Characteristics of Chinese Healthcare Facilities

A Comparison of Chinese Hospitals to the International Model

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The Chinese healthcare system has been the focus of a great deal of attention from international companies who are interested in entering the world's largest healthcare marketplace. It is generally acknowledged that Chinese healthcare facilities, on the whole, do not conform to international standards; however, the specific areas in which there are differences are not well known or appreciated. An understanding of these differences is a critical aspect of the investment analysis and market assessment associated with a healthcare based business in China.

This article will delineate the major differences between the international model for the provision of healthcare and that found in mainland China. These differences include the physical characteristics, organizational structure issues, operational issues and financial management issues of Chinese hospitals, clinics and medical care providers.

A. Physical Characteristics of Hospitals

While it is difficult to determine the exact parameters of the size of Chinese hospitals because of the manner in which data is collected and categorized, it is a fair generalization to say that on the whole, urban Chinese hospitals are significantly larger on the average than their counterparts in international environments. It is typical in cities in mainland China for a large number of the hospital beds in the city to be found in a small number of 1,000 plus bed hospitals. A review of hospital data for Beijing reflects this statement. In Beijing, 36% of the beds in this city of more than 14.5 million residents are found in only ten hospitals for an average of 1,172 beds per hospital in these facilities[1]. Please refer to Table 1 for a display of this data. The mean age of these institutions is approximately 35 years although this does not accurately reflect remodeling, new wings and other efforts to upgrade the physical plants.

Table 1 Distribution of High-Quality Hospital Beds by Size of Facility in Beijing

Hospital Size (Beds)	Number of Hospitals	Total Beds	Percentage of Beijing Beds
1,000 or greater	10	11,724	36%
750 to 999	9	7,850	24%
500 to 749	16	9,711	29%
000 to 499	15	3,657	11%
Total	50	32,942	100%

Findings:

Chinese urban hospitals are significantly larger than their international counterparts

In Beijing, 36% of the city's beds are found in only ten hospitals

Findings:

Chinese hospitals do not have the massive physical plants found in international hospitals with the same number of beds

Chinese hospitals average 93 sqm of gross hospital space per bed

International hospitals average over 186 sqm per bed

Despite their large number of beds, Chinese hospitals generally do not have the massive physical plants commonly associated with hospitals of this size in international settings. There are a number of reasons for this but the principal reason is the large number of beds per room. It is not uncommon for Chinese hospitals to place 4-10 beds in a single room. Private and semi-private rooms are rare and usually found only in 'foreign' wings or VIP floors. Another factor of this type of allocation is that the international standard of maintaining approximately 10 square meters of clear floor space around the bed[2] is not found in Chinese hospitals which may instead have as little as 20 centimeters between beds and less than two square meters of clear floor space. This is a significant patient safety issue in that equipment cannot be brought to the bed side in the case of emergency. Other factors which account for the lack of physical size associated with large hospitals include narrow corridors, low ceiling heights, minimal visitor waiting areas, small nursing stations and other variations.

As a result of these factors, Chinese hospitals average approximately 93 square meters of total hospital space per bed[3]. The international standard is approximately 186 square meters. Thus a 1,000 bed Chinese hospital would be contained in only 93,000 square meters while a similar-sized facility internationally would occupy more than 186,000 square meters[4].

Table 2: Comparison of Chinese Hospital with International Hospital[3,4]

Factor	United States	China
Square Meters/Bed	186	93
Construction Costs/Bed	$436,000	$102,000
Construction Costs/SM	$3,855	$928
Project Costs/Bed	$700,000	$133,000
Construction Costs-250 Beds	$109 million	$25 million
Project Costs-250 Beds	$175 million	$33 million

On the whole, Chinese hospitals are poorly maintained with inadequate environmental and maintenance services. Independent patient surveys cite run-down physical plants, unclean restrooms and general lack of cleanliness as among the major reasons for patient dissatisfaction[5]. For reasons to be discussed later in the section on financial management it is difficult to determine with any preciseness the level of operating expense associated with maintenance and housekeeping; however, simple observation reflects far few housekeepers present in a Chinese hospital at any given time than one would expect in a similar-sized international caliber facility. While physical plant safety codes for fire and earthquakes, for example, are present, the standards are less rigorous in their definition than found in international environments and loosely applied in practice. Older hospitals, in particular, are deficient as they have been 'grandfathered' and often are not required to meet even the less rigorous current codes.

A common feature of international hospitals is the presence of physical codes or requirements for the physical structure which are based either on an accreditation program or government-mandated approval process. Such a process is not found in China and as a result, international standards in door width, ceiling heights, number and type of medical gas outlets per bed, ventilation requirements, airflow and air handling capabilities, and numerous other physical plant requirements are either not met at all in China or are significantly reduced. While the increasing presence of hospital architects from the international community has brought about a general enhancement in this area, the lack of mandated requirements minimizes its impact. The rooms in Chinese hospitals are typically sparsely furnished with simple, manual beds and very little in the way of furniture such as bedside tables and chairs. Decoration is limited and wall treatments are primarily painted surfaces.

There is an increased awareness of the physical plant differences between Chinese facilities and international facilities which has resulted in a large influx of major international architectural firms into China. In part, these firms have come to China because of the significant number of new hospital projects but they are also being invited to come to China by an increasingly sophisticated healthcare marketplace which recognizes the value of international architectural standards.

Findings:

Physical plan maintenance and repair of Chinese hospitals is less intense than that found in international hospitals

Code enforcement in international hospitals is tied to reimbursement by government authorities

Findings:

For-profit hospitals in China are significantly smaller than the average Chinese hospital

While for-profit hospitals represent 18.6% of all hospitals, they only represent 5.9% of the total hospital beds

The average for-profit hospital only contains 43 beds

B. Ownership of Hospitals

Before 2000, nearly all healthcare institutions were state-owned, public, and entirely non-profit. The Healthcare Reform Act in 2000 established a new classification of medical institutions allowing two categories, for-profit and non-profit, hospitals and clinics[6]. Although the definition of for-profit and non-profit hospitals is similar to that of the United States by the way profit is utilized, nearly all non-profit hospitals in China are public and nearly all for-profit hospitals are private.

The development of private hospitals in China is still in a preliminary stage. To differentiate themselves from major state-owned general hospitals, most private hospitals have chosen to be specialized and for reasons of profitability built on a smaller scale.

Most senior healthcare professionals have chosen to remain employed by the state-owned hospitals and the private hospitals encounter significant difficulties in recruiting physicians. This has occurred in part because of the innate conservatism of this class of physicians which inhibits them from dramatic change and in part because private hospitals have yet to become fully and successfully established in China. In order to attract senior physicians, private hospitals have had to provide more favorable policies, such as higher compensation and flexible work time to attract competent medical staff.

Currently in China, although 18.6% of all hospitals are for-profit status, they only operate 5.9% of all hospital beds[7]. This reaffirms the fact that for-profit hospitals are usually operated on a much smaller scale.

Table 3: Number of Hospitals and Hospital Beds by Category in Beijing, 2007

	Number			Compositions		
	Total	Non-Profit	For-Profit	Total	Non-Profit	For-Profit
Hospitals						
China	19,191	15,616	3,575	100%	81.4%	18.6%
Beijing	541	380	161	100%	70.2%	29.8%
Shanghai	260	178	82	100%	68.5%	31.5%
Hospital Beds						
China	2,555,271	2,404,083	151,188	100%	94.1%	5.9%
Beijing	74,076	68,915	5,161	100%	93.0%	7.0%
Shanghai	68,523	65,979	2,544	100%	96.3%	3.7%

Source: China Health Statistical Yearbook 2007

Most private hospitals are still excluded from the public insurance network. Instead, revenues in private hospitals are derived primarily from clinic visits instead of from inpatient services and drug sales. Patients are attracted to private hospitals for routine examinations or for services not covered by public insurance. Most prescriptions issued in private hospitals are not filled in private hospitals, but in public hospitals, so that patients can be reimbursed by the public insurance.

C. Organizational Structure of Hospitals

The management and governance structure of Chinese hospitals is strikingly different from the international model. The model commonly found in international environments of a board of directors with broad governance oversight who hire a chief executive officer who is then charged with the responsibility and authority for the execution of the strategic objectives of the facility, is not present in China. Boards of directors, if they exist at all, are found in academic environments or private hospitals and usually do not have community representation. Mission statements, strategic plans and other board-dominated activities in an international environment are not present. The hospital president is not recruited in the international sense but appointed, principally for political reasons, and is an active physician on the medical staff of the hospital. As an active physician, the hospital president devotes the majority of his time to his practice and is only at best, a part-time president. This is true even in quite large, complex hospitals with thousands of beds and many thousands of employees. The classical management role of a chief executive officer to plan, organize, control, direct and staff the facility is not fulfilled by such individuals. Very few hospital presidents have any business training and the normal academic preparation of a graduate degree in healthcare management is not generally available in China although recently some programs have been initiated.

On the senior management team, there are a number of differences between the international model and the Chinese model. The position of Chief Financial Officer with its accompanying responsibilities for all day-to-day financial operations is not present. Typically, the most senior financial position is a manager level individual in accounting with principal responsibilities in cashiering and cash-handling. The Director of Nursing or Chief Nursing Officer is a lower level individual with little authority and is not considered to be part of the senior management team. Middle managers have little authority and no budget autonomy as cost center budgeting is not a facet of Chinese hospitals. There is often no organization chart and an almost total lack of clarity as to who is, in fact, responsible for the effective operation of a given area. Typically, this authority is spread over several individuals with no clear hierarchy.

Findings:

CEOs in public hospitals are usually not business-trained as in the international model but practicing physicians

The role and duties of the CFO in Chinese hospitals are very different from their international colleagues

CNOs are lower in status and position in Chinese hospitals

Findings:

Elements of international management not usually found in Chinese hospitals include:

- Organization charts
- Clear authority lines
- Cost centers
- Operational budgeting

Chinese hospitals average 1.4 employees per bed

International hospitals average 4.0 employees/bed

Another aspect of the Chinese model is the role of the Communist Party. Every hospital numbers among its employees members of the party. One of these members is recognized as the party leader in the hospital and plays an important but somewhat ambiguous role. Typically this individual has a formal job in the hospital which would theoretically place him as a subordinate to the hospital president; however, in certain circumstances, the senior party official 'outranks' the hospital president and is capable of overruling decisions made by the president. In reality this occurs only infrequently as the president consults with and generally defers to the party representative, assuming that the hospital president is not the party representative as is sometimes the case. The party members who are employed in the hospital usually meet at least monthly by department and annually hospital-wide.

D. Operational Issues of Hospitals

Organizationally, Chinese hospitals have moved from an era of strict government controls and minimal application of sound business management practices to their present situation as they evolve into a more market-oriented approach. Given their lack of a strong business foundation, it is not surprising that a number of the approaches and concepts of international hospital management are not found in China. Even very basic elements such as organizational charts, clear and unambiguous authority lines and operational budgeting are simply not commonly found in Chinese hospitals. Staffing, principles of control and employee behavior modification through discipline and possible termination are also not elements of hospital management in China.

Human resource management is a strongly neglected field with few of the modern practices having been embraced. Work analysis, job descriptions, task assignment and staffing reviews are infrequently addressed. One of the most striking areas of difference between Chinese and international hospitals is the number of employees who are typically considered appropriate for a hospital. In China, hospitals typically have 1.4 employees per bed[8], including medical staff. It should be appreciated that for all practical purposes, there is no private practice of medicine in China and almost all physicians are employed by the hospital in which they are associated. Adjusting physicians out of this ratio would result in even more striking disparities with resultant ratios in the 0.8 employees per bed range. The international standard of approximately 4 employees per bed or more reflects a considerably greater capacity for patient service and medical care.

Not surprisingly, the lack of efficiency and very low levels of patient service that would be expected in a short-staffing situation, along with the lack of cleanliness which is also a staffing related issue, are the major complaints of Chinese healthcare consumers[5]. While the greater role played by family members in Chinese hospitals somewhat ameliorates this problem, it is clearly impossible for Chinese hospitals to maintain international standards of patient service with these staffing levels.

Nursing ratios of one nurse to five patients on normal nursing units and one nurse to one or two patients on critical care units are not normally found in Chinese hospitals. In part this is due to usual and common practice where the need for greater levels of nursing is simply not recognized and in part this is due to an extreme shortage of nurses in the country. The attached chart (Figure 1) reflects the number of healthcare professionals, physician and nurse, per 1,000 populations in various locales:

Findings:

China's nurse:patient ratio of 1:12 is higher than the international model of 1:5

China has fewer nurses in the population than most other countries in the West

Figure 1 Health Personnel per 1000 Population: China Compared to Other Countries

Source: China Statistical Yearbook 2007
OECD, OECD Health Data 2007

Findings:

Based on national averages, a typical 1,000 bed Chinese hospital would have 1,400 employees

A typical 1,000 bed international hospital would have 3,700 employees

Of significance considering this imbalance is the total number of healthcare providers available per bed to provide care. This is significant because while cultural differences may dictate differences in who provides the care, only physicians and nurses are available to provide care. The total of physicians per bed and nurses per bed provides a total for caregivers per bed that can be compared (Table 4). International standards present in other countries reflect a total of physicians and nurses per bed in the range of 3.7 providers per bed[9]. In China, the medical and nursing staff patient bed ratio of 1:1 is well below international standards. This is similar in Beijing where the ratio is 1.3:1.

By way of illustration, consider a 1,000 bed Chinese hospital. Based on the ratio of 1.4 employees per bed, the facility would have 1,400 employees including physicians. As Table 4 illustrates, 0.6 employees per bed are physicians. In our example then, 600 of the 1,400 employees would be physicians, leaving a non-physician staff of 800.

Table 4: Physicians and Nurses per 1,000 Population and Per Bed

Per 1,000 population			Per bed	
Physician	Nurse		Physician	Nurse
1.5	1.1	China	0.6	0.4
3.3	3.1	Shanghai	0.6	0.6
4.4	3.8	Beijing	0.7	0.6
2.4	7.9	US	0.9	2.8

Source: China Statistical Yearbook 2007.
OECD, OECD Health Data 2007

In our example facility, 900 of the 1,000 beds are general acute care and 100 are intensive care. Assuming 1 nurse: 5 patients ratio in general acute care and a 1 nurse: 2 patients ratio in intensive care, appropriate international nurse staffing would be 180 nurses per 8-hour shift for 3-shifts per day for general acute care (540 nurses) and 50 nurses per 8-hour shift for 3-shifts per day (150 nurses) for a total of 690 nurse shifts per 24 hour day. A 7-day work week would require 4,830 nurse shifts per week (690 nurse shifts per 24-hour day X 7-days). With a full-time nurse working five 8-hour shifts per week, 966 nurses (4,830 shifts/5 shifts per full time nurse) would need to be employed. This number is larger than the total number of employees in the average Chinese hospital of this size. The reality as expressed in Table 4, is that there are 0.4 nurses per bed in the average Chinese hospital which would equate to nurse: patient ratio of approximately 1 nurse:12 patients ratio in general acute care and 1 nurse:5 patients in the intensive care unit.

One important consideration is that the definition of a physician has less specificity and more ambiguity in China than is generally found in international environments. There are four, five, six, seven and eight year programs after high school that results in the awarding of a doctor of medicine degree. The quality of residency programs vary widely with little oversight and consistency. While it is certainly true that the number of years associated with residency programs for a specific specialty will vary from program to program in international environments, as well, the range of the variability in China is quite significant. Residency programs are not centrally accredited and there is very little, if any, oversight of the programs to ensure quality and consistency. As a result, to a much greater extent than found outside of China, the quality of a program rests with the individual program and there is great variability between programs. After completion of a residency program, there are no board certification programs which provide an additional measure and assurance of quality and competency in physicians. From the general public's standpoint, the greatest measure of technical competence is the awarding of academic titles which are commonly used in Chinese hospitals. It is generally believed that professors have greater competence and knowledge than do associate or assistant professors and such individuals are more frequently sought after in referrals.

While the total number of physicians per 1,000 population in China is approximately the same as international standards, at this point in time, the issue of the shortage of available nursing capacity is little appreciated. There are no major efforts underway to increase the capacity of nursing schools nor are there any major projects to create new nursing schools.

Findings:

Nurse staffing and nurse availability is a significant factor for Chinese hospitals if they wish to adopt international standards

Board certification is a commonly found method of determining competency in physicians but this is not found in China

Findings:

Emphasis on cash payment in Chinese hospitals drives major differences in processing of patients

Financial executives in China have very different roles than their colleagues in international hospitals

E. Financial Management of Hospitals

One of the most significant areas of difference between Chinese hospitals and the international model lies in the field of financial management. China as a country and its hospitals as a consequence, is primarily based on a cash system of reimbursement. This policy has enormous ramifications on the way in which Chinese hospitals are managed and the operational style of the facility.

Every service provided in the hospital is prepaid before it is provided. A typical patient encounter in the clinics would begin with the identification by the patient of the specialist who was to be consulted. The patient would then stand in the cashier's line to prepay the clinic fee and would receive a ticket. After waiting in the clinic, the patient would see the physician who could then order laboratory, radiology or pharmaceutical items. Each of these events would require prepayment and a repeat of the steps described above. This process results in several significant impacts on the delivery of healthcare. First, it results in a great deal of emphasis on proper cash-handling procedures. Always a concern to a financial manager in any environment because of the opportunity for defalcation, cash-handling in Chinese hospitals becomes of critical importance because of the volume of activity and the amount of money involved. On the whole, the process which has evolved is heavily monitored and controlled and one that is very strong on preventing theft and defalcation.

Thus the role of the senior financial executive in the hospital is heavily skewed towards strong cash-handling skills and the position has evolved into a senior cashiering function when considered in an international context. The second consideration of this approach is that it is very slow and inefficient. Chinese hospitals are characterized by long lines at every stage and a typical outpatient encounter may involve standing in four or more separate lines resulting in a simple clinic visit consuming most of a day. This is a major source of complaint when Chinese consumers are surveyed.

The lack of business skills in senior management positions and the emphasis on the role of the physician as hospital president has resulted in a de-emphasis on the production and use of hospital financial statements by hospital presidents who are unable to read them. Most Chinese hospitals produce only rudimentary financial statements, often failing to produce balance sheets, depreciation schedules and other essential schedules.

Depreciation and amortization are not recorded and there is very little awareness of cost-finding, cost allocation methods or capital analysis techniques. Whereas a typical international hospital would have identified 60 or more cost centers within the institution and developed budgets for each cost center, the typical Chinese hospital has one or at the most two cost centers and budgets are not full operational budgets but typically cash flow budgets where simple projection methods are used to project cash flow over time. Hospital presidents in Chinese facilities are typically unaware of the difference between being cash-flow positive and being profitable.

The lack of appreciation for capital related financial management arises out of the former approach to capital equipment acquisition and major capital construction projects. In these instances, the hospitals formerly looked to the central government to meet their needs. The requests prepared for the central government were not based on the traditional return on capital investment analyses commonly used in international environments but on socio-political needs. As such, hospitals have not developed an appreciation for the value of capital nor of the need to consider the alternative uses of capital in their analysis of a capital purchasing decision. Even further, the principle of depreciation and amortization is not generally understood nor is the importance of the facility planning its capital usage in such a way as to anticipate the long-range capital needs of the hospital. Taken in total, the picture is of a very rudimentary practice of financial management; however, the healthcare marketplace is clearly changing. It can be anticipated that more and more awareness of the importance of sound financial management will permeate the system and financial professionals will begin to appear in Chinese hospitals. With their appearance will come the introduction of more sophisticated financial techniques and improved financial decision-making.

Table 5 displays a summary of the points discussed in this article assuming a typical 500-bed hospital in an international environment compared to a typical Chinese environment. It should be appreciated that this is an approximation for illustrative purposes only and does not reflect differences that exist within the two categories. For example, the category of “international” contains a range of responses. Similarly, Chinese hospitals also vary a great deal; particularly between urban and rural settings; however, the generalization is valid for comparison purposes.

Findings:

Financial reporting and budgeting is very basic in Chinese hospitals

Capital investment decisions in Chinese hospitals are not made with the same type of analysis as found in international hospitals

Findings:

Differences between the Chinese model and the international model are striking and represent a significant gap

Table 5: Comparison of a 500-Bed Chinese Hospital and International Hospital

Chinese Hospital	Factor	International Hospital
500	Beds	500
46,500	Square Meters Occupied	93,000
US $23,250,000	Cost to Build	US $218,000,000
US $70,000,000	Total Project Costs	US $350,000,000
700	Total Employees	2,000
300	Physicians	500
200	Nurses	600
200	Other Staff	900
1.4	Employees: Bed	4.0
No	Board of Directors	Yes
No	Strategic Plan	Yes
No	Annual Budget	Yes
No	Business-trained CEO	Usually
No	CFO	Yes
Usually a member of senior management team	CNO	Usually a member of senior management team
Cash Budget Only	Annual Operating Budget	Yes
No	Cost Centers	Yes
No	Cost Center Budgets	Yes
No	Capital Budget	Yes
No	Record Depreciation	Yes
<1 day	Accounts Receivable	58 days
No	Full Financial Statements	Yes
17.5 days	Length of Stay	4.5 days
3:1	Clinic Visits: Inpatient Day	17:1
63%	Occupancy Rate	68%

In summary, there are major areas of difference which exist between the international model and the current situation which exists in China for Chinese hospitals. These differences create a significant gap which will have to bridge before it can be said that China is providing international level care.

Of greatest importance in these differences are the numbers of healthcare personnel per bed and physical differences which impact patient safety.

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The *ChinaCare* Group

The ChinaCare Group was formed in 2003 by skilled, senior-level, international healthcare executives for the purpose of providing consulting, development and management services to the Chinese healthcare industry. The foundation of the firm's success has been its ability to successfully integrate the principles of international level healthcare into China's healthcare facilities in a culturally-sensitive manner. As the only international healthcare consulting firm in China focused on healthcare delivery, the ChinaCare Group takes its responsibilities for representing the international model of health-care delivery very seriously and provides a significant amount of education and training free to the healthcare community as a public service. The consultants of the firm are frequent speakers at seminars and conferences and the firm's research papers, the ChinaCare Group White Papers, are provided free of charge to the public. Whether it is a Chinese hospital working to improve its services or whether it is an international joint-venture project seeking to become established in China, no one is better equipped and able to bring success to the effort than the ChinaCare Group.

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