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Building China's municipal healthcare performance evaluation system: a Tuscan perspective†

HAO LI*, SARA BARSANTI AND ANNA BONINI

Scuola Superiore Sant'Anna, Istituto di Management, Laboratorio Management e Sanità, Piazza Martiri della Libertà, 24-56127 Pisa, Italy

*Address reprint requests to: Hao Li, Scuola Superiore Sant'Anna, Istituto di Management, Laboratorio Management e Sanità, Piazza Martiri della Libertà, 24-56127 Pisa, Italy. Tel: +39-050-883985/81/88; Fax: +39-050-883890; E-mail: h.li@sssup.it

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Abstract

Regional healthcare performance evaluation systems can help optimize healthcare resources on regional basis and improve the performance of healthcare services provided. The Tuscany region in Italy is a good example of an institution which meets these requirements. China has yet to build such a system based on international experience. In this paper, based on comparative studies between Tuscany and China, we propose that the managing institutions in China's experimental cities can select and commission a third-party agency to, respectively, evaluate the performance of their affiliated hospitals and community health service centers. Following some features of the Tuscan experience, the Chinese municipal healthcare performance evaluation system can be built by focusing on the selection of an appropriate performance evaluation agency, the design of an adequate performance evaluation mechanism and the formulation of a complete set of laws, rules and regulations. When a performance evaluation system at city level is formed, the provincial government can extend the successful experience to other cities.

Keywords: healthcare performance; performance evaluation system; evaluation agency; evaluation mechanism; evaluation laws, rules and regulations

Introduction

China launched a new round of health system reform in April 2009. Public hospitals are being separated between ownership and control [1]. Different levels of official ranks of public hospitals are being cancelled. This makes hospital directors focus more on strategic development of the hospitals rather than being concerned about their own political status. (In China's old healthcare system, first established in 1949, hospital directors have official ranks appointed by the government. Besides managing the hospitals as a manager, they also compete for higher ranks as government politicians.) Corporate governance is being introduced into public hospitals [1, 2]. At the same time, many Chinese experimental cities are constructing community health service centers (CHSCs) [3, 4]. However, patients are reluctant to go to these centers because the facilities and services are of a much lower quality and with fewer safety procedures than those in hospitals, thus revealing an imbalance of resource allocation [5]. On the other hand, the low efficiency of the healthcare system has caused extensive wastage, whereas China is short of financial resources for healthcare. In order to improve the performance of the healthcare system, external accreditation and internal performance evaluation have been carried out in Chinese hospitals. A new policy of paying for performance is also being implemented in the Chinese CHSCs [6], while China still lacks effective performance evaluation tools [7]. Although there is some Chinese literature on government performance evaluation, there is limited research on performance evaluation systems in healthcare.

The Tuscany region in Italy has gained increasing attention from international researchers due to its outstanding healthcare performance in recent years [8–10]. The Tuscan regional healthcare performance evaluation system is of particular relevance to China, because it has been used as a governance tool for strategic management of its 12 local health

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Table I Healthcare system comparison between Tuscany and China

Items	Tuscany	Chinese experimental cities
Financing	Tax-funded universal healthcare system; HAs get budgets from regional government on capitation basis; THs are reimbursed on DRG basis	Government subsidies and a network of co-existing basic healthcare insurance schemes
Hospital type	Few types; limited difference in service capacity	Various types; service capacities vary
Care	HAs directly provide healthcare services for primary care with GPs, prevention, public health and non-acute hospitalization. THs provide secondary and tertiary services	Hospitals provide both outpatient and inpatient services. Primary care, prevention and public health are provided by various hospitals, CHSCs and stations, clinics etc
Cost containment	HAs and THs face a fixed budget	Hospitals and CHSCs have to bear potential deficits and to control costs to be selected as a designated point provider
Cooperation vs competition	More cooperation than competition	More competition than cooperation
Payment	Inpatient services are provided free of charge. Outpatient services are charged of a ticket fee at the point of delivery	Patients are charged at the point of service; hospitals keep profit surplus as development funds and bonuses
Place of buying drugs and medicine	At outside independent pharmacies	At hospitals and CHSCs
Patient choice	GPs as gatekeepers; patients require a referral from their GPs to go to a hospital	Patients can choose to go to a CHSC or a hospital by themselves
Health information systems	A regional health information system collects data (patient health records) from HAs and THs	Health information systems have been applied for years at local organizational level. Patient health records system is being implemented

authorities (HAs) and 5 teaching hospitals (THs). Besides performance evaluation to improve the quality of care, the performance evaluation system can also help identify where to reallocate health resources at regional level based on performance evaluation [11]. Although the healthcare systems differ between Tuscany and China (Table 1), it is still possible for China to learn from Tuscany, e.g. the Tuscan performance evaluation system originated from Balanced Scorecard and multidimensional reporting [12–15], which have been used worldwide. As China is very large, it is difficult to implement a uniform performance evaluation model. The Tuscan experience is helpful for China to explore a new direction of performance evaluation that goes hand in hand with accreditation.

The aim of the study is to make a first attempt to explore the possibility for some of the Chinese experimental cities to learn from the Tuscan healthcare performance evaluation experience. Following this exploration, we propose a framework to enable the building of China's own regional performance evaluation system.

Performance evaluation comparison

China has planned to restart accreditation of healthcare organizations in recent years after long suspension in 1998. In 2008, the Ministry of Health of China released a full set of indicators as reference standards for general hospitals to evaluate their performance [16]. Based on this version, in November 2009, *The evaluation standards of general hospitals (revised version) & implementation rules* were released [17] in order to obtain opinion feedback from the public. As regards primary care and public health services, in 2011, the Ministry of Health of China released *The implementation guideline solution for the establishment of sample community health service centers* [18] and *Performance evaluation indicators for community health service institutions* [19]. Performance evaluation has been embedded into accreditation.

In contrast, Tuscany has carried out performance evaluation since 2001. At the time, most of the data and information gathered by the regional health information system were not processed properly and consequently could not be exploited effectively. The data were not presented in a simple way and the information was inadequate for decision-making uses, with negative consequences for the management of the HAs and THs. Therefore, in 2004, the Tuscan regional government commissioned a public university (Scuola Superiore Sant'Anna) to develop and implement a regional healthcare performance evaluation system, in order to monitor the operations of the local HAs and THs and to make sure that the planned regional goals could be achieved. (For further details of the Tuscan regional healthcare performance evaluation system, please refer to the supplementary material).

Table 2 compares performance evaluation practices of Tuscany and China [20–24]. The comparison is based on the Chinese indicators of hospitals of 2009 and the Chinese

Table 2 Performance evaluation comparison between Tuscany and China

Items	Tuscany	Chinese experimental cities
Data analysis and reporting system	Organizational-level data presented in indicator-benchmarking with an annual public regional report	Field inspection with standards and a full set of indicators
Evaluation institution	A third-party agency commissioned by the regional government	A committee of experts organized by health administrative departments[a]
Perspective	Multidimensional performance evaluation to monitor regional and local strategic goals	Overall evaluation on the activities and quality of care
Performance dimensions	Population health status, regional policy targets, clinical quality of care, patient satisfaction, staff assessment, efficiency and financial performance	Hospitals: hospital functions and mission; patient safety goals; patient services; quality management and improvements; hospital management; medical quality evaluation indicators CHSC: institution management, public health services, primary care health services, traditional Chinese medicine services and patient satisfaction
Targets	Specific targets (change every year) for each HA and TH	JCI standards and ISO 9001 standards
Performance rewarding system	Already in use	To be developed and implemented
Frequency of monitoring	Clinical quality indicators are quarterly monitored for internal use and feedback. Others are annually monitored	Normally once a year
Accreditation	The performance evaluation system provides parts of indicators for the accreditation of HAs and THs	Instant data acquired by accreditation experts

[a]In China, the health administrative departments (from national to local) include the Ministry of Health of China, the provincial Bureau of Health, the municipal Bureau of Health, the district/county Bureau of Health, etc.

indicators of CHSCs of 2011 with the Tuscan performance evaluation system indicators of 2009 [25].

The Tuscan performance evaluation system serves as a supplement to overcome the defects of accreditation, making performance improvement efforts ongoing. In many Chinese cities, the health administrative departments annually employ a committee of external experts to conduct field inspections on healthcare providers. The related quality improvement efforts are temporary: when the inspections are finished, most of the providers move back to their previous conditions of providing services. In this sense, the Tuscan framework can help consolidate performance improvement achievements. Furthermore, the indicators of the Ministry of Health of China for accreditation emphasize reaching a certain level of standard instead of achieving specific goals, giving little attention to cost sustainability. In contrast, evidence from Tuscany indicates that higher performance can lead to lower costs [26]. As the representatives of government owners, the Chinese managing institutions also face cost constraints and it is their responsibility to apply another full set of indicators that are capable of internally tracking the performance of the hospitals and CHSCs, at the same time providing some data support for external accreditation.

Conceptual model

Key elements of a performance evaluation system in healthcare

The transformation of Chinese hospitals from joint administration to administration by one institution is based on Coase theorem [27]. According to this theory, if the property right is well defined and transaction costs are zero, then the most efficient or optimal economic activity will occur regardless of who holds the right. The Coase theorem implies that in public policy, greater efficiency can be obtained by clearly assigning property rights, reducing and eliminating transaction costs [28, 29]. Therefore, in the Chinese hospital system, the relationship between the hospital and the government should be clarified and the property right system should be reformed [27, 30]. To be more precise, the separation between ownership and control should be explored to solve governance problems [1].

However, the separation between ownership and control has caused some principal–agent problems. Both the principal and the agent may not have the same interests due to incomplete and asymmetric information [31]. It is important to minimize agency loss. The stewardship theory is a supplement of the agency theory, which holds that interests of the

steward are directed by organizational objectives [32], which can be understood in many ways. As for performance evaluation, these objectives can be defined as performance objectives, reflected and achieved by a series of performance indicators. If these objectives are agreed by both parties in a well-designed mechanism, healthcare managers may work in the best interests of their managing institutions. The evaluation agency plays an important role in designing this mechanism with the managing institutions.

According to incentive theory, managers need to be motivated to maximize their efforts [33]. However, when rewards are dependent on data held by professionals, dysfunctional behavior may result [20]. Managers also seek benefits by performance gaming, distortion, data manipulation etc., which take advantage of the loopholes in the rules and systems under which they operate [34]. A proper supervision mechanism is therefore necessary to constrain managers' behaviors of not acting in the best interest of their principals.

Besides a good evaluation agency and a well-designed evaluation mechanism, a complete set of laws, rules and regulations should be in place to assure effective functioning of both the evaluation agency and the evaluation mechanism. Table 3 is a summary of the Tuscan performance evaluation system reflected in three elements. Following some features that the Tuscan experience pointed out, we propose that the Chinese experimental cities can start building their own regional performance evaluation system based on these three elements.

Building China's municipal performance evaluation system

Figure 1 shows our conceptual model that some of the Chinese experimental cities can follow when building their municipal performance evaluation system. In the model, the two managing institutions commission a third-party agency to conduct performance evaluation on their hospitals and CHSCs. In the Chinese experimental cities, as public hospitals and CHSCs are the main bodies which provide healthcare services, they are the main subjects to be evaluated for their performance. In the new round of health system reform, patients are expected to shift between the two types of providers for treatment [1]. Performance evaluation can be conducted, respectively, but managed by the same evaluation agency, so as to facilitate data flow between them, and to reduce the difficulty of integrating the two performance evaluation systems into a comprehensive one.

In the model, the two sub-performance evaluation systems are, respectively, connected to the health information systems owned by the two managing institutions, which collect data reported by the hospitals and the CHSCs through their health information systems. This pattern of data collection can facilitate data flow and reduce the difficulties of data acquisition compared with directly connecting the two sub-performance evaluation systems to the health information systems of hospitals and CHSCs. In terms of other indicators which have difficulty in acquiring data directly from the health information systems of the managing institutions, interviews and surveys can be conducted [35]. Each of the two sub-performance evaluation systems is connected to a performance rewarding system to decide directors' variable wages. Furthermore, the evaluation agency would be responsible for integrating the two sub-systems into a comprehensive municipal performance evaluation system.

Discussion: changes and adaptations

In order to increase the feasibility of implementing the conceptual model in some Chinese cities, some changes and adaptations concerning the three elements are necessary.

Table 3 The three elements of the Tuscan healthcare performance evaluation system

Elements	Key characteristics
Evaluation agency	Third party agency without direct relations with HAs and THs Multidisciplinary background Able to conduct performance evaluation activities and training activities
Evaluation mechanism	Measuring principles and evaluation methods: Balanced scorecard, multidimensional reporting, inter-organizational benchmarking Performance incentive mechanism: Financial incentive (variable wage compensation for performance) and non-financial incentives (the honor of achieving good performance, reputation damage) Performance supervision mechanism: A transparent performance evaluation system, CEO presentation of 'best practice experience' in regular meetings, public involvement in supervision
Evaluation laws, rules and regulations	Set of laws – to make performance evaluation a compulsory activity for HAs and THs – to appoint evaluation agency and stipulate its functions – to stipulate how CEOs will be compensated for their performance Set of rules and regulations about regular meetings and seminars, information disclosure, training, etc.

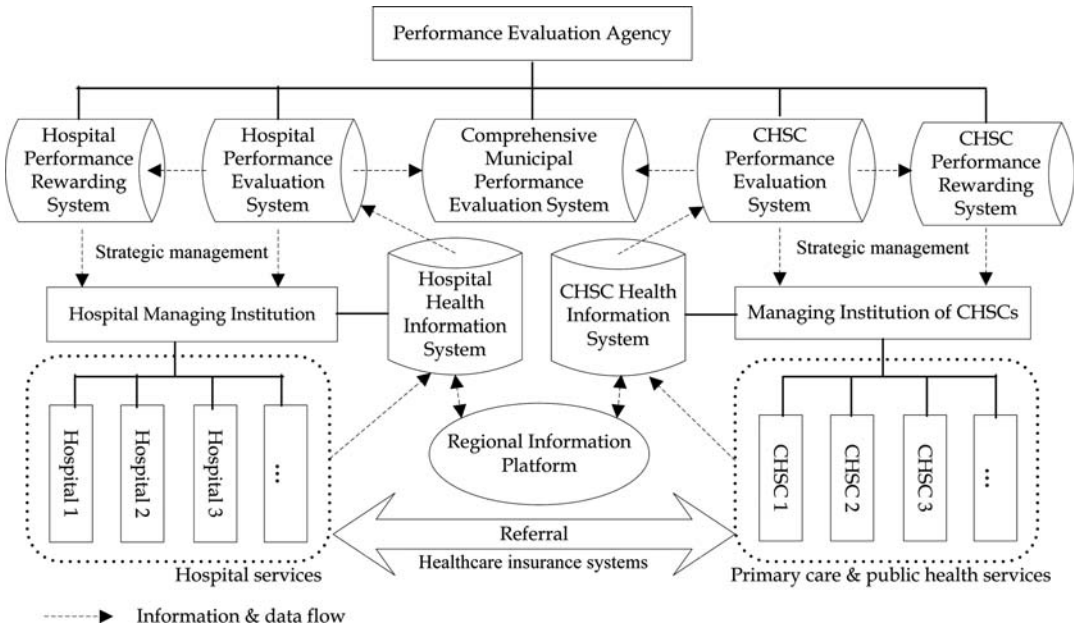

Figure 1 Conceptual model of building China's municipal healthcare performance evaluation system.

Performance evaluation agency

In some Chinese cities, managing institutions are trying to commission a hospital association to conduct quality accreditation and performance evaluation [36]. However, both the fairness of performance evaluation process and the results cannot be guaranteed because: (i) this type of association is not independent from the government in real sense but is rather a derivative; (ii) many of the association members are senior managers from hospitals. Referring to the Tuscan experience, a public university having multidisciplinary background in healthcare management can be a good choice. However, the university should avoid having direct relations with healthcare providers to be evaluated. When a good public university is unavailable, a third-party agency independent from the government, such as a not-for-profit research institute, may be a second choice [37].

As to the members of board of directors of the third-party agency, Tuscany has included the regional government and academic scholars. Unlike Tuscany, where the budget comes directly from the regional government, the Chinese public hospitals and CHSCs obtain most of their financing from the insurer. Therefore, both the managing institution and the insurer are core stakeholders to be given a membership position in the board. In addition, some delegates from academic circles can also be included as members of the board, so as to maintain technical advancement of the performance evaluation system.

Performance evaluation mechanism

Benchmarking has been widely used in the Tuscan performance evaluation system to overcome the defects of simple self-comparison. To enable benchmarking in the Chinese hospital system, the indicators can be divided into two parts, with one part applied to all the hospitals, and the other part applied only to hospitals of the same type to represent specific features of each hospital. Concerning the CHSCs, as they are very similar in scale and structure, the governments can implement standard performance evaluation at city level with benchmarking by adopting a full set of standard indicators. In this way, benchmarking will gradually become possible and contribute more deeply to performance improvements. Furthermore, although the Tuscan indicators differ from the indicators of the Ministry of Health of China, the principles and evaluation methods of the performance evaluation system can still be referable to China such as Balanced Scorecard, multidimensional reporting, etc. However, the dimensions of the Tuscan performance evaluation system can be tailored to incorporate China's own indicators, giving priorities to clinical quality, safety, and patient satisfaction.

The financial incentive reflected by the Tuscan performance rewarding system plays an active role for the CEOs to make performance improvements. Unlike Tuscany, where the regional government allocates funds to the providers, Chinese hospitals get few funds from the government. The Chinese managing institution of hospitals can specify either using some proportion of hospital budgets or directly providing special funds to pay for directors' variable wages. The managing institution of CHSCs can allocate more funds to pay for performance. With appropriate indicator design, it is possible to balance profits and public nature of healthcare providers. If the performance is indeed improved, the cost may be reduced and the providers may become more competitive in gaining contracts from the insurers.

As for the supervision mechanism, at the beginning of the Tuscan performance evaluation system implementation, the CEOs mostly paid attention to what had been mentioned and emphasized and they ignored those items not in the list [10]. The Chinese evaluation agency can pay special attention to indicators involved in outstanding performance, asking the directors to explain how they have achieved these good results [38]. In this way, reputation can be used as an effective lever to constrain directors' negative behaviors. Furthermore, on-site inspections and uncertainty can also be introduced to deal with gaming phenomenon, distortion, data manipulation etc. [39], which have already been proved effective in China [40].

Performance evaluation laws, rules and regulations

Unlike Tuscany, China is still in an early stage of building a complete set of laws, rules and regulations for healthcare performance evaluation. In some cities, the municipal government released a regional law in government performance management [41], in which third-party agencies are allowed to monitor the performance of government departments. Based on this law, the municipal government can formulate a document on healthcare performance evaluation. After discussion and approval by the municipal and provincial People's Congress Standing Committees, this document can be further established as a regional law, in which a third-party agency can be selected and appointed to develop, implement and operate a performance evaluation system in order to monitor services provided by hospitals and CHSCs.

The managing institutions of hospitals and CHSCs can then formulate specific rules and regulations with the evaluation agency as regards the details of how the performance evaluation activities will be carried out, such as making rules and regulations on regular meetings and seminars, incentives, information disclosure, training, etc.

Other aspects to be considered

Difficulty in selecting indicators

According to the Tuscan experience, one of the key principles in selecting indicators is to develop a set of potential indicators through: (i) literature review; (ii) reference to national, regional and sub-regional measurement systems; and (iii) discussions among professionals and practitioners organized as expert panels. Then with a consensus conference, the evaluation agency can select the indicators with professionals as part of the performance evaluation system indicators [11]. It is important to improve the quality of indicators by applying common definitions, data collection procedures and methods for the construction and presentation of indicators. Priorities can be given to developing valid indicators based on existing data sources before suggesting new data for collection. Professionals presenting at the consensus conference must agree on the following selection criteria: (i) the indicators have to capture an important performance aspect; (ii) the indicators have to be scientifically sound; and (iii) the indicators have to be potentially feasible [42].

Resistance to change

The essence of public hospital reform depends on government reform [43], and this may offer the greatest resistance to change in selecting a performance evaluation agency. In the formulation stage of the performance evaluation system, sources of resistance to change may come from the distorted perception, interpretation barriers and vague strategic priorities, low motivation for change and lack of creative responses. In the implementation stage, sources of resistance lie in the political and cultural deadlocks to change, as well as subsequent leadership inaction, embedded routines, collective action problems, lack of necessary capabilities to implement change, cynicism etc. [44]. Besides the institutional reform of government departments, the managing institutions can try to reduce the resistance to change by: (i) asking volunteer hospitals and CHSCs to do pilot experiments; (ii) providing relevant policy and funding supports; (iii) involving all relevant stakeholders in the mutual development of the performance evaluation system; (iv) eliminating communication barriers and increasing managers' skills with training; and (v) making directors' personal objectives fall in line with performance objectives by means of motivation.

Conclusion and policy implications

In our study, based on the Tuscan performance evaluation experience, in order to improve the performance of the municipal healthcare system, the managing institutions in China's experimental cities can commission a third-party agency to design two sub-performance evaluation systems in order to evaluate the performance of their respective hospitals and CHSCs. When a regional healthcare performance evaluation system at city level is formed, the provincial government can extend the successful experience to other cities. Furthermore, although our study is focused on 'municipal performance evaluation system', the basic principles and methods can also apply to other contexts, such as building a rural performance evaluation system on county basis, benchmarking county hospitals, etc.

This study provides Chinese policy makers with a broader framework from Tuscany as regards the building of China's own regional healthcare performance evaluation system. It can help understand how a regional healthcare performance evaluation system can be used to monitor healthcare services. The government can use the performance evaluation system to decide where to allocate and how much to spend limited healthcare resources, so that the supply side (provider) and the demand side (insurer on behalf of patients) can be balanced. With the implementation of performance evaluation system, directors will have specific performance objectives in mind to achieve. They can further split these objectives into smaller parts and get all staff involved and

responsible for performance. In this way, an internal pay-for-performance salary system can be set up at local organizational level. Finally, the framework we propose for China may be considered by other developing countries having similar situations to China.

Supplementary material

Supplementary material regarding the Tuscan regional healthcare performance evaluation system is available at *INTQHC Journal* online.

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