of medical disputes
Integrated Management	Economic Management	Average outpatient cost per visit
		Average inpatient cost
		Change in medical income
		Percentage of medical service revenue
		Balance of income and expenditure
		Personnel expenses as a percentage of operating expenses
		Financial System
	Information Management	Information System Application
	Collaborative Services	Integrated Management
Sustainable development	Human resource allocation	Number of general practitioners per 10,000 population
		Medical to nursing ratio
	Staff structure	Educational structure of health technicians
		Structure of health technicians' titles
		% of physicians in the traditional Chinese medicine category
Satisfaction rating	Patient satisfaction	Patient satisfaction
	Medical staff satisfaction	Medical staff satisfaction

Details on the concrete measures of hospital performance originated not only from the interviews but also from documental analysis. Table purposively omit such details on the items used to evaluate the patient satisfaction due to space constraints but also to avoid being overdetailed, as the main indicators found are described in the following text.

4.4.3. Social benefits

4.4.3.1 Patient Satisfaction

The main indicators of patient satisfaction are service attitude and technical competence, and others include medical cost, hospital environment, convenience and treatment effectiveness. showed the index reflects the public's satisfaction with the hospital on 10 aspects, namely: facilities, behavior, public information, professional integrity, service attitude, business level, responsiveness, performance, compliance, and convenience.

4.4.3.2 Employee satisfaction

Employee satisfaction, including job satisfaction and satisfaction also with the hospital leadership and management practices (leadership satisfaction + job satisfaction + work environment).

4.4.3.3 Responsiveness

Patient responsiveness refers to whether the health care system meets the expectations of the population in terms of patient's human dignity (respect for personal dignity, respect for the patient's therapeutic autonomy and privacy) and timeliness of attention to the patient, social support networks, and the quality of the data collected.

4.4.3.4 Inpatient complaint reporting rate

Medical complaints refer to the behavior of patients and their families who are dissatisfied with the services provided by the hospital or hospital staff in the process of receiving health care services in the hospital and report the problems to the relevant departments.

4.4.3.5 Patient Web Review Scores

The premise of the implementation of this indicator is the establishment of a network platform, which is a platform for the construction of public supervision, and the feedback collected can be compared horizontally and vertically among different industries and institutions, and most importantly, the information is quickly sent back to the relevant institutions after problems are found. public supervision is a powerful weapon to promote the standardized

operation and sustainable development of the industry.

4.4.3.6 Medical Cost Burden

4.4.3.6.1 Average cost per consultation indicator

Society must pay for healthcare public services, either directly (as patients) or indirectly (as taxpayers), and this cost can be seen as a social cost. Therefore, there are three types of costs related to the specific profile of patients: outpatient costs, emergency costs, and inpatient costs. Outpatient emergency costs can be calculated per person and per visit, and inpatient costs can be calculated per person, per visit, per day, and per bed day. The average daily hospitalization cost and inpatient cost per bed day are calculated from the hospital's perspective, reflecting the hospital's economic efficiency and productivity. This should be taken per capita. The formula for calculating the average per-acute outpatient cost is:

The formula for calculating the average cost per emergency visit

$$= \frac{Outpatient\ medical\ revenue\ +\ Outpatient\ drug\ revenue}{Number\ of\ outpatient\ and\ emergency\ visits}$$

The formula for calculating sub-average inpatient medical costs is

$$\text{Average inpatient medical costs} = \frac{Inpatient\ medical\ income\ +\ Inpatient\ drug\ income}{Number\ of\ hospital\ discharges}$$

From the perspective of patients and society, there is a need to control the rapid growth of secondary costs. If we insist on controlling fees, hospitals will respond by increasing the denominator while keeping the numerator unchanged, i.e., there will be disaggregation of visits, and critical and difficult patients will be rejected.

4.4.3.6.2 Drug-to-prescription ratio indicators

The ratio of drug revenue to medical revenue is used to measure the appropriateness of the ratio of drug revenue to medical revenue in hospitals, with the numerator being drug revenue and the denominator being medical revenue.

$$\text{Pharmaceutical ratio} = \frac{Percentage\ of\ drugs}{Total\ Pharmaceutical\ Revenue} \times 100\%$$

Reducing the proportion of drug revenue in the total income of hospitals is an ethical requirement of rationally and responsibly using drugs. Still, there are other costs that can be increased without being reflected in this index, namely examination costs that can increase, and so another index that can be taken into account is the one pertaining to the examination costs.

$$\text{Average examination ratio} = \frac{\frac{Total\ Examination\ Revenue}{Number\ of\ patients}}{Total\ Hospital\ Revenue} \times 100\%$$

4.4.3.7 Medical service responsiveness

Medical service must consider the requirements of the patients and that patients can pose different challenges because of the seriousness of their diseases. Some will show with easy health situation, while others will offer a much more costly and risky treatment. So, indicators of medical service performance should consider not only the quantities (e.g. how many outpatients consultations were made in the year, how many emergency consultations, how many inpatient discharges occurred in the year) but also the qualitative (i.e. how many of these patients were having common or complicated diseases).

The indicators are:

Annual outpatient consultations (corrected for repeated patients). The equation is the annual number of consultations given to outpatients multiplied by a correction factor made by the:

$$\text{Average Daily ratio of outpatient consultations} = \frac{Repeated\ outpatient\ consultations\ (3\ days)}{Number\ of\ outpatient\ consultation} \times 100\%$$

The data to calculate this equation comes from each day's outpatient consultation and is averaged to the year under reference.

Annual number of emergency outpatient consultations.

Annual discharges of inpatients (corrected by a 7-day post readmission rate)

$$\text{Average weekly ratio of inpatient discharges} = \frac{Repeated\ inpatient\ admission\ (7\ days)}{Number\ of\ inpatients\ admitted} \times 100\%$$

The number of surgical consultations / interventions is also important because it implies higher costs for the hospital and should be measured separately.

All these indicators should take into consideration the seriousness of the diseases, especially those concerning inpatients. These are categorized in four types: ABCD. AB is for common cases while CD is for more serious and critical cases. A formula that can measure this is:

$$\text{Case CD type rate} = \frac{Number\ of\ type\ C\ or\ D\ cases}{Total\ number\ of\ discharges} \times 100\%$$

By correcting the quantitative ratios with the qualitative harshness of the situations we can gain a fairer representation of the real effort and performance at the level of medical service.

Overall, there are 11 KPIs to gauge the social benefits dimension. Patient satisfaction and employee satisfaction are the most represented, followed by a detailed calculation of medical cost burden.

4.4.4 Quality of care

Quality of care comprehends several aspects mostly linked to the clinical competency (or perceived competency) that can be summed up on the accuracy of the diagnosis, the effectiveness of the treatment, the perceived care in nursing and relationship in general.

4.4.4.1 Diagnostic quality

Clinical diagnosis is a fundamental part of medical effectiveness and it pertains to the

correctness and timeliness of diagnosis. This can be broadly measured by counting the cases where the diagnosis was found to be mistaken which is indicated by the match between the first diagnosis (clinical) and the report of discharge of the patient (pathological diagnosis):

$$\text{Clinical vs. Pathological diagnosis conformity rate} = \frac{Number\ of\ clinical\ vs.\ pathology\ diagnosis\ conformity}{Number\ of\ discharges} \times 100\%$$

4.4.4.2 Quality of treatment

A high-quality treatment can be conceived as the one that offers the best safety, effectiveness and is done in a timely manner. Treatment safety can be illustrated by the nosocomial or in-hospital infections also known as hospital acquired infections (HAIs). An indicator can be:

$$\text{HAI rate} = \frac{Number\ of\ new\ cases\ of\ HAIs}{Number\ of\ discharges} \times 100\%$$

Treatment effectiveness is a measure of the final outcome of medical treatment. A successful treatment can be expressed as cure rate, improvement rate, mortality rate, repeated hospitalization rate and also – from the negative perspective – in nosocomial infection. Due to the multiple nature of the situations that can be considered successful treatment there should be more than one indicator. Those proposed are the following:

$$\text{Healing rate} = \frac{Number\ of\ healed\ cases}{Number\ of\ discharges} \times 100\%$$

In some cases, the cure is not possible due to the nature of the disease. So, an improvement rate will be more suitable for these cases.

$$\text{Mortality} = \frac{Actual\ number\ of\ fatal\ cases}{Expected\ number\ of\ fatal\ cases} \times 100\%$$

$$\text{Rehospitalization rate } (< 14 \text{ days}) = \frac{Number\ of\ readmissions\ within\ 14\ days}{Number\ of\ discharges} \times 100\%$$

The time the treatment takes is mostly important for emergency cases, e.g. those cases that require resuscitation. The indicator can be:

$$\text{Acute and critical care resuscitation success rate} = \frac{Number\ of\ successful\ resuscitations}{Total\ number\ of\ rescues} \times 100\%$$

Nursing work is an important link in healthcare services provided by a hospital. Its effectiveness will condition the effectiveness of the whole clinical function. The technical quality and human quality of nursing services is continuously measured. Those who achieve the standards are called “passers”. Based on this, the indicator applied to both primary care and technical care can be:

$$\text{Primary care pass rate} = \frac{number\ of\ primary\ care\ passers}{number\ of\ primary\ care\ sampled} \times 100\%$$

$$\text{Nursing technique pass rate} = \frac{Passing\ rate\ of\ nursing\ technique}{number\ of\ people\ tested\ for\ nursing\ technique} \times 100\%$$

The ideal healthcare system is one that has zero flaws. This means there should not be too many cases of failure and such failures can be a (negative) indicator of performance. These include the number of medical errors, the number of serious nursing errors per year, the number of serious nursing errors per 100 beds per year, and the number of nursing errors per year. The number of medical accidents also includes the number of nursing accidents, which is the most representative.

Overall, quality of care service pertains to two large dimensions: clinical competence and interpersonal care while doing the service. The KPIs reflect a balanced view on these aspects

with both the clinical functions (diagnosis, treatment, effectiveness of treatment) and the nursing service being accounted in detail. In one case, it is worth mentioning the focus was put on HAI which have a dedicated KPI.

4.4.5 Operational efficiency

The evaluation of hospital operational efficiency generally focuses on the efficiency of human and material resources utilization. The efficiency of manpower utilization is mostly based on the number of services provided per physician, and the types of services provided can be outpatient, emergency, inpatient, and surgical visits. Physical efficiency mostly considers the use of hospital beds, but in recent years there has also been a strong focus on the use of equipment. If we look at the strict definition of physical capacity, we also look at the efficiency of infrastructure use.

4.4.5.1 Human Resources efficiency

Human Resources efficiency indicators reflects the efficiency of the labor output of hospital HR. The main manpower of the hospital are doctors, nurses, medical technological staff, administrative staff, and logistics staff. Productivity is measured in different way according to the nature of the occupations.

For doctors, the workload is an indication of productivity. Therefore, its measurement can be with the following formula.

$$\text{Workload per physician} = \frac{Annual\ workload}{Average\ number\ of\ physicians}$$

This same formula can be used as a basis to calculate the productivity by computing the costs / benefits of each worked hour for physicians. The same is valid for all the remaining of the workforce.

4.4.5.2 Physical efficiency

Physical efficiency refers to the use of physical resources to achieve the hospital mission. It comprehends the bed efficiency and equipment efficiency.

Bed efficiency can be measured with many different emphases. It can target the average bed working days, actual bed utilization rate, average occupied bed days before surgery, average inpatient days. The last one represents the larger volume of bed occupancy and can be measured with three indicators.

$$\text{Average inpatient bed days} = \frac{Total\ number\ of\ bed\ days\ occupied\ by\ discharged\ patients}{Number\ of\ discharges}$$

Bed utilization rate. The calculation formula is.

$$\text{Bed utilization rate} = \frac{Actual\ total\ number\ of\ occupied\ beds}{Actual\ total\ number\ of\ open\ bed\ days} \times 100\%$$

Number of bed turnarounds. The calculation formula is.

$$\text{Number of bed turns} = \frac{Number\ of\ discharges}{Actual\ average\ number\ of\ open\ bed\ days}$$

Medical equipment is also an important material resource for hospitals. Its productivity is measured by the utilization rate of medical equipment, and the economic efficiency of the input and output of medical equipment is measured by the yield of medical equipment. The indicators can be:

$$\text{Medical equipment utilization rate} = \frac{actual\ utilization\ times}{standard\ utilization\ times} \times 100\%$$

$$\text{Equipment yield} = \frac{Equipment\ revenue\ -\ Equipment\ cost}{Equipment\ revenue} \times 100\%$$

4.4.5.3 Financial efficiency

Financial efficiency is critical for public hospitals and it pertains to the rational use of resources taken from the financial perspective.

The total cost of a hospital includes the outpatient and inpatient cost (consultation costs, bed costs) and its total revenue includes income from patients and income from the State budget. These should be analyzed considering the hospitals assets. One such indicator can be:

$$\text{Total Asset Turnover Ratio} = \frac{Operating\ Income}{Average\ Total\ Assets} \times 100\%$$

$$\text{Fixed asset turnover ratio} = \frac{Business\ revenue}{Average\ net\ fixed\ asset\ value} \times 100\%$$

$$\text{Current asset turnover ratio} = \frac{operating\ income}{average\ net\ current\ assets} \times 100\%$$

$$\text{Average assets} = \frac{Beginning\ of\ year\ assets\ +\ End\ of\ year\ assets}{2}$$

$$\text{Business input} - \text{output ratio} = \frac{Business\ input}{Business\ revenue} \times 100\%$$

$$\text{Large instrumentation cost recovery cycle} = \frac{Large\ instrumentation\ input\ costs}{Annual\ net\ revenue\ generated\ by\ the\ equipment}$$

Overall, efficiency is a critical aspect in management. This is reflected also in the findings on efficiency that showed detail in three aspects: HRM, physical assets, and financial. The prevailing attention goes to financial efficiency with five main KPIs, followed by physical efficiency as three KPIs are focused on bed use while two on equipment use. Only one KPI measures workload per each professional body, one for physicians, one for nurses and one for the supportive staff.

4.4.6 Continuous development

As professional services, healthcare always struggle with updating knowledge to better serve the patients and to cope with emerging issues and make good use of technological assets. This means that the philosophy of total quality management, the continuous improvement, is

mandatory in this line of business which can be seen as continuous development.

Such development is dependent on the resources allocated to it and the time professionals have to invest. One of the important issues, especially in hospitals that have both a clinical and a teaching career, is the compatibility between the two roles where a doctor is both a clinician (attending patients and doing the administrative duties in the hospital) but also a teacher (giving classes or mentoring young students or novice doctors) and the same applies for nurses. Additionally, the time professionals have to dedicate to all duties depends on how much support they have for non-essential tasks, such as administrative support.

So, the first indicator pertains to the staff occupation structure where the investment in qualification is a reflection also of the ratio of professionals per supporting staff. Likewise, the ratio of workload split between teaching duties and clinical duties.

$$\text{Staff occupation ratio} = \frac{Number\ of\ professionals\ (clinical)}{Total\ number\ of\ employees}$$

Additionally, because of the multiple responsibilities clinical staff has to perform, teaching can take over other clinical and research functions. Therefore, it is important to gauge the extent of time spent teaching (in class or in the hospital floor) compared to the time available for consultations, and medical education and research. An equation can be simple:

$$\text{Workload structure} = \frac{Number\ of\ teaching\ hours}{Total\ number\ work\ hours}$$

Another important indicator pertains to the function of research. In healthcare the rhythm of scientific discoveries and the updating of techniques, procedures, drugs, and other knowledge-based interventions is an always increasing. Hospitals, especially public hospitals, have the mission of actively contributing to this important mission of scientific advancement. A simple indicator of research output is the number of publications that deserved credit in the scientific community. Another is the number of registered patents.

$$\text{Publications ratio} = \frac{Number\ of\ peer\ reviewed\ papers}{Total\ number\ of\ researchers}$$

$$\text{Patent ratio} = \frac{Number\ of\ patents}{Total\ number\ of\ researchers}$$

Overall, development plays an important role in performance management. It is part of the total quality philosophy and this is tacitly acknowledged by the interviewees and documents that have mentioned both the professional development as well as the clinical research development. This also includes research functions, which deserved two specific KPIs.

4.4.7 Employee recognition

Service organizations are always strongly dependent on the quality of its human resources. Such quality is transformed into high quality of service and dedication to the profession. However, human resources need to be recognized and its output is very sensitive to the way the organization manages human resources.

Employee recognition comprehends KPIs focused on salary,

Salary equity comprehends two dimensions: internal equity (how fair is the salary compared to the colleagues' salary taking into consideration the difference in responsibilities and risks), and external equity (how fair is the salary compared to the average job market for similar position).

Internal equity can be measured as a perception about the internal pay policies as regards comparative fairness: "The amount of payment given to me reflects the fair value compared to my colleagues' payments and their respective degree os responsibility compared to mine". Answered in a 10-point scale "1=strongly disagree" to "10=strongly agree".

External equity can be objective measured based on market values.

$$\text{Pay external equity} = \frac{Mean\ salary\ for\ position\ X}{Mean\ salary\ in\ the\ market\ for\ position\ x}$$

Overall, employee recognition is measured mostly with a focus on pay equity (both internal and external) which reflects a top concern with the fair payment of healthcare professionals. No

KPI was found to measure career progression that, although was reported to be a concern, was not found to be systematically measured.

5. Discussion and Conclusion

Findings pertaining to the objectives or purposes of public hospital performance evaluation highlighted a series of points that converge with extant knowledge on literature. The main point is that performance is a multidimensional construct (Hirsch & Levin, 1999) and it must differ between public and private hospitals (Kalhor et al., 2016) although some dimensions will be common and other distinct (Baruch & Ramalho, 2016).

Another informative finding relates with the prevalence of economic objectives as compared to service objective when interviewees were asked about the objectives of hospital performance evaluation. This may indicate that the priority given to economic is well established although it would be preferable to see it as frequently mentioned as the service objectives, in line with the spirit of the reform of 2009. Still reports of frugal state subsidies of 8% (Zhao & Zhang, 2018) of total revenue may explain this concern with economic efficiency. Lastly, the comprehensive view on the multidimensional nature of organizational performance seems to be even more distant from the interviewees mindset as it is the lowest frequent category mentioned.

The fact that three stakeholders were always mentioned by all interviewees (patients, professionals, managers) means that there is a strong understanding about their importance. Firstly, that for the hospital, the patient is the only customer. Patient’s experience directly determines the height of the hospital's development, which is a common knowledge among all practitioners. Also, that there is an acknowledgement that professionals are the key asset of hospitals. The hospital's core competency is the ability of the doctors themselves, which is mentioned several times. This is in line with the importance given to the development of the hospital's doctors' competence and motivation. Lastly, as interviewees had to perform

management duties, they have naturally mentioned the views from their own role. It is important to mind that the frontier between professional and manager is minimal as both the directors and the heads of the departments were also clinical doctors. This goes in line with common practice of having hospital leadership with a clinical background that has also been claimed to be advantageous to the hospital outcomes (Sarto & Veronesi, 2016).

Interviewees have an understanding that the first principle of evaluating hospital performance is the regular use of the evaluation (both as a repeated periodically activity and as a source of evidence for decision-making) which is a recurrent issue in performance evaluation effectiveness (DeWaal, 2003). They also have a detailed understanding of the principles that guide the evaluation of social purpose and operational efficiency of hospitals.

Short-termism is a frequently mentioned issue in organization management as it translates a priority given to objectives achievable in the short-run to the detriment of those on the long-run. In healthcare this has been discussed (e.g. Chandra & Goldman, 2015; Limb, 2017) and it is a potential risk for the strategic management (Schwaninger & Klocker, 2018).

The top-down performance evaluation system definition and one-direction information flow is prone to bias in showing a fair reflection of the hard work of the hospital and it has potential to damage the hospital's work motivation. Participate systems are long known to increase motivation and commitment from employees, which plays a critical part in adherence to performance evaluation (Daft, 2004).

Patient satisfaction and economic medical burden are, together with employee satisfaction, the focal KPIs within the social benefits. This is understandable because previous reports of patient dissatisfaction, work overload and the flawed hospital revenue system based on drug prescription motivated the current reform (Wei & Wang, 2019).

Findings suggest hospital leaders and directors are mostly focused on the patient, i.e. the most frequently categories converge into guaranteeing patient satisfaction, nursing service, bed availability and low economic medical burden to the patient and families. Then, findings suggest these interlocutors put the second priority into research and research output which can be explained by the fact that two of the hospitals (especially the largest one) has a teaching role

and thus is subjected to evaluation on research output. The last priority is given to employees with greater attention put onto doctors, followed by nurses and administrative staff. Still the distance in frequencies from the top categories seem to suggest this is mostly thought of as a focus on salary and career opportunities, not so much on workload burden.

In line with this, the centrality of personnel for hospitals depends on how critical are their functions which, judging by the findings, seems to rank order doctors, nurses and administrative staff by this order. It is however interesting to note that HR efficiency (workload) gains far less attention that bed efficiency, suggesting interviewees have an operational focus on guaranteeing the high volume of patient care with most attention focused on patients (patient satisfaction, economic burden and available beds).

Quality of care plays a central role in hospitals and the KPIs chosen to measure it also reflect this. The clinical quality pertained to the medical acts as important as the clinical diagnosis and treatment focusing on healing rate, mortality, and rehospitalization rate Curiously, stressing the critical importance of HAI, hospitals put emphasis on measuring in detail this risky phenomenon with a specific KPI. Service itself is mostly judged on the nursing work whose quality is gauged by means of evaluating technical standards within this professional body. This reflects the importance of the first line of clinical contact with patients, which are nurses.

KPIs on efficiency reflect the importance found in the interviews about the efficiency dimensions. Firstly, the concern is placed on financial efficiency with five specific KPIs. Following, KPIs focus on what is most relevant for the patient: bed availability which implies beds are a central resource to serve well the patients. Therefore, it is not surprising to find three specific KPIs for bed use efficiency. Following, equipment efficiency also deserved attention as an extension of physical infrastructures. Lastly, workload is measured but with a simple KPI focused on worked hours per capital, distinguishing for doctors, nurses and staff. This might not reflect the effort differential as working in specific services has distinct pressure, stress and intensity. This can be adjusted with the KPI objectives, which we did not collect. Still, it is important to highlight the simplistic way in which HR efficiency is operationally defined. Workload is known to have a negative impact in job satisfaction in Chinese hospitals (Liu et al.,

2019) and so it could be a target of finer KPIs.

Hospital qualified professionals have to perform multiple roles, especially in hospitals that have both the clinical and teaching responsibilities. Alongside with teaching, clinical research is an obvious priority. This is visible in the number of KPIs dedicated to measure this dimension. They reflect both the support resources (staff ratio), workload structure (to guarantee there is no unbalance), but mostly, the research outputs (which deserved two KPIS). This has been linked with role conflict that although it is not inevitable it is quite frequent (Comerford & Abernethy, 1999) as e.g. managerial orientation has been linked to career success (Vera & Hucke, 2009).

Compensation plays a critical role in managing HR and healthcare is not an exception. In designing suitable compensation policies and practices, and in defining how much one should receive to do the job in the hospital, two aspects emerge: internal and external equity. This goes in line with Selden (2017) as important issues in managing hospitals, especially public ones.

Career opportunities are also universally important in HRM and in the specific case of public hospitals in China, a recent study found it is able to prevent or foster turnover intention in medical staff. It is thus not a surprise to see that this category emerged, but it is curious that a regular KPI was not reported. This can be explained by the fact that career promotion may not be always possible as it goes counter to expenditure frugality (that is a central concern in all healthcare system in the world, especially with a ageing population). So, the lack of a regularly measured KPIs possible reflects this conception of contingent opportunity rather than guaranteed opportunity.

In conclusion, the results of this study indicate that the positioning of public hospital leaders as regards performance evaluation is, first, to produce good social benefits and, second, to maintain good operational status. This is in line with the spirit of the reform in 2009. The challenge was then to be able to provide medical services that satisfy the people (both in terms of quality and cost), while hoping to increase the self-sufficiency of hospitals as much as possible and reduce the pressure on financial expenditures on patients.

Since hospital operational performance needs to be recognized by different stakeholders, public hospital performance is different from that of enterprises, which is mainly based on

economic profit, but must balance social and economic benefits. The diversification of performance goals and the imperfection of existing compensation mechanisms have put higher demands on the management level and balancing ability of hospital directors.

Looking back to the phases of public healthcare service provision in China, the current stage seems to be the focus on people accompanied with a focus on sustainability. This is visible in the set of performance dimensions and measures, but it is also visible that not all deserve the same attention, judging on the differential frequencies each was mentioned. Patient satisfaction seems to lead the priorities. All dimensions are seemingly flowing into higher patient satisfaction. Ranking priorities is always an exercise where leaders must decide what comes first, but also decide what comes last. At this stage, the biggest risk seems to be the relatively lower attention to what is called in quality management the internal clients, i.e. the personnel. Employee satisfaction and salary equity is indeed represented among the set of measures but the attention falls on patient satisfaction, financial efficiency, and operational efficiency related to service provision. This is an expectable outcome in a system that is of a large scale and strategically needed to change paradigm from market to people. Quinn's competing values framework helps understand the effort this U-turn represented for the whole system as people quadrant is the opposite to market quadrant.

These conclusions must consider the limitations of the study. Firstly, this is a qualitative study that builds on a very small number of organizations and relatively modest number of interviewees. Therefore, it cannot be representative of what is happening in the system but only in the organizations involved. Likewise, the interviews touch a sensitive topic, because performance evaluation of a hospital is indirectly the performance appraisal of its leaders and directors. However, the interviews did converge as regards perspective, dimensions and measures of hospital performance. These set of measures, especially KPIs, were not comprehensively gathered as it would be impossible to depict the full extent of operational measures that can be used, with the reasonable adaptations to each service, in a hospital. We must assume these were the ones that were on the top-of-mind of interviewees. Future research may benefit from either focusing on single-dimension measures of performance. It can deepen

each dimension to the point of gathering all KPIs and thus offer a partial, but detailed understanding of hospital performance measurement. Likewise, backed up with international standards, research can develop by doing quantitative analysis, firstly with a descriptive purpose (what KPIs are used overall, and how are they measured? Are they always measured in the same way or do operational equations differ across hospitals?), secondly, with an explanative purpose, which KPIs are the strongest into accounting for overall variance in a larger measure of overall hospital performance. These studies will open way to better understanding of extant public hospital performance measurement in China and improvement possibilities.

6. References

Anand S, Fan VF, Zhang J et al. (2008). China's human resources for health: quantity, quality, and distribution. Lancet 372: 1774–81.

Baruch, Y., & Ramalho, N. (2006). Communalities and distinctions in the measurement of organizational performance and effectiveness across for-profit and nonprofit sectors. *Nonprofit and voluntary sector quarterly*, *35*(1), 39-65

Bauer, M. W., and Gaskell, G. (Eds.). (2000). *Qualitative researching with text, image and sound: A practical handbook for social research.* Thousand Oaks: Sage

Burnard, P., Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Analysing and presenting qualitative data. *British dental journal, 204*(8), 429-432.

Chandra, A., & Goldman, D. (2015). Understanding health care's short-termism problem. *Measuring Costs and Outcomes in Healthcare*, 5-6.

Chinese Health Statistical Yearbook. 2019. Beijing, China: Ministry of Health, Government of the People's Republic of China.

CNDRC China National Development and Reform Commission (2009). *Opinions on Deepening the Reform of the Medical and Health System*. Access in http://www.china.org.cn/government/scio-press-conferences/2009-04/09/content_17575378.htm

Comerford, S. E., & Abernethy, M. A. (1999). Budgeting and the management of role conflict in hospitals. *Behavioral Research in Accounting, 11*, 93-110.

Daft, R. L. (2004). Theory Z: Opening the corporate door for participative management. *Academy of Management Perspectives, 18*(4), 117-121.

De Waal, A. A. (2003). Behavioral factors important for the successful implementation and use of performance management systems. *Management Decision, 41* (8), 688-697.

Denzin, N. K., & Lincoln, Y. S. (2008). The landscape of qualitative research (Vol. 1). Sage.

Dong, S., Millar, R., Shi, C., Dong, M., Xiao, Y., Shen, J., & Li, G. (2021). Rating Hospital Performance in China: Review of Publicly Available Measures and Development of a Ranking System, *Journal of Medical Internet Research, 23*(6): e17095. Doi: 10.2196/17095

Du, L., Xu, J., Chen, X., Zhu, X., Zhang, Y., Wu, R., ... & Zhou, L. (2020). Rebuild doctor–patient trust in medical service delivery in China. *Scientific Reports, 10*(1), 1-11.

Grogan, S., Conner, M., Willits, D., & Norman, P. (1995). Development of a questionnaire to measure patients' satisfaction with general practitioners' services. *The British journal of general practice*, *45*(399), 525–529

Grogan, S., Conner, M., Willits, D., & Norman, P. (1995). Development of a questionnaire to measure patients' satisfaction with general practitioners' services. *The British journal of general practice: the journal of the Royal College of General Practitioners, 45*(399), 525–529.

Hartnell, C. A., Ou, A. Y., & Kinicki, A. (2011). Organizational culture and organizational effectiveness: a meta-analytic investigation of the competing values framework's theoretical suppositions. *Journal of applied psychology, 96*(4), 677-694.

Hirsch, P. M., & Levin, D. Z. (1999). Umbrella advocates versus validity police: A life-cycle model. *Organization Science, 10*(2), 199-212.

Hu, Y., Su, Q., & Xue, L. (2014, June). Research on quality management system design for hospitals. In *2014 11th International Conference on Service Systems and Service Management* (ICSSSM) (pp. 1-5). IEEE.

Jha, A. K. (2018). Accreditation, quality, and making hospital care better. *Journal of the American Medical Association, 320*(23), 2410-2411.

Jing J, Gu FJ & Jiang WC. (2017). Constructing a quality evaluation system for operating room nursing management based on the structure-process-outcome three-dimensional quality evaluation model. *Nursing Research, 29*, 3659-3662.

Kalhor, R., Tajnesaei, M., Kakemam, E., Keykaleh, M. S., & Kalhor, L. (2016). Perceived

hospital managerial competency in Tehran, Iran: is there a difference between public and private hospitals?. *Journal of the Egyptian Public Health Association, 91*(4), 157-162.

Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of advanced nursing, 72*(12), 2954-2965.

Korolev, A. (2014). Deliberative democracy nationwide? Evaluating deliberativeness of healthcare reform in China. *Journal of Chinese Political Science, 19*(2), 151–172. doi:10.1007/s11366-014-9287-1

Li, X., Krumholz, H. M., Yip, W., Cheng, K. K., De Maeseneer, J., Meng, Q., ... & Hu, S. (2020). Quality of primary health care in China: challenges and recommendations. The Lancet, 395(10239), 1802-1812.

Limb, M. (2017). "Culture of short termism" threatens health and care services, warn lords, *British Medical Journal,* 359:j498.

Liu, J., Yu, W., Ding, T., Li, M., & Zhang, L. (2019). Cross-sectional survey on job satisfaction and its associated factors among doctors in tertiary public hospitals in Shanghai, China. *BMJ open, 9*(3), e023823

Longman, P. & Li, L. (2011). *The best medical model: an American solution to public hospital reform.* Peking University Press.

McGrath, C., Palmgren, P. J., & Liljedahl, M. (2019). Twelve tips for conducting qualitative research interviews. *Medical teacher, 41*(9), 1002-1006.

McNiff, J. & Whitehead, J. (2005). *Action Research: All You Need to Know*. London: Sage. pp. 3–5. ISBN 978-1473967472.

Moser, A., & Korstjens, I. (2018). Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. *European journal of general practice, 24*(1), 9-18.

National Health Commission of the People's Republic of China. China's Health Statistical Yearbook 2018; Peking Union Medical College Press: Beijing, China, 2018; pp. 6–7.

National Health Commission of the People's Republic of China (2020). *Performance Evaluation Index System for Primary Health Care Institutions* (provisory). Accessed in: http://www.nhc.gov.cn/

Polit, D. F. & Beck, C. T. (2017). *Nursing research: Generating and assessing evidence for nursing practice.* 10th ed. Philadelphia: Lippincott, Williams & Wilkins.

Quinn, R. E., & Rohrbaugh, J. (1981). A competing values approach to organizational effectiveness. *Public Productivity Review*, 122-140.

Sarto, F., & Veronesi, G. (2016). Clinical leadership and hospital performance: assessing the evidence base. *BMC health services research*, *16*(2), 85-97

Schwaninger, M., & Klocker, J. (2018). Efficiency versus effectiveness in hospitals: A dynamic simulation approach. In *Outcome-based performance management in the public sector* (pp. 397-424). Springer, Cham.

Selden, S. C. (2017). Compensation practices in nonprofit organizations: Examining practices adopted by high performing nonprofits. *The nonprofit human resource management handbook*, 142-165.

Shin, Y. S. (1995). Hospital accreditation-a universal perspective. *World Hospitals, 31*(1), 22-28.

Shu, G. (2008). Progress of studying on evaluation methods of the organizational performance at home and abroad. *Chinese Health Service Management, 12, 802-825*.

Tabrizi, J. S., Gharibi, F., & Wilson, A. J. (2011). Advantages and disadvantages of health care accreditation models. *Health promotion perspectives, 1*(1), 1-31.

Vera, A., & Hucke, D. (2009). Managerial orientation and career success of physicians in hospitals. *Journal of health organization and management, 23* (1), 70-84.

Wei, Z-Li, & Wang, Y-D. (2019). Review and inspiration of the new round of medical and

health system reform in China. *Chinese Journal of Disease Control, 23*(09), 1037-1104.

Yang, X., & Zhang, H. (2021). An Analysis of Performance Management Reform in Public Hospitals Based on Orientation Mechanism. *International Journal of Health Economics and Policy, 6*(2), 65.

Yin, R. K. (2011). *Qualitative research from start to finish*. New York: The Guilford Press.

Yip WC, Hsiao WC, Chen W et al. (2012). Early appraisal of China's huge and complex health care reforms. Lancet 379: 833–42.

Yu, S. (2019). *Career management, organizational commitment and turnover intention: an empirical study on clinicians in public hospitals in China.* PhD thesis in Management, ISCTE-IUL, Lisbon.

Zhang, D., Liao, M., Zhou, Y., & Liu, T. (2020). Quality control circle: a tool for enhancing perceptions of patient safety culture among hospital staff in Chinese hospitals. *International Journal for Quality in Health Care, 32*(1), 64-70.

Zhang, X., & Sleeboom-Faulkner, M. (2011). Tensions between medical professionals and patients in mainland China. *Cambridge Quarterly of Healthcare Ethics, 20*(3), 458-465.

Zhao, D., & Zhang, Z. (2018). Qualitative analysis of direction of public hospital reforms in China. *Frontiers of medicine*, *12*(2), 218-223.

Zhijun, L. I. N., Zengbiao, Y. U., & Zhang, L. (2014). Performance outcomes of balanced scorecard application in hospital administration in China. *China Economic Review, 30*, 1-15.