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Healthcare

Healthcare in China

Entering uncharted waters

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Preface

The Chinese government is committed to improvement of the healthcare system and development of the healthcare industry as clear strategic priorities. Reforms announced in 2009 set the ambitious goal of providing universal access to effective, safe, and low-cost healthcare by 2020. The 12th Five-Year Plan, issued in March 2011, encourages innovation throughout the biomedical industry, broadly defined as covering pharmaceuticals, vaccines, medical products and traditional Chinese medicine. Its designation as a 'strategic industry' leads to government support through significant flows of public funds and favorable policy-changes, many of which have yet to be conceived and articulated. These various policies will offer extensive opportunities for participants in every sector of the industry.

Spending on healthcare for the China's vast population is on a fast track to reach $1 trillion by 2020. Multinational companies recognize the commercial opportunities and have made China a strategic priority: for many pharmaceutical and medical products companies, the country is now a 'top-three' market in terms of revenue contribution, and even number one for absolute revenue growth. These companies are establishing manufacturing sites and R&D centers, along with field-forces comprising sales representatives numbering in the thousands. Decision centers with regional or even global mandates are starting to be relocated to China. For domestic players, the government is keen to see national champions emerge, and is encouraging Chinese companies to consolidate, upgrade their capabilities, and aspire to strategic alliances and international expansion.

Insurance companies and healthcare providers are also beginning to benefit from the government's resolute steps towards opening up the market. By allowing private companies to play a larger role, the government will enable a significant inflow of new entrants who are eager to tap into the primary opportunities in health insurance, private hospitals and clinics, and in the services such as healthcare IT that underpin them.

Many of the ingredients are in place for the continuation of strong growth of the healthcare sector. We believe however that the path ahead will be more challenging, reflecting the ambition and the scale of the transformation under way. In the words of vice-premier Li Keqiang, China's healthcare system has entered 'uncharted waters'. While healthcare reform has had notable successes, such as the expansion of insurance coverage to 95% of the population, there are some real issues to resolve. Serious questions about the funding of healthcare and the role of public hospitals have yet to be settled; there are uncertainties relating to the recognition and protection of intellectual property; tensions may arise in simultaneously developing a low-cost healthcare system and promoting significant investment in innovation. In the commercial sector, the 'uncharted waters' include increasing pricing pressures, intensifying competition, the fragmented and uneven market-access environment, and the fundamental challenges to business models that these upheavals demand.

Nonetheless, China's healthcare sector remains a remarkably positive story. In this report—*Healthcare in China: Entering uncharted waters*—McKinsey & Company's Greater China Healthcare practice offers a diversity of perspectives on this substantial, complex and important domain. This compendium of articles is organized into three main themes: opportunities in the pharmaceutical and medical products markets; the continuing transformation of the healthcare service system; and the challenges facing industry players that are building up their capabilities.

We hope you will find this report an interesting window through which to survey one of the great healthcare stories of our time.

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Overview

Healthcare in China: ‘Entering uncharted waters’

Healthcare in China: 'Entering uncharted waters'

Franck Le Deu, Rajesh Parekh, Fangning Zhang, and Gaobo Zhou

China's healthcare sector continues to develop at an astonishing rate. The nation's healthcare spending is projected to grow from $357 billion in 2011 to $1 trillion in 2020. Across key categories, from pharmaceuticals to medical products and consumer health, China remains one of the world's most attractive markets, and is by far the fastest-growing of all the large emerging markets. It is not surprising that multinationals are flocking to take advantage of the opportunities, but long-term success for all participants is by no means assured. Although we remain optimistic about the overall outlook for the healthcare market in China, we believe it will become more difficult for multinationals to compete. We expect a clearer separation between winners and laggards, and late entrants could face a struggle to achieve real traction.

At a high level of analysis, three themes will shape China's healthcare market in the coming years: the continuation of economic and demographic trends, further healthcare reform, and the policies articulated in the government's 12th Five-Year Plan (FYP). Some of these forces will have positive implications for multinational companies, for example, improvements in infrastructure, the broadening of insurance coverage, and significant support for innovation. Some of them will have negative implications, for example, pressures on pricing, and the rise of local champions. In some situations the forces come into direct opposition, for example, in the bid to reconcile universal healthcare coverage at low cost with rewarding innovation. To paraphrase vice-premier Li Keqiang, the country's healthcare system reform has entered "uncharted waters."[1]

In this context we identify eight principles that are essential for long-term success in China's healthcare market. Although we are not suggesting that these principles comprise a one-size-fits-all prescription for success, ambitious multinationals should nonetheless consider them when formulating their China strategies for the coming decade.

The forces behind a *bona fide* boom in China's healthcare market

Healthcare companies have celebrated China's robust market in recent years; it is a bright spot compared with the lackluster markets they have had to contend with in many other countries.

What a difference just a few years can make. Strong growth in the healthcare sector is fueled by favorable demographic trends, continuing urbanization, increasing disease burdens, the healthy expansion of the overall economy, growth in incomes which allow greater awareness of and access to treatments, and the government's focus on healthcare as both a social priority (as seen in the 2009 healthcare reform) and a strategic one (in the 12th FYP on

1 Li Keqiang made this remark during the China national conference on the deepening healthcare reforms as China's vice-premier and leader of overall healthcare reform agenda.

Exhibit 1: What a difference five years have made

		2006	2011
Overall	Total healthcare expenditure	$156 bn	$357 bn
	Per capita healthcare expenditure	$119	$261
	Population with health insurance	43%	95%
Pharma-ceuticals	Market ▪ Size[1] ▪ Global ranking	 ▪ $27 bn ▪ Number 9	 ▪ $71 bn ▪ Number 3
	Combined revenues of top 10 pharmaceutical multinationals	$4 bn	$10 bn
	Number of sales reps from top -10 multinationals	6,000	25,000
Other categories	Traditional Chinese Medicine, market size[1]	$6 bn	$13 bn
	Vaccines, market size[1]	~$1[2] bn	~$2 bn
Medical products	Market ▪ Size[1] ▪ Global ranking	 ▪ $8 bn ▪ Number 6	 ▪ $20 bn ▪ Number 3

1 Value measured at ex-manufacturer price
2 Year 2007
Note: At a constant exchange rate of $1 = 6.3 renminbi

Source: Ministry of Health year book; SFDA Southern Medical in Economics Research Institute; industry association; literature search; McKinsey analysis

biomedical industry). Expenditures on healthcare have more than doubled, from $156 billion in 2006 to $357 billion in 2011, inching closer to 5 percent of the country's gross domestic product (GDP). From pharmaceuticals to medical devices to traditional Chinese medicine (TCM), virtually every health sector has benefited (Exhibit 1).

The size and the sustained momentum that are resulting from these shifts have given China new prominence among multinational healthcare companies. For several leading pharmacos, such as Bayer HealthCare and Novo Nordisk, China already ranks among the top three markets in total revenue contribution. Others expect China to reach that ranking by 2015 and already see China as their number-one contributor of absolute revenue growth. Medical devices and equipment companies, such as GE Healthcare and Philips, have built China businesses that now have annual revenues of more than $1 billion, and they are still expanding rapidly.

The steady growth of China's market stands in stark contrast with those of the United States, Japan, and Western Europe; these have traditionally been the focus of healthcare companies, but are less attractive now that the companies are having to contend with declining R&D productivity, the ongoing expiration of patents for many blockbuster drugs, and significant pressure on costs as governments clamp down on spending. Many companies have resorted to rounds of downsizing, shrinking their R&D and manufacturing footprints, as well as their commercial operations, especially in the United States and Europe.

It is therefore not surprising that multinationals are ramping up their investments in China, tapping into the huge population's unmet needs, the nation's manufacturing and emerging R&D ecosystem, and the government's support for the biomedical industry. Following the early movers that started investing heavily more than a decade ago (for example, AstraZeneca), other large global pharmacos, including Merck, GlaxoSmithKline, and Eli Lilly, have embraced the China growth story, significantly increasing their commitments over the past five years. Since 2006, 13 of the top 20 pharmacos have established R&D centers in China, and several have announced major manufacturing investments. On the commercial side, China's 10 largest multinational pharmacos now field a total sales force numbering more than 25,000, even as they have downsized sales forces in the United States and Europe. According to recent research by Cegedim, China has now overtaken the United States in

terms of the total number of pharmaceutical medical sales representatives employed by multinationals.

Medical devices companies are not far behind, and on some dimensions are even leading the way: for example, GE Healthcare, Medtronic, Johnson & Johnson, and Covidien are setting up or expanding R&D centers and manufacturing sites, and are pushing ambitious strategies to expand their market reach.

China's rise in prominence has prompted organizational changes, too. A few companies, of which Baxter is an example, have moved their Asia-Pacific regional headquarters to Shanghai. Some have even relocated the global headquarters for select business units to China: GE's X-ray business and Bayer's business for general medicine, for example. Roche is planning to make Shanghai one of three global strategic-operations centers, alongside Basel and San Francisco. Many companies have changed their reporting lines such that their China operations report directly to the chief executive or to the global head of pharmaceuticals or medical devices.

Further cementing China's new status, the nation is the focus of presentations by multinationals to the healthcare investment community, with executives keen to promote the China success story as a counterpoint to flat sales and declining investments in Europe and North America.

Time for a reality check?

China is still in the early stages of its economic and social development. Extraordinary boom times have been the backdrop for significant investment, but at this point multinationals should be prudent, stepping back and considering the forces that may impact the attractiveness of the China market in the years ahead.

Healthcare reform is progressing with significant government intervention in areas such as pricing; competition from local companies is intensifying; and the pace of the nation's economic growth is easing. In this context, several questions arise. Will China deliver on high expectations of growth? Are companies being too bullish? Are they investing at the right pace and scale? Have they adapted their operating models sufficiently to match local conditions? Have they identified and evaluated the many challenges ahead, and are they prepared to address them?

Overall, we remain optimistic about the outlook for healthcare in China. With expenditure projected to grow from $357 billion in 2011 to $1 trillion in 2020, China remains one of the world's most attractive healthcare markets and offers by far the largest growth opportunity of all the large emerging markets. However, we believe that it will become more difficult, even for large-scale operators, to compete. We anticipate the increasing divergence of winners and laggards, and it will become harder for late entrants to gain traction.

In the coming years, China's healthcare market will be shaped by the three macro-trends of continued economic and demographic development, further healthcare reform, and the direction of the nation's 12th FYP (Exhibit 2). Here we look at each in turn.

Economic and demographic development: Strong support for volume growth

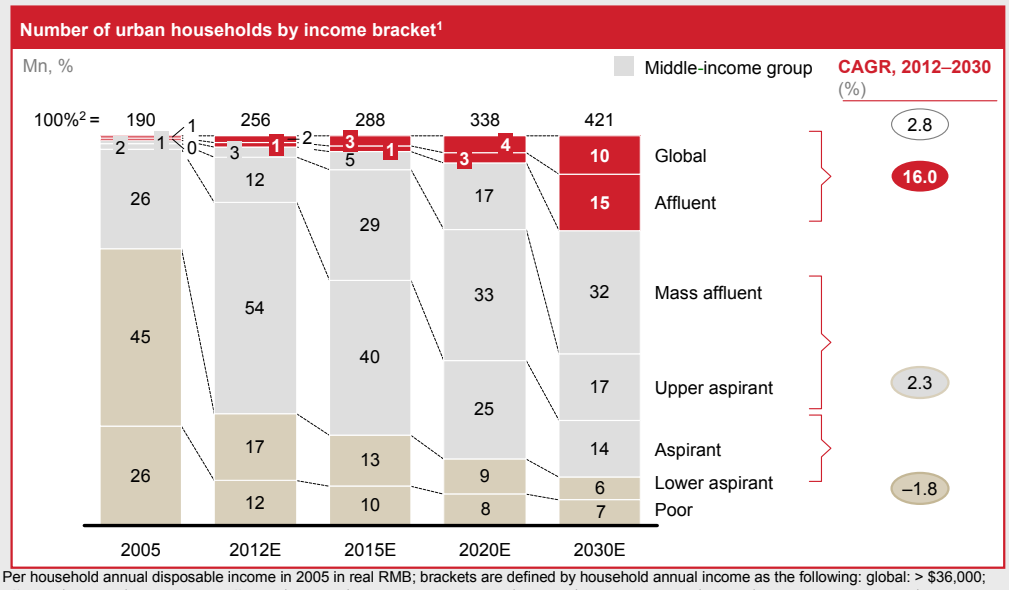
Growth in demand for care will remain strong for several reasons. First, chronic conditions such as diabetes and hypertension are proliferating rapidly, as the population ages, as many more people move to cities, and as their lifestyles change. The *New England Journal of Medicine* reported in 2010 that there are already 92 million diabetic patients and a further 150 million prediabetics in China. By comparison, the United States has 26 million diabetic patients. The proportions of urban and elderly in the population are predicted to continue to increase. The McKinsey Global Institute (MGI) projects that 61 percent of China's total population will be urbanized by 2020, up from 52 percent in 2012, as 142 million people migrate from the countryside to cities. The population of those aged 65 and older will almost double by 2030, from the current 122 million to 223 million.

Exhibit 2: Three major forces are shaping the direction of healthcare in China

Source: McKinsey analysis

Exhibit 3: Growth in the future will be supported by increased ability to pay by urban households

URBAN



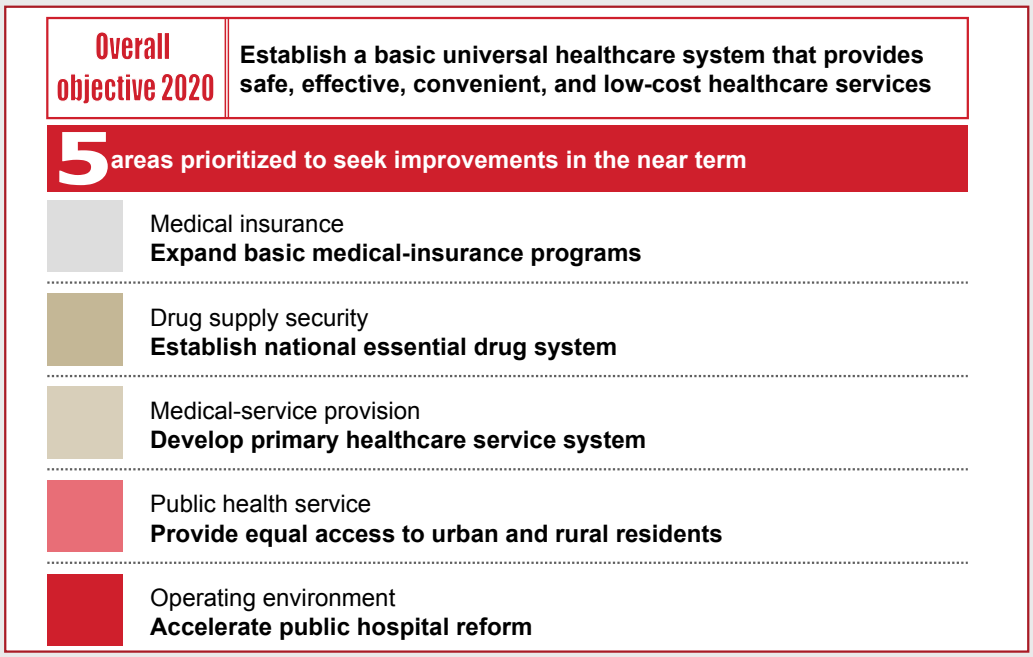
1 Per household annual disposable income in 2005 in real RMB; brackets are defined by household annual income as the following: global: > $36,000; affluent: $27,000–$36,000; mass affluent: $18,000–$27,000; upper aspirant: $13,000–$18,000; aspirant: $7,000–$13,000; lower aspirant: $4,000–$7,000; poor: < $4,000
2 At a constant exchange rate of $1 = 6.3 renminbi
Note: As a result of rounding, totals may not equal 100

Source: McKinsey Insights China – Macroeconomic model update (Apr 2012)

A second basis for growth in the demand for care is the increasing incomes and more extensive insurance coverage that will steadily improve patients' ability to pay. The urban, middle-class population (defined by MGI as households with annual disposable income ranging from $7,000 to $27,000) is projected to increase from 29 percent of urban households in 2005 to 75 percent in 2020, and the upper-class group from 1 percent to 7 percent (Exhibit 3).

The third is that many highly prevalent and burdensome conditions such as depression, respiratory illness, and cancer remain underdiagnosed and undertreated in China. Better and

Exhibit 4: Healthcare reform, looking to 2020, focuses on five near-term improvement areas



Source: Healthcare reform 12th Five-Year Plan; McKinsey analysis

earlier diagnosis, combined with higher rates of treatment and compliance to therapies, will significantly expand the volume of patients and improve the clinical benefits of drugs.

Healthcare reform: A top national priority with wide-ranging impact

China's healthcare reform began in earnest in 2009. This far-reaching transformation of the system is expected to be completed by 2020 (Exhibit 4). Progress, already significant, is particularly impressive in areas such as the development of infrastructure in lower-tier cities and rural areas of China, and enrollments in insurance schemes, through which some form of insurance coverage is now provided to more than 95 percent of the population.[2] Elsewhere several key aspects of the reform are still bogged down: programs such as the Essential Drug List (EDL) and the overall reform of public hospitals (for example, with regard to funding mechanisms) are experiencing significant challenges to their implementation. In a speech delivered in late 2011, Li Keqiang underscored the government's commitment to bolstering healthcare reform, whose goal is "to establish a universal basic healthcare system providing safe, effective, convenient, and low-cost healthcare services by 2020". However, he acknowledged the challenges of the process, particularly with regard to public hospital reform (Exhibit 5).

We believe that the next stage of the reform could have a major impact on aspects of the healthcare system that range from insurance coverage and market access to development of the primary care infrastructure. Here we examine each aspect in further detail.

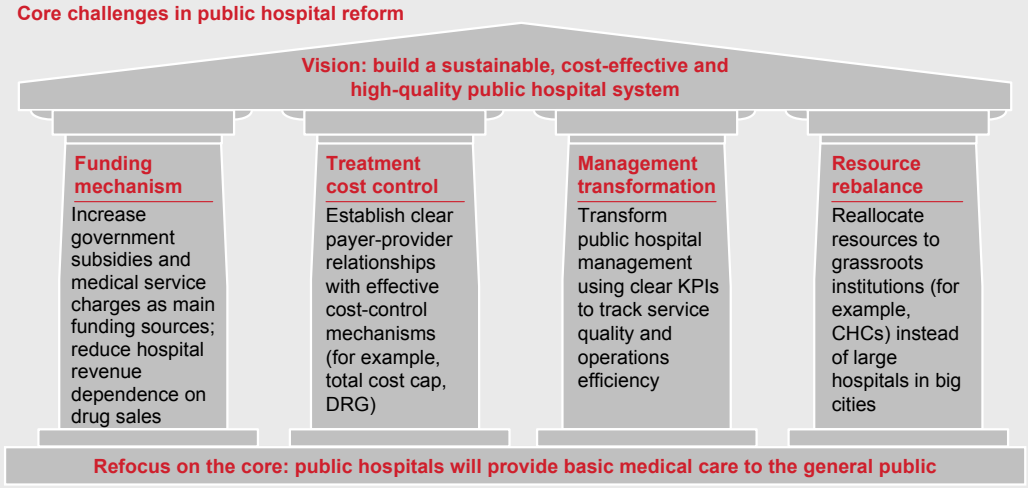
Insurance coverage: broader, but how deep can it reach?

In a few short years, China's government insurance programs have extended their coverage to more than 95 percent of the population.[2] The coverage remains basic rather than elaborate, however. For example, one-third of the country's provinces still do not provide basic medical insurance (BMI) universal outpatient coverage; of those that do, the coverage provided is

2 According to official government statistics, public health insurance had achieved a 95 percent coverage of the population by the end of 2011; the actual figure is likely to be lower because people with multiple types of public health insurance would sometimes have been counted more than once.

Exhibit 5: Public hospital reform, the overhaul of the mainstay of China's medical institutions, remains healthcare reform's most challenging aspect

> "The Healthcare Reform is now wading into **uncharted waters**… We will push, in an orderly manner, **pilot programs** in important areas of public hospital reform [and others such as EDL] in the next few years."
> ***– Li Keqiang, Executive Vice-Premier, State Council of the People's Republic of China, Nov 2011***



Note: DRG = diagnosis-related group; EDL = Essential Drug List; CHC = community health center; KPI = key performance indicator.

Source: McKinsey analysis

limited, as in Shanghai, where outpatients are covered but with 30 to 50 percent copayments and a $240 deductible. Patients' out-of-pocket expenses remain high overall because there are strict reimbursement caps and little or no reimbursement for expensive drugs.

At the same time, existing insurance schemes are already under pressure as provinces cope with a mismatch between contributing and noncontributing populations, as well as the demand that the rapidly aging population is placing on their resources. For example, the Shanghai government has capped the year-on-year increase in BMI funding to 7 percent in 2011 and has limited pharmaceutical spending as a percentage of the BMI funding to 42 percent, down from 45 percent in the previous year. This is particularly striking, given that Shanghai is one of the nation's wealthiest cities. Similar policies aimed at containing rapidly-rising healthcare costs are being introduced around the country, leading to situations in which pharmaceutical companies find that their drugs are periodically restricted when hospitals manage their own limited budgets.

Now that the national government has achieved remarkable progress in the breadth of insurance coverage, it will likely focus on improving the quality of its provision to patients. Reimbursement copays will continue to decrease while annual caps continue to rise. For example, in order to further reduce inpatient copays and raise the annual cap, central-government funding for the New Rural Cooperative Medical Scheme (NRCMS), which covers more than 800 million people, will increase from $20 per person annually to $40. Outpatient coverage will also improve, with more provinces introducing universal outpatient coverage and more diseases being included in reimbursement schemes for treatment of outpatients with chronic diseases. However, as is the case around the world, increased government contribution to healthcare spending will also lead to a greater focus on controlling spending growth and increasing levels of intervention at various points of the healthcare system.

Market access: getting more complex

Multinationals have to contend with a market-access environment that is becoming more complex. Spanning the whole range of commercial activities—product registration, reimbursement, tendering, pricing, and distribution—the market-access picture in China is one of increasing fragmentation, with variations in access conditions at the provincial, the city, and even the hospital level. This affects pharmaceutical and medical products companies alike.

For pharmaceutical companies, the increasing complexity and uncertainty stem from the growth in the number of reimbursement categories and the continued government pressure to reduce prices and ease the burden on patients. Most pharmacos' product portfolios include plenty of drugs that are on the all-important National Reimbursement Drug List (NRDL), and some have quite high exposure on the EDL. Many expect contributions from new drugs to increase significantly by 2020. For example, 12 of the top 15 multinational pharmacos derive more than half of their sales in China from drugs on the current NRDL, while for 6 of the top 15 pharmacos, sales of EDL-listed molecules account for more than 10 percent. Each category (NRDL, EDL, and new drugs) will see different pricing trends. The NRDL will see continued pressure on the price premiums that are granted to drugs from multinational companies, the EDL will expand in scope, and reference pricing could impact the pricing of new drugs at launch. (See sidebar, *Pharmaceutical pricing: Under pressure*.)

For medical products companies, uncertainties result from the more stringent product registration processes, changes in the tendering process, the fragmentation of reimbursement, and increased scrutiny of pricing. Tendering, for example, which has historically been quite fragmented, has recently been moved to the provincial level with a readily observable impact. In 2011, Guangdong and Henan held provincial tenders that led to price cuts of 20 to 30 percent in several categories of medical products. The Beijing government is said to be aiming for 20 to 30 percent price reductions on high-value consumables such as drug-eluting stent products.

China's system of service charges and reimbursement adds to the complexity. Policies in these areas are formulated and applied at the local level and will likely remain in force for a while. For example, usage fees for an energy-based surgical-device procedure range from 200 renminbi in Yantai to 30 renminbi in Changzhou, and in Shenyang the process is not chargeable. Similarly, reimbursement for medical products varies by city, and the processes for obtaining reimbursement vary significantly at the local level. The decentralized reimbursement process can involve even hospital-specific policies. For example, at the beginning of 2012, Xuanwu Hospital was the only hospital in Beijing that had managed to secure reimbursement for computed-tomography-guided radio-frequency ablation.

Primary care infrastructure: quickly emerging

The chronic imbalance of resources has long been a problem in China's healthcare system. The largest Class 3 hospitals in big cities (about 1,350 institutions in all) tend to have the highest-quality physicians and equipment, and capture the lion's share of patient flows. By contrast, grassroots facilities such as urban community health centers (CHCs) and county hospitals tend to be underdeveloped, poorly funded, and disconnected from larger hospitals. This gap impedes the achievement of the strategic goal of broad and effective care. Patients are inclined to visit the best hospitals in the largest cities, regardless of the severity of their illnesses; this causes overcrowding at the big hospitals and underutilization at the grassroots facilities.

One major goal of healthcare reform, therefore, is to develop a primary care infrastructure that includes development of CHCs and community health stations (CHSs), combined with a three-tier rural medical network comprising county hospitals, township health centers (THCs), and village clinics. The government also aims to improve the service standards and quality of primary care institutions (primarily through the education and training of general practitioners) and to establish a two-way referral system between primary care facilities and hospitals.

Reform efforts to date have included the significant development of grassroots infrastructure, with the number of urban CHCs/CHSs, increasing by 20 percent in 2010 and affluent regions seeing even faster development. For example, Zhejiang and Beijing have, on average, respectively 168 and 119 CHCs/CHSs per million urban residents, compared with 17 in Guangxi and 22 in Yunnan. This gap will likely shrink as underdeveloped regions invest to catch up.

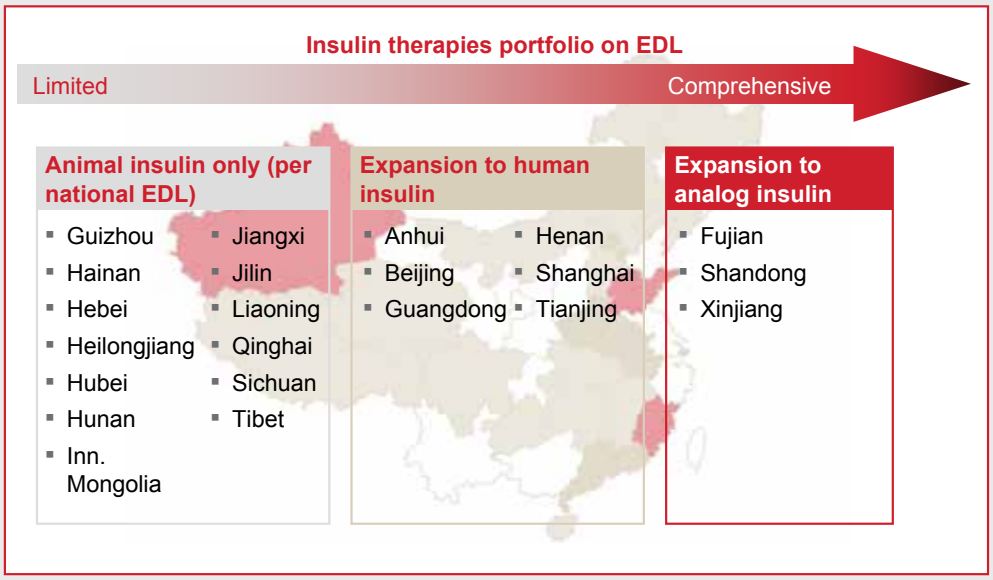
The government has also been working to improve physician quality at primary care institutions. For example, the Central Government Healthcare Reform Office recently announced that on-the-job training of urban community-health physicians is being rolled out across the country, and that 5,000 physicians are being trained and will be sent to support the

Pharmaceutical pricing: Under pressure

NRDL drugs: a gradual phase-out of price premiums? The premium enjoyed by those drugs that have separate pricing will likely be moderated. In recent years, the National Development and Reform Commission (NDRC) has announced several rounds of price-cuts in all major treatment areas. We expect the price-cutting to continue and probably intensify. Specifically, there are new assessments of separate pricing, a policy that has given multinational off-patent originator drugs a price-premium over local generics. The draft NDRC pricing policy suggests that the permitted premium (currently as high as ten-times that for the generic counterpart) will be reduced to 30 percent for newly off-patent drugs and likely to 50 to 100 percent for drugs that are already off patent. Significant variances across brands could persist, however.

EDL drugs: a race to the bottom? Since its introduction in 2009, the EDL has been a source of major uncertainty for many companies, both multinationals and local pharmacos. On paper, the EDL offered multinationals the hope of accessing a much broader market and the threat of significant price-cuts that damaged their capacity to compete with local companies. Today, the government is determined to implement the EDL in all grassroots institutions. With the increasing adoption of the Anhui EDL tendering model, price pressure is intensifying. Furthermore, feedback from patients and healthcare providers suggests that the current 307-molecule national EDL is insufficient. In fact, many provinces have adjusted the national EDL, adding human insulin and even basal insulin, for instance, and the government is now openly discussing the move to a list of more than 800 molecules, with an initial increase to more than 400 this year (Exhibit). It is still not clear how the central government's guidelines will be implemented at the provincial level. On the one hand, there are increasing concerns over the quality of drugs that win tenders under the Anhui model. Local companies that have won EDL tenders on the basis of very low bids have been found to be in violation of China's Good Manufacturing Practice (GMP) standards, and the State Food and Drug Administration (SFDA) has highlighted the importance of 'enhancing

Exhibit: The national EDL references only animal insulin, but several provinces have included a much broader diabetes portfolio in their EDLs



Source: GBI; Interviews; McKinsey analysis

oversight of drugs that won tenders based on below-cost prices'. On the other hand, the central government is exploring ways to refine the tendering approach: for example, by piloting uniform pricing for EDL products. Local governments have also explored ways to customize the Anhui model in order to increase the impact of quality in the evaluation process. For example, Shanghai and Jiangsu have introduced tiers for different levels of drug quality in the EDL tendering process, which is allowing higher-quality (and higher-cost) drugs to win EDL tenders. We are optimistic that, over time, the provinces will acknowledge the advantages of EDL drugs with separate pricing and will develop ways to ease market access for drugs of higher quality.

New drugs: high prices, but for how long? There is still favorable pricing for new drugs introduced into China, despite two critical drawbacks: namely, the need for time-consuming local registration trials (the clinical trials application process alone still takes the better part of a year) and the slow updating of the national reimbursement system. Updates of the NRDL remain infrequent, meaning that five years can elapse between a product launch and actual reimbursement. This situation contrasts with neighboring Asian countries, such as South Korea, where pricing is scrutinized closely at launch but reimbursement is provided much more quickly. Although China's government has not yet taken a position on this topic, it seems inevitable that some type of harmonization through reference-pricing will occur in the medium term. Companies still have relatively good flexibility in their pricing of newly-patented drugs, but the application process and timing will become increasingly complex. In Shanghai, for example, applications concerning new drugs that have higher prices than those of comparable competitors will be subject to review by a panel of experts (adding about 20 percent to processing time) and to more stringent data requirements.

Central-Western region's THCs. These improvements will of course take time, so the significant gap in quality between grassroots facilities and large hospitals will persist for a while.

Although the government is wasting no effort to build up primary care institutions and is providing more incentives for patients to use them, the success of the initiative will ultimately rest on improving the quality of physicians and other medical personnel working there, the availability of effective drugs that patients can trust, and the creation of integrated networks between primary and tertiary institutions for the effective management of patient flow. Clearly, these developments will take some years to play out.

The 12th FYP: The biomedical sector as a strategic industry

In its 12th FYP, which the State Council published in March 2011, China's government identifies the biomedical industry (broadly defined as including biologics and small-molecule pharmaceuticals and vaccines, as well as medical devices, diagnostics, and even TCM) as one of the nation's seven strategic industries. Collectively, these seven industries are expected to account for 8 percent of China's GDP by 2015 and 15 percent by 2020, up from 5 percent in 2010. Historically, government backing has significantly accelerated the growth of designated strategic industries: automotive is an example. With the central government's active commitment to the development of the biomedical industry and local governments quickly following suit, the biomedical sector is poised for rapid growth over the coming decades.

Since the State Council publication, various ministries, including the Ministry of Health (MoH), the Ministry of Science and Technology (MoST), and the Ministry of Industry and Information Technology (MIIT), have contributed their own 12th FYPs for the development of the biomedical industry, and additional detailed plans are expected (Exhibit 6). Collectively, the plans set ambitious objectives and assume that China will have the ability to climb the value chain in manufacturing and R&D at a rapid pace.

Exhibit 6: Multiple stakeholders in the Chinese government have released policies supporting the 12th Five-Year Plan

Government Body	Policy
State Council	▪ Policies to accelerate the development of bioindustry （促进生物产业加快发展的若干政策） ▪ State Council's decision on cultivating and developing strategic emerging industries （国务院关于加快培育和发展战略性新兴产业的决定） ▪ Healthcare reform 12th Five-Year Plan （"十二五"期间深化医药卫生体制改革规划暨实施方案)
MoST	▪ National MLT science-and-technology development plan （国家中长期科技发展规划） ▪ National MLT biotechnology talent-development plan （国家中长期生物技术人才发展规划） ▪ Biotechnology 12th Five-Year Plan （"十二五"生物技术发展规划） ▪ Medical science 12th Five-Year Plan（医学科学发展"十二五"规划） ▪ Major new-drug-development project（重大新药创制专项） ▪ Science and technology international collaboration 12th Five-Year Plan（国际科技合作"十二五"专项规划） ▪ Science and technology innovation IPR 12th Five-Year Plan（科技创新知识产权工作"十二五"专项规划） ▪ Pilot plan to encourage the combination of science and technology and finance（促进科技和金融结合试点实施方案） ▪ Medical device technology industry 12th Five-Year Plan（医疗器械科技产业"十二五"专项规划）
MoH	▪ Healthcare 12th Five-Year Plan（"十二五"卫生发展的总体目标）
MIIT	▪ Pharmaceutical Industry 12th Five-Year Plan（医药工业"十二五"规划）
NDRC	▪ Bioindustry 12th Five-Year Plan （生物产业"十二五"规划）
SIPO	▪ IP talent 12th Five-Year Plan（知识产权人才"十二五"规划）
MoHRSS	▪ "Thousand Talent Plan"（"千人计划"） ▪ Returnee 12th Five-Year Plan（留学回国人员工作"十二五"规划）
SATCM	▪ Traditional Chinese medicine 12th Five-Year Plan (中医药事业发展"十二五"规划)

- **State Council** defines overall strategies
- **MIIT** – Details policy for pharmaceutical industry
- **MoH** – Details policy for healthcare system
- **MoST** – Details the technology aspect of biotech industry
- **NDRC** – Expected to take lead on biotech industry strategy

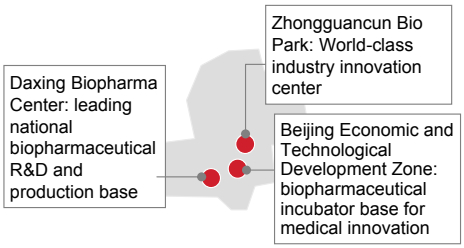
Note: MoST: Ministry of Science and Technology; MoH: Ministry of Health; MIIT: Ministry of Industry and Information Technology; NDRC: National Development and Reform Commission; SIPO: State Intellectual Property Office; MoHRSS: Ministry of Human Resources and Social Security; SATCM: State Administration of Traditional Chinese Medicine; MLT: mid to long term.

Source: Government agency announcements

Exhibit 7: Ambitious Five-Year Plans of local government for the bio-technology, pharmaceutical, and healthcare industries are being published

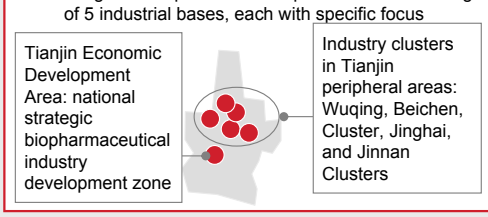
Beijing:

- **Goals** for 2015:
  - Total healthcare industry output: **130 bn RMB (CAGR = 24%)**
  - Establish **more than 100** R&D **centers** and national **labs**
  - **2-3** national new **Class I** drugs
  - New product output > 30% of total pharmaco output
- **Focused areas:**
  - Establish innovation and service platform
  - "Branded Generics Program"
  - Set up CRO centers and distribution centers
  - "Top 10 company Cultivating Program"
- **Industrial bases:**



Tianjin

- **Goals** for 2015:
  - Total healthcare industry output: **100 bn RMB** (chemical drugs: 50 bn RMB; traditional Chinese medicine: 16 bn RMB; Vaccines and biopharmaceuticals: 8 bn RMB; medical devices: 10 bn RMB; healthcare service: 21 bn RMB)
  - Establish **national leading industrial bases** for stem cell, medical device, traditional Chinese medicine and API manufacturing
  - 3 leading companies with revenue > 10 bn RMB
  - More than 100 healthcare products with revenues > 100 mn RMB
- **Industrial areas:**
  - Establish BinHai New Development Zone as national biopharmaceutical industrial base
  - Integrated biopharma development zone consisting of 5 industrial bases, each with specific focus



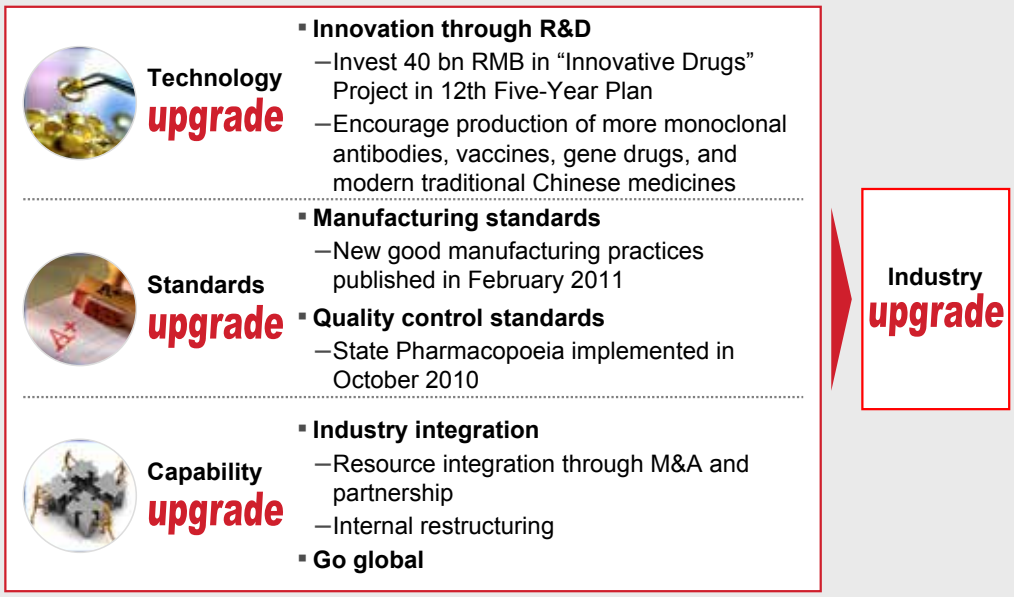
Source: Provincial 12th Five-Year Plan; McKinsey analysis

We lay out here a review of ways in which the new policies could play out in the biomedical industry.

Provincial governments will play major roles in implementing the FYP

While the central government can provide broad direction and support for policy changes, the actual implementation of far-reaching reform hinges on the actions of the provinces, where we are witnessing a burst of local investments and ambitious local plans. This activity is likely to lead to significant misallocation of resources, as well as the emergence of a few attractive clusters of biopharmaceutical expertise that will have a significant impact on the industry (Exhibit 7).

Exhibit 8: For the pharmaceutical industry, China's 12th Five-Year Plan puts the emphasis on "upgrade"



Source: Literature search; analyst reports; McKinsey analysis

Local companies will likely move up the value chain

The critical word in the plans released so far is *upgrade* (Exhibit 8). For example, new policies are stretching local companies by raising manufacturing standards: by 2016, all manufacturing lines must fully comply with the standards published in 2011. The government is encouraging rapid consolidation among the thousands of companies that are competing today: the call is for the top 100 pharmaceutical companies to account for 50 percent of total pharmaceutical sales in China by 2015 and for the top 10 wholesalers to account for 95 percent of drug distribution. The national government is also nurturing the emergence of large-scale generic-drug companies, pushing locals to partner with multinationals, to invest more in R&D, and to produce differentiated businesses in generics or biosimilars.

Local competitors will likely continue to try to capitalize on favorable government policy. Only a few will make serious attempts to expand outside China. It will take substantial resources, flawless execution, and great persistence for any of them to become legitimate global contenders.

Multinationals will increasingly team up with local companies

The government's push for healthcare reform and its 12th FYP, combined with unfavorable reimbursement for premium products and cost pressures at the largest hospitals, have prompted multinationals to look more closely at deepening or expanding their presence in China through partnerships and acquisitions, so as to compete in the lower-tier segments and to capture productivity gains.

To take advantage of the experience of local companies, several multinationals have teamed up with them in pharmaceuticals, consumer health, vaccines, and medical devices. Pfizer, for instance, is taking a three-pronged approach to orchestrating its expansion into the broader market. The company is planning a joint venture with Hisun, an active pharmaceutical ingredient (API) manufacturer, and will tap into Hisun's generic-drug portfolio and low-cost manufacturing and R&D capacity. At the same time, it has established a strategic partnership with Jointown Pharmaceutical Group, the third-largest distributor in China, through which it will expand its coverage of county hospitals and its reach in over-the-counter products. Pfizer has also partnered with Shanghai Pharma, making a $50 million investment in the Chinese partner's initial public stock offering.

Ultimately, the success of the biomedical plan will depend on the national government's ability to align the interests of many different stakeholders, and foster a policy environment that better supports innovation and quality without resorting to protectionist measures that are designed to support local champions. While progress in the next five years could prove underwhelming in some aspects of the plan (for instance, the ability to foster real innovation), observers should remember that China is playing a long-term game. We anticipate that China's current healthcare moves will extend far beyond the timeline of the 12th FYP. Furthermore, some market developments (for example, the development of vaccines or the biosimilars industry) could have implications reaching far beyond China, given the scale and speed of development of the Chinese market.

Eight principles for successful growth

The forces at work in China indicate that patient flows will continue their rapid increase, matched by a broadening and deepening market infrastructure. Patients' awareness of and access to modern treatments will increase, as will affordability. However, market access will become more complex, with real uncertainties around pricing trends. Local companies will move up the value chain and rapidly consolidate.

In this context, how should pharmaceutical and medical products multinationals approach the opportunity offered by China? Although each company's strategy is influenced by its global opportunities, portfolio shape, and mindset, and there is no one-size-fits-all answer, companies should heed eight principles that will be essential for success in China's healthcare market over the next decade (Exhibit 9).

1. Adopt a 'second home market' mindset

Although China's reform efforts have made great progress, the healthcare market is still in the early days of its development. The long-term winners will be the multinationals that adopt a "second home market" mindset when dealing with China. This involves setting the right aspirations (for revenue growth, profitability, and also innovation or contribution of sourcing to global operations), continuing to take the long view on investments, assigning more high-caliber talent to China, accelerating the development of certain functions in China (for example, market access and marketing), and carefully weighing the trade-offs in short- and medium-term revenues and profits.

2. Step up engagement with central and local governments to shape the environment

While the Chinese government is playing an active role in shaping the structure of the healthcare industry, differences in policy interpretation and implementation in various locations will continue to lead to variances in policy outcomes from one city or province to another. As a consequence, multinationals will need to understand the government's motivations, engage government stakeholders at central and local levels, and establish internal working models that enhance coordination across functions and locations. Successful companies will take calculated risks by actively shaping therapeutic areas or by partnering with local champions who are supported by the government. Novo Nordisk's moves give an example of effectiveness through their shaping and accelerating of the development of the diabetes market: their consistent investment across the value chain and significant engagement with the central and local governments increased awareness and built up capabilities, and led to their capturing a substantial share of the market.

3. Tailor business models to better address diverse market needs

Multinationals' businesses are growing more complex. Pharmacos' portfolios are diversifying, as they sell both innovative drugs and branded generics, and medical products companies are pursuing both high-end and midrange value segments. The multinationals' customer segments are evolving and expanding into more fragmented channels and lower-tier cities. A single standard business model cannot successfully address every market segment, so contenders must tailor their business models to fit each distinct opportunity. Such tailoring will

Exhibit 9: Eight principles for successful growth


Adopt a "second home market" mindset


Step up engagement with central and local governments to shape the environment


Tailor business models to better address diverse market needs


Drive operational improvements to sustain the economic model


Double down on the role of innovation


Seek out bigger, bolder partnerships


Invest in attracting and developing top talent, and build capabilities that are relevant to China


Have a "through cycle" mentality

Source: McKinsey analysis

need to address aspects such as portfolio definition, the leverage of distributors, commercial models and capabilities, governance models, and the expectations for returns.

4. Drive operational improvements to sustain the economic model

Until quite recently, improving commercial operating efficiencies has not been a high priority for many executives in China. However, rapidly-increasing labor costs, increasingly complex organizations with regional commercial variations, and renminbi appreciation against the US dollar (25 percent since 2006) have all put upward pressure on the costs of doing business. In parallel, pharmaceutical multinationals face mounting price pressure, especially for the mature brands that still account for the bulk of their China revenues, and medical products makers are facing increasing competition from rapidly improving local competitors. To protect the bottom line and to meet increasing expectations for operating profits, companies will need to scrutinize their cost structures, looking for ways to streamline operations and allocate resources more efficiently and with better informed trade-offs (for example, marketing spend allocation and use of third-party providers to expand reach at lower cost). To that end, some have begun to centralize select back-office functions, moving them to cities with lower costs, and to outsource entire functions.

5. 'Double down' on the role of innovation

Innovative new products will do much more to propel growth in China, given that mature products whose patents have expired will gradually take a significant hit on price and that poorly-differentiated medical products will swiftly suffer the erosion of their market share. Historically, multinationals have had mixed track records with their new product launches, often assigning too few resources to new product planning. Companies can no longer afford to stumble out of the gate. For several leading pharmaceutical multinationals, new products are expected to contribute a significant share of revenues: the goal is for new products to produce 20 to 30 percent of total sales by 2020 and a higher share of absolute growth. For medical products companies in particular, China could have a role in shaping global product innovation, given the scale of the infrastructure and need for high-volume and lower-cost solutions to address patients' needs.

6. Seek out bigger, bolder partnerships

In recent years, most companies have pursued a strategy of purely organic expansion to broaden their coverage of the vast Chinese hospital landscape and to support mature brands. Variations of the model were largely linked to decisions associated with the balance of central and regional emphasis.

The days of being able to do it alone in China have ended. The past year has seen a flurry of deal announcements, reflecting both the increasing range and complexity of business opportunities and the desire of the central government to promote partnerships between multinationals and local companies as part of the industry upgrade. We expect to see a string of major deals over the next few years. The underlying rationale is that companies cannot afford to compete organically across the entire spectrum of opportunities, and having a partner can significantly raise the odds of success, accelerate the uptake of a particular strategic initiative, and even serve as the only realistic entry point for latecomers to the market.

Multinationals should also keep in mind that the windows of opportunity will not be open for long. The effect of years of free-for-all competition in the automotive industry, marked by a large number of joint ventures, led the government to recently conclude that, as a result of the proliferation of companies in the industry, limits need to be placed on the number of partnership opportunities. Over a span of just ten years, the structure of the healthcare industry has been pretty well defined, and outsiders and late entrants now face formidable access barriers to succeed. Moreover, the number of truly attractive partners is inherently limited, and first movers will secure a long-term advantage by choosing the most attractive ones.

7. Invest in attracting and developing top talent, and build capabilities that are relevant to China

As multinationals expand in China, talent gaps are becoming glaringly evident; in many cases, they create critical bottlenecks to higher corporate performance. Companies' talent management is in turmoil: there is high turnover across functions, insufficient leadership development undermines succession planning, and capability gaps may impede expansion and the successful execution of strategy. It will take substantial attention and resources to develop robust strategies for the acquisition and retention of talent and the development of skills and leadership, and all of this must be aligned with the chosen corporate strategy. These strategies must be specifically tailored for China rather than transported wholesale from other regions, especially with regard to the management of front-line sales managers and problem-solving and communication capabilities.

8. Adopt a 'through cycle' mentality

With China's increased contribution to multinationals' global performance (China is often the number-one contributor to absolute revenue growth) changes in the pace of market development will have visible global impact. Positive and negative year-on-year swings of five points in market growth are already typical. Uncertainties about overall economic growth and mounting pressure on cost containment across the healthcare system are bound to increase the volatility. Successful companies will see through the year-on-year ups and downs, manage incentives to keep the management team engaged, resist the temptation to make hasty decisions, and keep focused on the long-term goal.

□ □ □

China remains a bright spot in the global outlook for healthcare, but the bar to effective competition in this market is being raised as a consequence of increasing government intervention and business complexity, and intensifying local competition. To succeed at scale, then, multinationals will want to increase their investments across the value chain, step up their core capabilities, and explore creative ways of reaching new customer segments through partnerships. The right combination of these methods will allow multinationals the successful navigation of the uncharted waters of healthcare in China.

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Opportunit

Opportunities in the pharmaceutical and medical products markets

Big Pharma in China: Time to rethink the commercial model?

Big Pharma in China: Time to rethink the commercial model?

Bing Chen, Franck Le Deu, and Jin Wang

The ranks of sales forces in China continue to grow as pharmacos aim to keep pace with the growth of large hospitals and to expand their coverage to smaller hospitals and smaller cities. Now that the emphasis on quantity has run its course, the economics of the traditional field-sales-force model is showing its limitations. It is time for multinational drug companies to get smarter about how they sell.

Frequent face-to-face detailing to physicians by pharmaceutical reps continues to be the main sales channel that companies deploy in China, even though this approach has been in retreat in most large, developed markets. Anyone walking down the corridor of a major hospital in Shanghai or Beijing is just as likely to meet a sales representative as a nurse or physician.

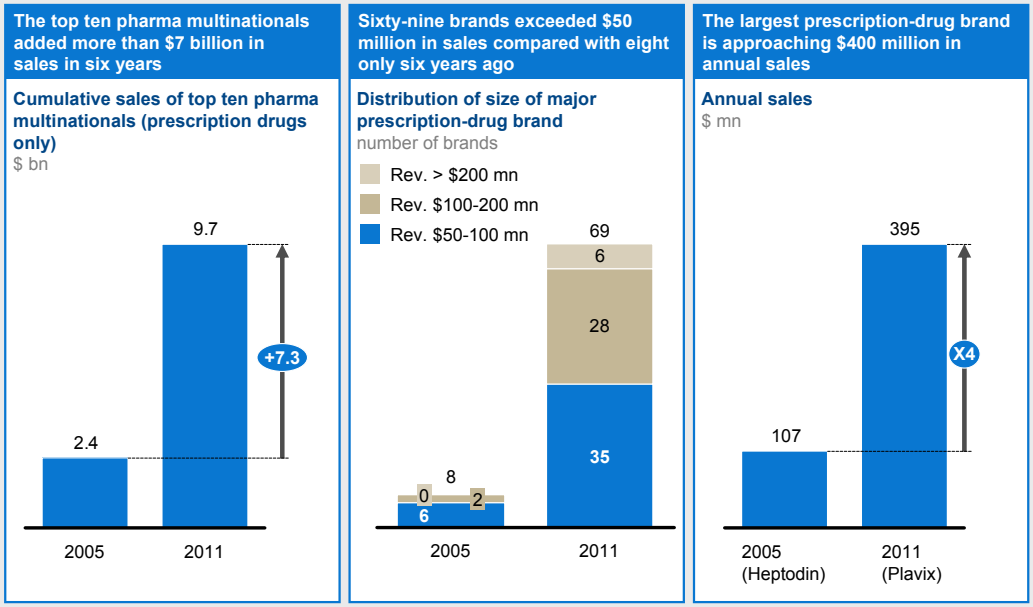
It is hard to argue with past success: this traditional sales model has provided many good years, as most multinational pharmacos have posted strong performance in China. The in-country revenues of leading multinationals have as much as quintupled from 2005 through 2011, with those companies collectively adding between $7 billion and $8 billion to their top lines. Beyond that, recent years have seen the emergence of dozens of China 'blockbusters', drugs whose annual revenues exceed $100 million. We estimate that 34 drugs reached that symbolic mark in 2011, compared with only two in 2005. The largest prescription brand in the market, Plavix, is set to break the $400 million mark in 2012 (Exhibit 1). As the pharmaceutical market in China grows in size and complexity, the classic commercial model that has been supporting that growth is now coming under scrutiny because of the increasing compliance risks, the challenges affecting the productivity and profitability of the model, and a general need for innovation in sales approaches to capture physicians' attention in crowded hospitals. The industry is at a turning point, as many pharmacos begin to acknowledge this reality: some have slowed or stopped the expansion of their sales forces while they determine their next moves—which include the possibility of downsizing their field sales force—while most continue to push forward with more 'feet on the street'.

To ensure that the next wave of growth in drug sales meets increasing expectations of profitability, pharmacos will have to consider alternative sales options and make better-informed choices about sales force deployment, the mix of sales and marketing initiatives, and the resource allocations for key products in their portfolios.

The genesis of the China sales rep arms race

The ten leading multinational pharmacos have added more than 19,000 reps in China over the last five years, some adding as many as 1,000 in one year (Exhibit 2). Pfizer, the largest multinational pharmaco in China, now fields a sales force of more than 4,000, and Bayer, Merck, AstraZeneca, and others are not far behind. Novo Nordisk deploys a field force of more than 2,000 reps, the vast majority for diabetes-related products.

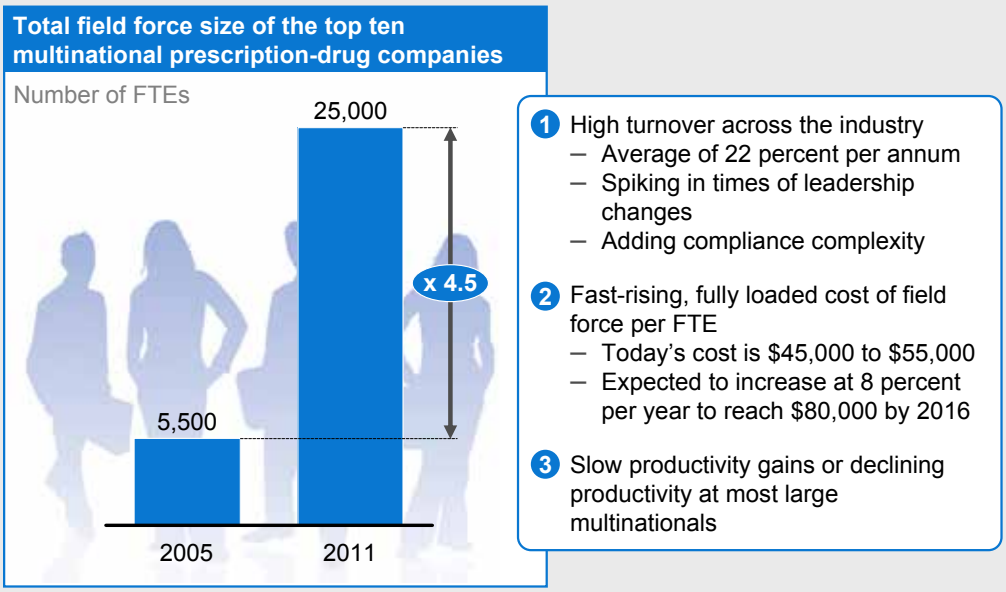
Exhibit 1: From 2005 through 2011, the scale of commercial performance increased significantly



Note: At a constant exchange rate of $1 = 6.3 renminbi

Source: Press search; interviews; CPA; McKinsey estimates

Exhibit 2: Dramatic increases in the size of the total field force have been a key driver of performance … but not without challenges

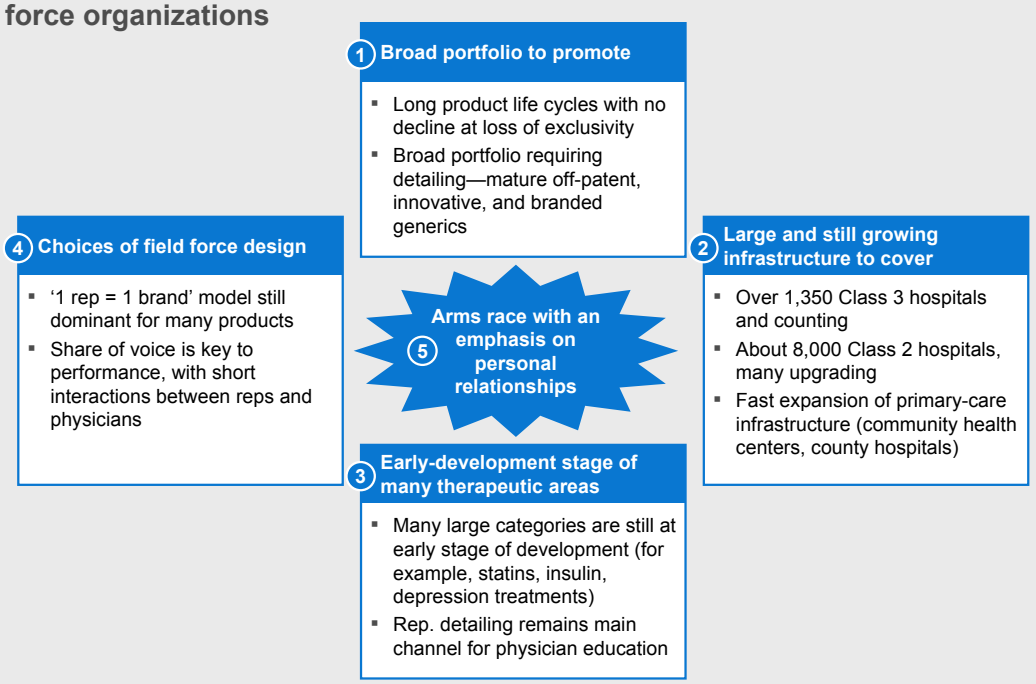


Note: FTEs = full-time equivalents

Source: Press search; interviews; CPA

Five related factors explain much of the rush to add reps. First, the portfolios of products sold in China have unusually long life-cycles, allowing multinationals to promote a broad range of drugs, from the innovative to the off-patent. Second, multinationals have been keen to expand their territorial reach so as to cover most of the top hospitals and senior physicians in what is still a growing infrastructure. Third, the underdeveloped nature of the market across many therapeutic categories and the importance of promotion-sensitive products in the portfolio mix (for example off-patent drugs and branded generics) create the need for frequent interactions

Exhibit 3: Multiple factors are driving the rapid scale-up of field force organizations



Source: McKinsey analysis

with prescribers. Fourth, multinationals have, in many cases, opted for sales-models based on single-line sales forces, with each key product getting a separate sales line. And fifth, China's cultural preference for in-person business meetings has, along with the escalating competitive intensity, exacerbated the drive to sales force expansion (Exhibit 3). We review these five factors in further detail.

The first driver is the nature of the typical portfolio, in which many companies include not only innovative patented drugs—the mainstay of performance in developed markets—but also mature off-patent brands that can still achieve strong growth in China despite competition from generics. Bayer offers a perfect example: its off-patent products such as Glucobay contribute a large share of revenues, but its innovative new drugs such as Nexavar are quickly gaining importance. All require face-to-face detailing—that is, selling to and servicing of physicians.

In response to the second factor, territorial coverage, multinationals have had to scale up their commercial organizations to achieve the kind of reach that can match the market's overall potential. The footprints of the leading multinationals have spread to more than a hundred cities and to thousands of hospitals. Prescriptions in China must largely be written in a hospital; the more than 1,350 Class 3 and 8,000 Class 2 hospitals place a substantial demand on coverage that is exacerbated by the fragmentation of prescribers across each hospital's many departments.[1] As a result, the field force for a large primary-care brand (with more than $100 million in sales) can easily reach 500 representatives, while in specialties such as oncology, a team of 130 reps for one brand is typical.

In terms of the third factor, market development, many therapeutic categories are still at an early stage and require significant investment in the education of physicians to improve diagnosis, establish standards of care, and drive adoption of therapies on a large scale. To date, that type of medical and product education has flowed almost exclusively through the sales force in their

1 There are more than 1,350 top-tier Class 3 hospitals, and more than 260 of these have at least 1,000 inpatient beds, compared with just 30 such large hospitals in the United States. Although these are impressive numbers, most pharmaceutical multinationals still derive most of their business from the top 50 to 80 cities and the top 500 to 1,000 hospitals.

frequent interactions with physicians. Consider statins, still a relatively new category in China, prior to the launch of Zocor by Merck and Lipitor by Pfizer in the early years of this century, the category did not exist in China. AstraZeneca joined the market with Crestor in 2007, but did not start investing heavily until 2010, after the reimbursement drug list (RDL) provided reimbursement for the molecule, making it more affordable for patients. Local companies, which typically adopt a fast-follower approach, waited for the multinationals to create early awareness before they jumped in with lower-cost offerings. Statins have now gathered strong momentum, posting annual volume growth of 30 to 35 percent. The category should be able to maintain that pace for years to come, with the diagnostic rate and treatment rate for dyslipidemia estimated at 11 percent and 32 percent respectively in China, compared with 50 percent and 52 percent in the United States.

With regard to the fourth factor, the sales model structure, most sales reps who cover large cities and hospitals are responsible for detailing only one product. There are several reasons for this, the primary one being that pharmacos have opted for simplicity and focus. By tying a rep's monetary incentives to a single brand, they maximize that one product's potential amid heavy competition and relatively cheap labor costs. Other features that support this traditional model include a shortfall in frontline managers' capabilities in coaching and managing more complex models and the lack of sales-force-effectiveness data to track reps' activities. There is also a tendency among Chinese physicians to split business among companies and among sales reps in order to avoid the perception of being too close to any particular operator.

Finally, the growth in the scale of field sales forces has been compounded by the increasing intensity of competition for 'share of voice' and by the short nature of interactions with physicians (sales calls in China are typically significantly shorter than those in developed markets), as well as by reactions to expansionary moves by competitors and the fear of losing ground in market coverage.

The competitive sales force expansion in China contrasts sharply with trends in developed markets. In Europe and the United States, for instance, multinationals have significantly reduced the numbers of salespeople on the ground, shedding 33,000 US sales jobs from the peak of 105,000 five years ago. They have been redirecting resources to new channels such as service reps or call centers, and deploying new service-oriented engagement models that emphasize acting as an educational resource rather than making sales pitches. These alternative approaches not only reduce costs, but also have been well received by physicians who resented the hard-sell tactics of old.[2] However, these new techniques have yet to make substantial inroads in China.

Signs of trouble

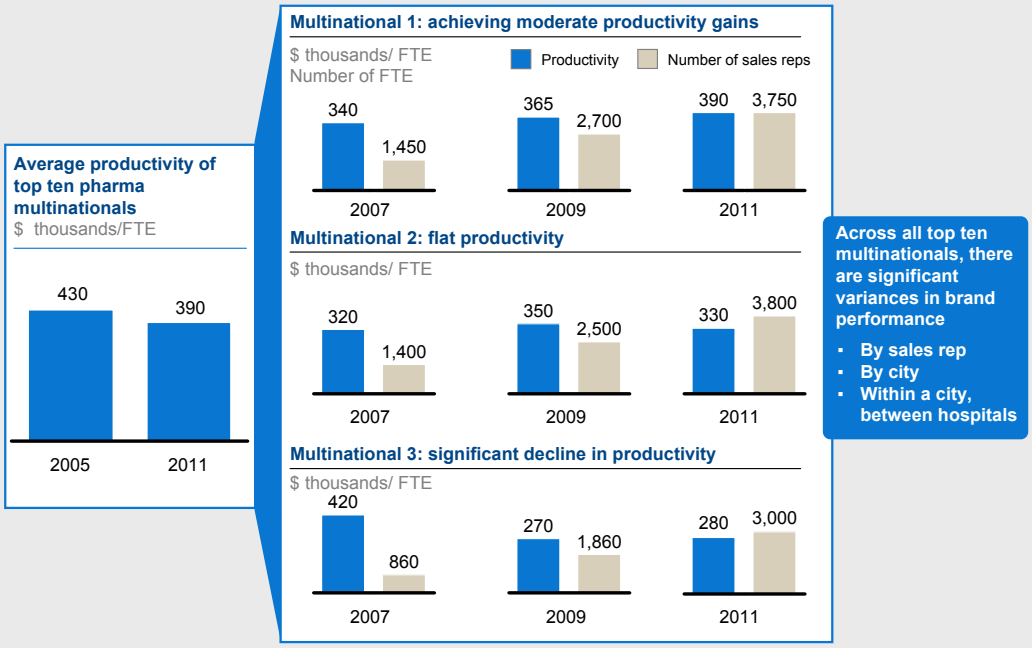
If the traditional sales model has delivered such attractive returns for so many pharmacos in China, what is the rationale for change? In our view, the Chinese market is evolving in ways that weaken this model. Several multinationals' expectations have also evolved in a way that places greater emphasis on not only delivering attractive top-line growth but also increasing profitability and complying with higher standards. The main challenges, therefore, involve the lack of growth in productivity and the intensifying cost pressures that will likely start to have an impact on profitability in the near future.

Overall productivity is declining. From 2005 through 2011, annual productivity of the top-ten multinationals declined by 2 percent. Some companies managed to expand head-count and still increase productivity, but for others the returns on their efforts to expand coverage have been disappointing, and have had the effect of diluting overall performance by stretching resources to significantly less productive areas (Exhibit 4). We see three key reasons for this performance: a focus on the 'quantity' of expansion rather than on the 'quality' of reps' skills and support; expansion into less productive accounts; and high staff turnover, which compounds the challenges.

2 "Drug Sales Reps Try a Softer Pitch," *The Wall Street Journal*, January 10, 2012.

Exhibit 4: Significant field-force expansion has led to mostly flat and sometimes declining productivity

EXAMPLE TOP TEN MULTINATIONALS



Source: Industry information; interviews; McKinsey estimates

In the quantity-quality trade-off, multinationals have been busily scaling up their organizations, on-boarding hundreds of reps per year, with an eye on competitors' moves, but they have not devoted enough attention to the quality of the skills, capabilities, or support which is needed to ensure that the field sales force can drive performance. Such elements as training, definition of account potential, performance tracking, and supporting IT systems have lagged behind the emphasis on recruiting and hiring.

Many pharmacos have not yet adopted a productivity mindset, focusing instead on top-line expansion. They have also suffered from a simple lack of good information, which hinders productivity gains. Too often, pharmacos have a limited sense of their accounts' true potential and limited insights about the dynamics of local competition; they have restricted their investments in market research, voice-of-the-customer studies, and on-the-ground observation, partly because it has been relatively easy to make sales. Furthermore, they lack both physician-level prescription data and accurate sales-force-effectiveness data for the China market. As a result, the deployment of field reps is often far from optimal, with significant variances in performance from city to city—and even from hospital to hospital—for a given brand. 'Average' performance can be misleading, because the bulk of revenues may be highly skewed toward a few of the largest hospitals and cities.

A second reason is that companies are expanding into less attractive accounts. As companies move from covering the top hospitals and top cities, they start to add accounts that are smaller and more costly to serve. New accounts usually involve lower-tier hospitals, many of which are located in small cities or rural areas. They are often less productive on an account-by-account basis, forcing each new rep to visit more accounts in order to achieve the same performance.

Moreover, many of these expansion accounts are located in territories where entrenched locals and insufficient access for multinationals to the local listing raise obstacles to fast market penetration. New account penetration can become an exercise in patience, requiring strong collaboration among functions (such as commercial, marketing, access, and sales), a feat that can be difficult to achieve in China. In some cases, companies have simply overreached productive territories, going into areas that are not yet sufficiently developed for sales reps to be very productive. The balance of 'reach' is difficult to find in such a dynamic market.

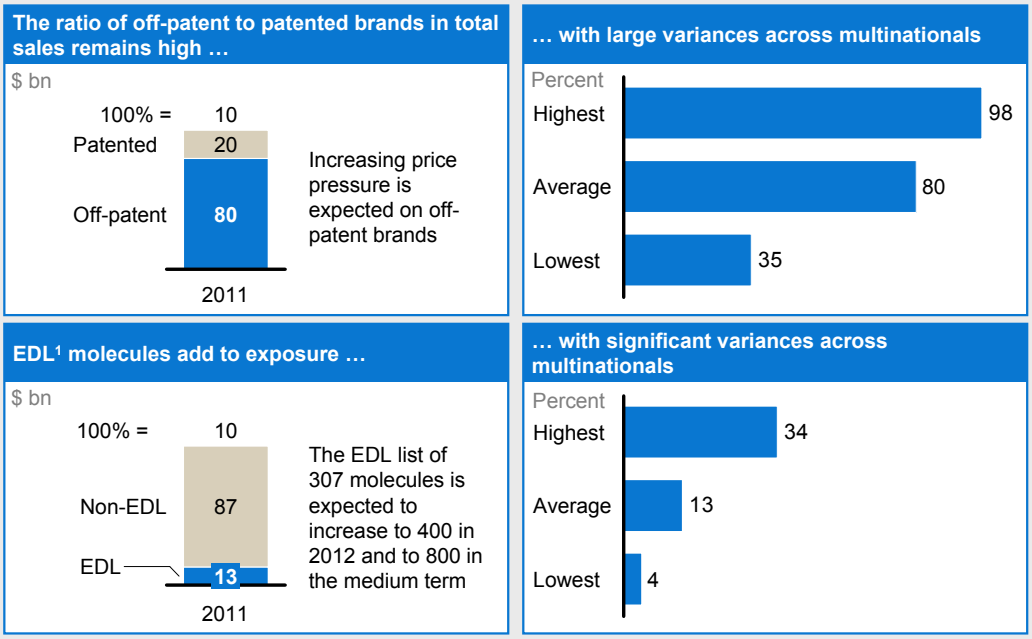
The third reason is high turnover among sales staff. Turnover exceeds 20 percent in most companies, and can spike to a much higher rate in the event of a change of leadership. This creates direct hiring costs and also indirect friction costs: for example, if a territory is left open for a period of time, the company's position can quickly suffer in a promotion-sensitive market. Although companies have responded with initiatives that range from greater benefits for employees to organizational changes that provide more promotion opportunities, we do not expect the rate of turnover to drop much anytime soon.

Rapid hiring and turnover have created a situation in which most reps have less than two years' tenure. Reps operate with a lot of freedom to determine how they spend their time and which physicians they talk with, with the result that most companies have difficulty in tracking their reps' activities closely. Some of those activities benefit the rep but not the company as a whole: for instance, the company loses when a rep avoids accounts that are fiercely competitive and chooses instead to pursue accounts that are easier to penetrate but have lower potential value.

Revenues and costs are increasingly under pressure. The economics of the business now faces challenges on several fronts, starting with government regulation.

Prices have taken a hit among drugs in the 'innovative' category, which includes molecules such as Adalat by Bayer and Losec by AstraZeneca that no longer have patent protection and have become genericized globally. Such brands have benefited from a price premium for many years, and many are among the multinationals' largest sellers. Now that the government is intensifying efforts to phase out the price premium, some pharmacos are feeling the effects. Scanning the large pharmaceutical multinationals shows that many of them have significant exposure to price pressure on off-patent molecules: on average, 80 percent of their revenues come from these sources (Exhibit 5).

Exhibit 5: The challenges ahead: portfolio shape creates exposure to price cuts



1 Essential Drug List. Current EDL has 307 molecules, 205 of which are Western medicine molecules, and 102 Traditional Chinese medicine products

Source: Industry association; GBI SOURCE; SFDA

The establishment of the Essential Drug List (EDL), which lists 205 Western-medicine molecules, has also led to severe pricing pressures for certain drugs.[3] The impact of the EDL varies by molecule, depending on the availability of a high-quality supply at local companies, for example. Although its implementation is still subject to many uncertainties, the EDL is not only here to stay, but the government also aims to increase its scope significantly in the medium term to a list that may include more than 800 molecules. Based on today's national EDL, the exposure for pharmaceutical multinationals is limited to an average 13 percent of revenues. However, with the continuous expansion of provincial-level EDLs and the expected broadening of the national EDL, exposure could increase significantly.

In addition to the price changes imposed by government *fiat*, pharmacos need to digest the steadily increasing fully-loaded cost of a sales rep, which is now in the region of $45,000 to $55,000 per year. The acute need for experienced sales reps and the rapid scale-up of sales organizations are continuing to push salaries higher. We expect the fully-loaded cost of a rep to increase by 8 percent per year, reaching as much as $80,000 by 2016.

Issues of productivity, quality, and the price-cost equation will only become more pressing in the near future. Pharmacos will be forced to deal with these concerns in one way or another, given that the field sales force will likely remain the dominant demand-side model in China in the years ahead. The market will continue to be driven largely by physicians' choices of branded generics and patented drugs. While payers' roles will gradually expand, affecting prescribers' freedom of choice, they will not develop quickly. For years to come, pharmacos' reps will continue to detail physicians individually, to educate them and to differentiate their therapeutic offerings against those of other pharmacos.

Eight principals to consider

How can multinationals anticipate and respond effectively to these shifts in the Chinese market? There is a range of options available. Pharmacos can feasibly select those that seem best suited to their particular situations, and experiment with pilot programs before scaling up. Here we outline eight principles that pharmacos should consider as they weigh their next steps in China (Exhibit 6).

Get serious about sales force effectiveness and build the systems, capabilities, and mindset to drive productivity growth. This may be a multi-year initiative. Those who have not yet invested need to get started now. The effort will require multinationals to get to the root causes of strong and weak performance. Few multinationals have the data to reveal which accounts and which reps perform well and why. A company cannot improve what it does not measure, so it is critical to review key account and brand performance with more rigor. Sales, marketing, and market access colleagues should work together to analyze exactly why a given account is doing well or poorly, using a series of common metrics to do so: for instance, shares of new patients, the preferences of influential hospital stakeholders, and the frequency of call activity, relative to competitors. Once a review of the data clarifies their situation, companies should develop action plans to drive improvements in performance, and put tracking mechanisms in place to monitor progress.

Revisit the orthodoxy of the single-product-line sales model. This approach is potentially the biggest lever for change. Some multinationals have started to rethink their approach, with encouraging results. The complications associated with a change of model are real: they include the effects of changing the definition of incentive structures that can maximize sales of multiple brands, the implications of upgrading sales reps' capabilities, and the impact on large brands that are performing well. Multinationals should therefore consider running pilot programs in specific cities or hospitals, so as to limit the risks of change and fine-tune the various changes to the sales model before they are rolled out nationwide.

3 We refer here to the national-level EDL. Each province can add molecules to its provincial EDL. As a result, the actual number of molecules affected is greater than 205.

Exhibit 6: Eight principles for a more sustainable commercial model

Get serious about sales force effectiveness and build the systems, capabilities, and mindset to drive productivity growth

Revisit the orthodoxy of the single-product-line sales model

Choose the core geographic footprint and focus field-sales resources accordingly

Make better informed and more dynamic decisions about resource allocation across brands

Build up marketing as a key function

Embrace the power of the price elasticity curve

Actively pilot new channel initiatives

Pursue partners while they are still available

Choose the core geographic footprint and focus field sales resources accordingly. The expansion of the market in China offers some exciting new opportunities, such as community healthcare centers in large cities and county hospitals in rural areas. The challenge is that many of these new opportunities have characteristics that are quite different from those of current market segments, and they will therefore require tailored sales models. Most pharmacos will have their hands full in trying to get the most value from their core markets, given the continuing expansion of those markets for most therapeutic areas (such as the construction of new Class 3 hospitals and the extension of specialty departments) and the significant variances in performance across regions and within cities. Companies that choose to expand beyond the core should carefully evaluate the trade-offs, resources, and organizations required to win. Superior performance will be tied to an in-depth and detailed view of sources of growth as well as clearer choices about resource allocation. In some cases, those choices may mean that the company will deliberately walk away from opportunities. Half-hearted or intermittent short-term efforts are unlikely to succeed in China.

Make better-informed and more dynamic decisions about resource allocation across brands. The rapidly expanding portfolios of truly innovative (patent-protected) drugs will continue, with numerous new product launches expected.[4] Meanwhile, off-patent drugs will continue to perform well for many years. Given the stage of the market's development, both categories will require significant investments to create demand. Now that multinationals are trying to improve profitability throughout their affiliates, they will have to make choices about the opportunities they pursue at scale or reject. Across their portfolios, companies should understand which mature brands have limited appeal and might be deemphasized, which low-demand products should be outsourced, which new launches will require heavy up-front investments, and which will require the costly build-up of capabilities in new therapeutic areas.

Build up marketing as a key function. In China, the marketing function has for many years been the poor relation, working in the background while the sales function occupies the center stage.

4 See the article "A Six-Point Blueprint for China Launches of New Pharma Products," by Bing Chen, Franck Le Deu, and Jin Wang.

Linkages and collaborations between the two functions have been tenuous at best. With annual brand revenues reaching several hundred million dollars, marketing budgets are also reaching significant levels, exceeding the $20 million to $30 million range. Newly-launched products face a more competitive landscape and complex access environments. It is time to take a serious look at how marketing resources are allocated and whether to expand or pull back on specific initiatives, on the basis of a Reach, Cost and Quality (RCQ) analysis, for example. Companies should also revisit the interface between sales and marketing, clarifying the ways marketing can effectively support the sales teams, and follow through with the implementation of brand strategy.

Embrace the power of the price elasticity curve. Multinationals have largely ignored or underestimated the power of price elasticity to create more demand. When local companies launch a generic drug, they typically discount 30 to 50 percent from the price of the branded equivalent, spurring significant additional demand for the molecule at that lower price. This happened, for example, with Entecavir (also known as Baraclude), Bristol-Myers Squibb's drug for hepatitis B. Since its launch in March 2010 by Sino Biopharmaceutical, a branded generic of Entecavir named Runzhong has achieved impressive uptake, revealing a large additional volume opportunity for the molecule.[5] Multinationals should consider getting ahead of this curve by actively reviewing their price points on mature brands every three to five years, thereby tapping latent demand and capturing value that would otherwise go to local generics.

Actively pilot new channel initiatives. Although still years behind the techniques utilized in developed markets, China has recently seen sales and marketing support providers offering complementary services to multinational pharmacos that allow for smarter, more efficient targeting of customers or new ways of communicating with stakeholders (for example, by using call centers). New channels such as online learning modules for physicians will not replace traditional channels anytime soon, but companies should be investing now in such new capabilities. In the near term, they certainly can help multinational pharmacos to strengthen prescribers' loyalty, promote academic activities, and expand their market reach in cost-effective ways.

Pursue partners while they are still available. Partnerships have a strong strategic rationale along several dimensions, including access to additional products, complementary capabilities, and field coverage. Several multinationals are already moving with urgency to form partnerships with local companies, as has been seen in Merck's joint venture with Simcere Pharmaceutical in the cardiovascular market and Pfizer's joint venture with Zhejiang Hisun Pharmaceutical in branded generics. While it is still early days for this trend, speed is essential if a pharmaco is to link up with an ideal partner from the limited number of those that are deemed attractive.

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Pharmaceutical companies still need very substantial numbers of local sales reps to cover China's vast territories. While this sales model is likely to remain dominant for the next few years, scale alone will no longer be an advantage. Before long, the numbers of reps you have walking the hospital halls will matter less than the ways you deploy and support them, using better analytics, integrated marketing, and alternative channels.

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5 Credit Suisse China Pharma Sector Report, October 2011.

A six-point plan for launching new pharmaceutical products in China

A six-point plan for launching new pharmaceutical products in China

Bing Chen, Franck Le Deu, and Jin Wang

More than a handful of global Big Pharma companies estimate that their recent product launches and soon-to-be-launched products will account for close to 30 percent of their sales in China by 2020. Achieving sales at that level requires a solid foundation. Here we offer six suggestions to help improve the odds of launching products successfully in China.

For many years, multinational pharmaceutical companies operating in China benefited from government policies that allowed the extension of the product life-cycle of mature global brands in the form of 'innovative category pricing'. Now that the central government is emphasizing healthcare reform, a market that had been rewarding past innovation is quickly turning into a more challenging environment that calls for *new* innovation. With legacy portfolios inevitably facing heightened pricing-pressures, pharmacos' scope for growth will increasingly depend on the successful launches of innovative, globally-patented products in China.

Since 2005, the ten leading pharmaceutical multinationals have collectively launched some 30 new products in China. By 2015 there may well be twice that number, in an upward trend that will continue throughout the decade. Indeed, several players are already estimating that their recently- and imminently-launched products will account for close to 30 percent of their sales in China in 2020. These high levels of success are predicated on a solid foundation that needs to be in place well in advance of a product launch. Companies that fail to act quickly to establish the necessary infrastructure and capabilities may be undermining their chances of achieving sustained growth in China.

In the past, various pitfalls have given multinationals' product launches in China rather mixed results. For some multinationals, a launch has been an afterthought associated with a global debut, and the push into China has been delayed or doomed as a result of insufficient or nonexistent market research. In other cases, imprecise pricing proved costly. A lack of understanding of government relationships and regulations has also taken its toll. With much more at stake now, pharmacos need to do better. They can raise the level of their game by learning six lessons drawn from the experiences of companies that have got it right, and from some that got it wrong. Successful launches are achieved by companies that heed the following imperatives:

- Take a long-range view when investing in product launches.
- Tailor the launch plan, with early investment in capturing the most relevant local insights.
- Build demand by using a broad-based local medical strategy.
- Get the pricing right.
- Build strong market-access capabilities at national *and* local levels.
- Scale up marketing and sales coverage to the right size and at the right rate.

Take a long-range view when investing in product launches

Although there is attractive potential in China's market, the first few years of a new product's life-cycle can be tough. It can take up to five years to produce a substantial return on the preparatory investments that are required for a local launch. This delay in the flow of significant returns arises from complexities in the regulatory system, market access, the medical infrastructure, and patients' ability to pay. Without a far-horizon focus, and particularly in the absence of immediate returns, product launches may well falter. It is therefore important to align top-management teams on a global, regional, and country level, encouraging their steady focus on the long-term goal, despite the need to operate on a day-to-day basis and to meet short-term sales targets.

There is no shortage of external challenges. The infrequent updating (every four to five years) of the National Reimbursement Drug List makes launch efforts even more difficult, as do the sporadic provincial tendering processes, the necessity of enlisting hospital formularies one hospital at a time, and Chinese physicians' generally conservative, experience-based prescription approach.

Nonetheless there have been some exemplary product launches. Bristol-Myers Squibb's (BMS) 2006 introduction of Baraclude set a high-water mark. In just four years, this hepatitis B antiviral drug posted annual sales exceeding $130 million (840 million renminbi), with most of those sales coming from patients who paid out-of-pocket. Baraclude is one of the most successful launches ever made by a multinational in China: as of the end of 2011, its sales had reached $200 million (1.25 billion renminbi), reflecting the momentum achieved by securing national reimbursement status (Exhibit 1).

Exhibit 1: More and more successful products have global launches that include China and secure headquarter-level support and investment

Baraclude was launched in a global trial; one-third of the patients enrolled were Chinese

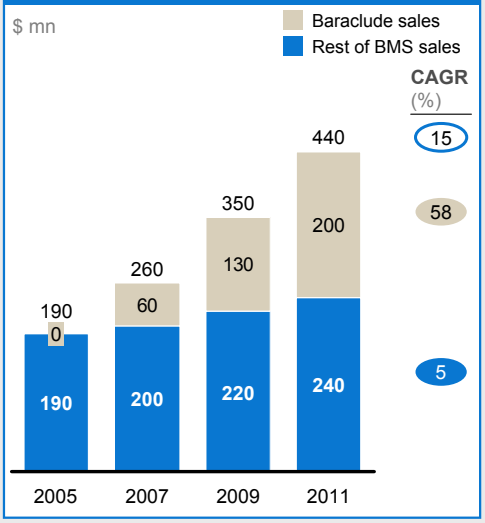
High unmet market need

- By 2006, significant proportion of patients treated with GSK's Heptodin, a hepatitis B drug, developed some resistance. Physicians were frustrated and looking for alternatives

Global launch, including China

- Global phase 3 trial included 2,400 patients from five continents
- 850 patients were recruited from 20 clinical sites in China, where hepatitis B is an endemic health problem
- Parallel regulatory-approval processes were pursued in the US and China, resulting in Chinese approval within six months of U.S. approval

Baraclude is driving significant growth for Bristol-Myers Squibb (BMS) in China



Note: At a constant exchange rate of $1 = 6.3 renminbi

Source: Industry data; expert interviews; literature search; McKinsey analysis

What is less well-known is the story of how the Baraclude launch started with BMS's decision, earlier in the decade, to adopt a long-term view that placed China at the core of its global launch strategy. At the project's inception, the launch was given high priority at the company's corporate headquarters. Not only did Bristol-Myers Squibb include China in Baraclude's global registration trial but it also allocated one-third of the patient enrollment to the Chinese market, making the project an 'in global for China launch', a strategic decision that would be impressive even today.

At the national level, BMS's general manager for China was the individual champion for the launch, establishing an independent business unit just for this purpose and staffing it with top

people who had been recruited from both inside and outside the company. This prominent and well-resourced structure sent a clear signal to the whole company about the project's importance. By pursuing this approach, the company made an implicit choice to reduce its focus on mature brands that had underperformed the market, while Baraclude was achieving its impressive sales during 2006-2010.

By contrast, the performance of various global blockbusters from a diversity of companies and therapeutic areas (diabetes, immunology, and cardiovascular disease) fell far short of their anticipated potential in China. With hindsight, it is apparent that those launches shared several problems. For a start, these China launches were not assigned high priority by global headquarters, and none of them included China in the global registration trials. As a result, the China launches trailed the global launches by more than five years. These less-than-successful launches all faced some China-specific challenges related to pricing, reimbursement, and regulatory approval; these challenges went beyond the scope of the companies' original global plans for the products.

In the absence of a China-tailored strategy and lacking top management's full attention, the launches suffered from underinvestment, or were delayed, or both. The launch of a top global immunology drug provides one of the most extreme examples. Its registration-approval process was halted midstream for two years, largely because the reshuffling of the company's clinical investment priorities led to China not being seen as a principal global focus.

Tailor the launch plan, with early investment in capturing the most relevant local insights

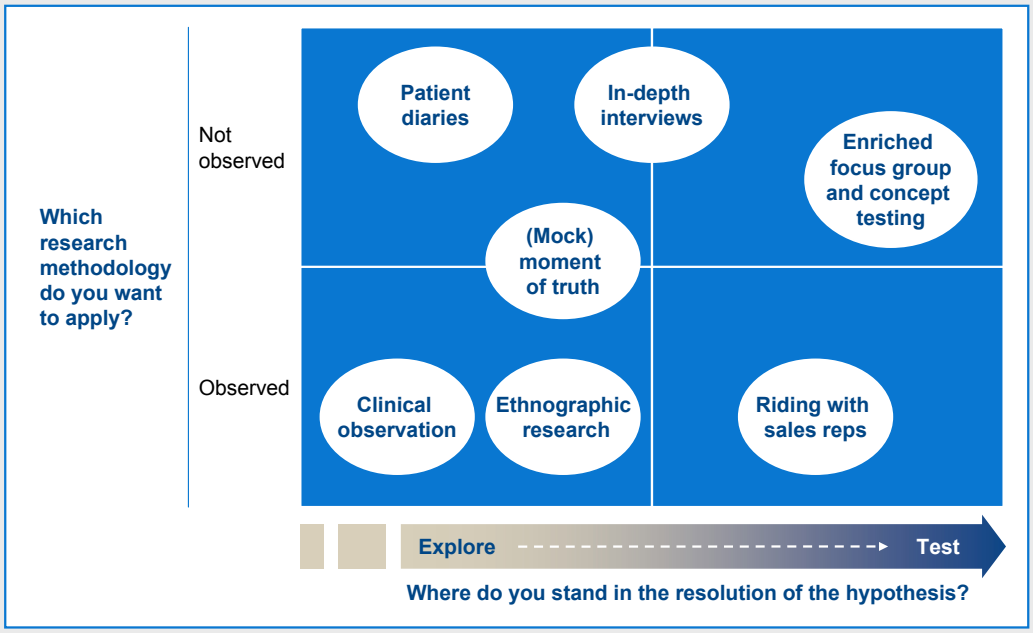
Most seasoned executives in multinationals understand the challenge and difficulty of gathering credible market data in China. As hard as the task might be, it is essential. Having the best local data cannot ensure success, but having no data—or worse, using the wrong data—can completely derail a launch and make it very hard, if not impossible, to recover. China is very different from the developed markets that are the multinationals' familiar turf, so it is critically important to make substantial early investments in understanding the Chinese market and its competitive dynamics for the effective local tailoring of a global launch. There may be significant differences in epidemiology, treatment guideline, medical infrastructure, and physicians' prescription-behaviors. As a first step, companies should consider primary research techniques that will complement the findings based on hard data (Exhibit 2). The research will help refine market understanding, identify unmet medical needs, and reveal market archetypes and segmentations. It is very important to gain qualitative insights before looking more deeply into larger-scale quantitative research.

Multinationals should not make the misguided assumption that a global launch approach can be successfully replicated in China. That it will not was evidenced by the launch of Lantus, another global blockbuster, early in the first decade of this century.[1] At the time of the Lantus launch, market epidemiology data on diabetics, especially data on insulin-dependent patients, were scarce in China, so Aventis China decided to apply the company's global launch strategy, targeting type-1 diabetes patients with doses to be administered once a day. That was certainly the right approach to take in global markets, where type-1 patients are fairly common and the ease of administration is highly valued by general physicians. This approach did not work quite as well in China: there are far fewer type-1 diabetics in China than in typical developed markets, so it was difficult to find the target patients, and at that time there were hardly any general physicians in China. Specialists, who were important players in the sales chain, and largely remain so, do not place great value on ease of administration.

Aventis eventually fixed the drug's brand direction, and Lantus has since entered a period of rapid growth in China, ringing up annual sales of $100 million as of 2011.

1 Lantus was developed by Aventis before that company merged with Sanofi-Synthélabo in 2004, eventually becoming Sanofi.

Exhibit 2: Creative qualitative research techniques can be leveraged to complement hard-data findings



Source: McKinsey analysis

Crucial though it is to invest in local market research, pharmacos must be aware of a big caveat: demand for qualified researchers outstrips supply, so it is difficult to achieve high-quality results. Small entrepreneurial research shops are flourishing, and they are drawing talent away from the larger firms. Research enterprises that offer one-stop shopping and execute top-notch qualitative and quantitative research are rare. As a consequence, experienced companies have established dedicated market-research departments that manage dozens of agency relationships for access to specific types of research techniques. They cover a wide range of research objectives, focusing variously on physicians, patients, family caregivers (for certain diseases), distribution, and competition. The bottom line on market research in China: *buyer beware*.

Build demand by using a broad-based local medical strategy

China's leading clinical practitioners and opinion leaders in healthcare want to stay at the forefront of clinical research and keep pace with their global peers. They are typically eager to lead or participate in global trials. Their early involvement and experience with such trials can go a long way in shaping treatment guidelines for a new product and helping determine its initial clinical use and market adoption.

A prime example is Sanofi's Plavix, used to prevent strokes and acute coronary syndromes (ACS). Sales of Plavix approached $400 million in 2011, ten years after its launch, which made it the best-selling multinational brand in China. Behind its success was a medical strategy that generated significant amounts of local clinical data, engaging a broad set of key opinion leaders (KOLs) and other influential physicians along the way. To support the expansion of the drug's treatment indications, Sanofi completed a monumental five-year trial in 2005. The trial was global, but it remains the largest trial ever conducted in China.[2] Trials involving large numbers of local patients can go a long way towards providing much-needed local clinical evidence that increases awareness of diseases and shapes the practices of the medical community.

2 The project encompassed 45,000 patients in 1,200 hospitals throughout the country.

Roche's recent launch in China of Avastin, a cancer drug, is another example. Roche, a leading developer of specialty drugs, put together a comprehensive strategy to support the Avastin launch. The program placed a strong focus on educating China's top 20 to 30 KOLs about the unmet medical needs that Avastin addresses. The effort included building a knowledge-exchange platform through a series of meetings with local experts. The program also fostered exchanges and collaboration among KOLs in China and the United States. Roche initiated a local clinical study to collect real-life data to illustrate the unmet needs that Avastin was intended to fill. Additionally, the company established a patient education program in hospitals by partnering with the Ministry of Health.

Get the pricing right

The set of pricing considerations that applies in global markets is also relevant in China. Pricing a new product is a sophisticated balancing-act that involves a range of factors, including affordability (patients' ability to pay out-of-pocket and post-reimbursement prices), the signaling of a drug's special attributes, macro policy trends, and global pricing comparisons. A holistic approach is generally required to integrate insights from global benchmarking, as well as from local research that polls physicians, patients, and payers. One nuance that distinguishes China from developed markets is that data on pharmacos' economics are 'nice to have' but not mandatory for government pricing submissions (Exhibit 3).

Exhibit 3: In China, setting the right launch price is becoming more than just copying the global guidance

Determining the optimal price for the China launch of Product X

1. **Global benchmark**
   - How do other markets price Product X?
   - What are competitors' prices in respected markets?
2. **Physician research**
   - What price do physicians consider appropriate for Product X?
3. **Patient research**
   - What are patients willing to pay for Product X?
   - How will patients' ability to pay evolve?
4. **Payer research**
   - When will the product likely achieve NRDL approval?[1]
   - What is the pricing regulation trend?
5. **Health economic data (nice to have)**
   - How much of a price premium can Product X's clinical benefits and medical-cost savings justify?

1 NDRL: National Drug Reimbursement List

Source: McKinsey analysis

The complexity of pricing in China can partly be explained by this vast country's wide regional variations, but it also stems from rapidly-increasing incomes that disturb the trade-offs in price-volume elasticity. Another factor is the wide variation in physicians' and patients' perceptions of the cost-benefit trade-offs of various pricing moves. As a result, pharmacos that set their product prices skillfully in response to these variables can send successful signals about the efficacy and quality of the products, which is a classic branding tactic.

The importance of pricing is evident in the outcomes that followed the launches in China of examples of cardiovascular, antiviral, and diabetes products. Their varying degrees of success highlight the importance of calculations and analyses that are necessary for setting the right price.

In 2007, while preparing to launch a cardiovascular product, a leading pharmaco decided to price the drug at about 10 percent higher than the competing incumbent. The comparative pricing measure was the per-unit dosage: thus, the price for a 10-milligram pill would be 10 percent higher than the price of the competitor's 10-milligram pill. The company's goal was to signal that its new product was a newer-generation drug with better efficacy, but had neglected to consider a key characteristic of its competitor's product: although the competing product's initial dosage was 10 milligrams, the typical *maintenance* dosage was 20 milligrams. Physicians and patients therefore got the impression that the effective daily-treatment cost for the new product was actually less than the incumbent's, which made it more difficult for the new product to be positioned as the premium brand. The lesson learned was that local physicians and patients tend to view drug pricing in terms of overall treatment cost rather than cost per unit.

A parallel example comes from a different leading pharmaco's launch of an antiviral product. As it approached the launch, the company decided to send strong market-positioning signals that included pricing the product at almost three-times the price of the long-established incumbent. The goal was for the new product to convey its highly-differentiated clinical efficacy. The market reacted positively, and the product attracted a sufficiently large pool of patients during its early years on the market, even in the absence of national reimbursement.

Another pharmaco took a similar approach to the pricing of its diabetes product, launching it at three-times the price of its competitor's comparable drug. However, the move backfired quickly when patients and physicians, who did not see the product as addressing a strong unmet medical need, viewed it as too expensive.

Build strong market-access capabilities at national *and* local levels

Many multinationals have strong national-level capabilities but lack comparable capabilities on the local level. Because it is essential to be competent at both levels, companies must commit resources in several ways.

They must invest in the capability to engage with government affairs so as to secure national and provincial reimbursement status. Multinational pharmacos are generally strong in this area, having acquired significant experience of handling national reimbursement processes over the past decade. They typically prepare a year or two ahead of the reimbursement reviews that occur every four or five years. For such competent players, government affairs becomes a matter of continuing to pay attention to the essentials and not 'dropping the ball'.

Pharmacos should also bolster their relationships at the provincial and city levels by investing in commercial teams and distribution partnerships to protect local prices. Multinationals tend to be less prepared on this front. Many regional and local distributors have longstanding relationships with the local hospitals and government administrators that reach back to the days of China's planned economy; very few multinational pharmacos have such deep connections or any intimate understanding of local policy dynamics.

Recognizing this problem, the leading multinationals have built large commercial teams to develop and manage local distributor relationships at a level beyond basic collaboration on pure logistics. Well-positioned distributors can explain local policy trends and serve as door-openers and lobbying partners. For example, during annual government tendering sessions in the largest inland province of Xinjiang, where multinationals are relatively recent arrivals, the local government tendering committee would, until recently, refuse to meet an unfamiliar pharmaco representative who was not accompanied by trusted local distributor personnel.

In the past it had been a relatively straightforward task to persuade a hospital to add a new product to its formulary list; typically this task was handled by a sales team. However, the enhanced stringency of the regulatory environment and the increase in cost-pressures on hospitals have given senior hospital administrators (the hospital director and formulary head pharmacist, among others) more explicit authority over the formulary listing and more control over prescription budget costs. The regular frontline sales professionals are trained

to deliver product messages and to interact with physicians, and their incentives are tied to sales performance. In general, however, they lack the skills and support to engage hospital administrators on a wider range of strategic topics. In response to these new imbalances, the more sophisticated multinational operators have been changing the way that they manage their approaches to selling. Increasing numbers of pharmaceutical companies have been investing in key account management (KAM).

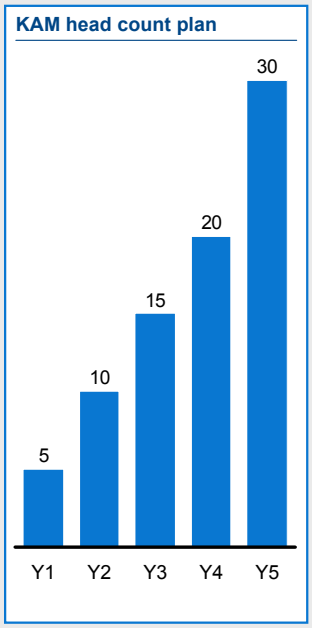
KAM teams work to persuade hospitals to add new products to their formulary lists and loosen restrictions on their spending decisions. The listing process itself has become time-consuming and complicated, and marked by large local variations, with the result that the KAM function has become specialized and has grown in importance. For new products to gain momentum through clinical experience, the listing process remains a critical hurdle that must be cleared.

As a new product becomes more successful, the KAM teams confront new challenges. Hospitals in certain high-spending regions such as Shanghai face intense pressure to control basic medical costs. In the absence of more sophisticated measures, some hospitals opt to cap their budgets for high-volume and expensive prescription products. The KAM team is responsible for anticipating such actions at key hospitals and for finding and implementing ways to mitigate the situation (Exhibit 4).

Exhibit 4: Invest in a key account management team (KAM) to drive hospital listings and mitigate risks

SANITIZED CASE EXAMPLE

	Description
KAM profile	▪ Relatively senior (prior District Sales Manager experience or above) ▪ Established relationships with key stakeholders (for example, hospital and department heads, KOLs)
Organization	▪ 30 KAM members, part of overall sales organization ▪ Report to Regional Sales Manager, parallel to DSMs ▪ Separate team from field sales force
Key responsibilities	▪ Hospital listing for priority hospitals across products ▪ Not necessarily tied to any one drug. KAMs could cover two or three key drugs for all hospitals within their allocated region ▪ Build and maintain good relationships with priority hospitals ▪ Mitigate prescription caps and risk of delisting
Coverage	▪ About 20 top cities ▪ 10 to 15 highest-potential hospitals in each city (200 to 300 hospitals overall) ▪ 7 to 10 hospitals per KAM
Incentive scheme	▪ Performance linked to the number of target hospitals listed and sales target achieved within the region



Source: McKinsey analysis

Scale up marketing and sales coverage to the right size and at the right rate

It is essential to scale up the sales force and supporting functions to suit the size of the opportunities in China. Established multinational pharmacos do not subscribe to the illusion that China is a single monolithic market: they think of the country as the Asian equivalent of Europe, with dozens of sub-regions and considerable variety in geographic landscapes, levels of economic development, and cultural preferences. A feature that is of particular relevance to pharmacos is that the regions are widely divergent in terms of their medical infrastructures and the capabilities of their physicians.

There is little debate about the absolute numbers needed to handle marketing and sales opportunities throughout China. Every pharmaceutical company must have a full-scale

commercial presence that is large enough to provide the necessary reach and enable customized approaches at local levels. For the effective marketing and sales of specialty-care products nationwide, companies should have an estimated 100 to 200 full-time sales representatives and managers deployed across the country for each product at peak-sales periods. The coverage should be sufficiently concentrated in the several hundred largest hospitals that have more than 1,000 beds.

By contrast, 500 to 1,000 professionals are required to market and sell primary-care products at the top 4,000 to 5,000 hospitals. However, opinions differ widely about the optimal amount of time needed to scale up these marketing forces. One traditional view holds that it is important to postpone the active support of a launch until after the product is added to the national reimbursement list, because this delay ensures that the pool of patients who can pay for the product has adequately expanded. However, national reimbursement reviews take place only every four or five years, and the wait is even longer (and may be indefinite) for certain premium-price products such as targeted oncology therapies.

How quickly should pharmacos scale up their marketing and sales staffs to support a product's launch? There is no one all-purpose answer. In practice, each company must identify what works best for its products, basing its plans on a detailed understanding of regional variations in terms of unmet medical needs and willingness to pay, as well as existing and predicted levels of reimbursement.

Leading companies are investing time and resources to acquire a detailed understanding of the reimbursement situation, city by city. They do this by leveraging local policy and market research (on patients and physicians) to assess patients' true readiness to pay out-of-pocket costs. They also use this approach to understand how the presence or absence of reimbursement affects physicians' decision-making about prescriptions. As a result of their investigations, these companies have identified pockets of opportunity in market segments where a product can be launched aggressively, even in the absence of reimbursement.

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New product launches are critical for top multinationals, and the failure to maximize new products' potential will damage their ambitions.

The sheer scale of the opportunities China offers and the diversity and complexity of government relationships, consumer expectations, and regulatory oversight together mean that, in terms of new product launches, China is in a class of its own. Our guidance is that multinational companies need to adopt and maintain a multidimensional view of the terrain. They need to combine a long-range outlook while pacing their moves in response to the evolving situation on the ground. They need to strategize and engage at both national and local levels; and they need to devise ways of filtering the best of their core wisdom and skills through a rich awareness of the specifics of the Chinese markets. The six lessons we have presented here do not constitute an exhaustive framework for planning pharmaceutical product launches in China but, taken together, they go a long way towards helping business leaders improve their odds of success.

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Modern perspectives on traditional Chinese medicine

Modern perspectives on traditional Chinese medicine

Bing Chen and Jin Wang

Traditional Chinese Medicine (TCM) constitutes a large and untapped market segment for multinationals, and can be a valuable source of innovation. Understanding the TCM sector's size and structure, regulatory framework, and unique drivers and risks will help these companies capitalize on this unique opportunity.

Traditional Chinese medicine holds a unique place in Chinese healthcare. It is widely accepted by the Chinese population—old and young, urban and rural. Its core concepts of balance and life force are deeply rooted in Chinese culture and have had a profound impact on generations of Chinese medical practitioners as well as patients (see sidebar: "What is traditional Chinese medicine?").

The dynamics of the TCM market, however, are not well known, especially to global pharmaceutical companies and investors. Understanding the market's size and structure, regulatory framework, and unique drivers and risks will help these companies capitalize on opportunities in Chinese healthcare.

Sizing up the opportunity

Before we assess the size of the TCM market, we have to define it. Despite its long history, TCM has no commonly accepted definition—nor a single approach for measuring its size. One government source reported a "total TCM industry output" of 350 billion renminbi ($55 billion) in 2011.[1] We cannot interpret this output figure as market size, however. All Chinese companies that classify themselves as being in the TCM industry are probably included, along with revenue from non-TCM businesses, such as Western drug manufacturing and raw materials.

We use a different definition, one based on the methodology commonly employed to estimate the size of the market for Western pharmaceuticals. We define the market as herbal medicines formulated according to traditional Chinese philosophy. Raw herbs (*yin-pian* 饮片) are excluded, as are highly purified active compounds extracted from herbs and other botanical drugs and extracts that are not based on traditional Chinese medicine. Given this definition, we estimate the market size (focusing specifically on the "ex-manufacturer" price, that is the price for products emerging directly from the manufacturer) at $13 billion in 2011.

The TCM market is split fairly evenly between over-the-counter (OTC) remedies ($6 billion) and prescription drugs ($7 billion). TCM comprises almost 50 percent of China's OTC market, and over the past five years, the TCM segment of the OTC market has recorded a 10 percent annual growth rate, similar to that of China's OTC market for Western medicines.

1 Chinese pharmaceutical industry yearbook, published by the Ministry of Industry and Information Technology

What is traditional Chinese medicine?

The origins of traditional Chinese medicine (TCM) can be traced to Shen Nong Shi, a mythological figure dating from roughly 5,000 years ago. According to legend, Shen Nong Shi, also called Emperor Yan, sampled hundreds of herbs for use as medicines. The formal history of TCM starts approximately 2,500 years ago with ***The Yellow Emperor's Inner Classic***, the first written account of its practice (Exhibit).

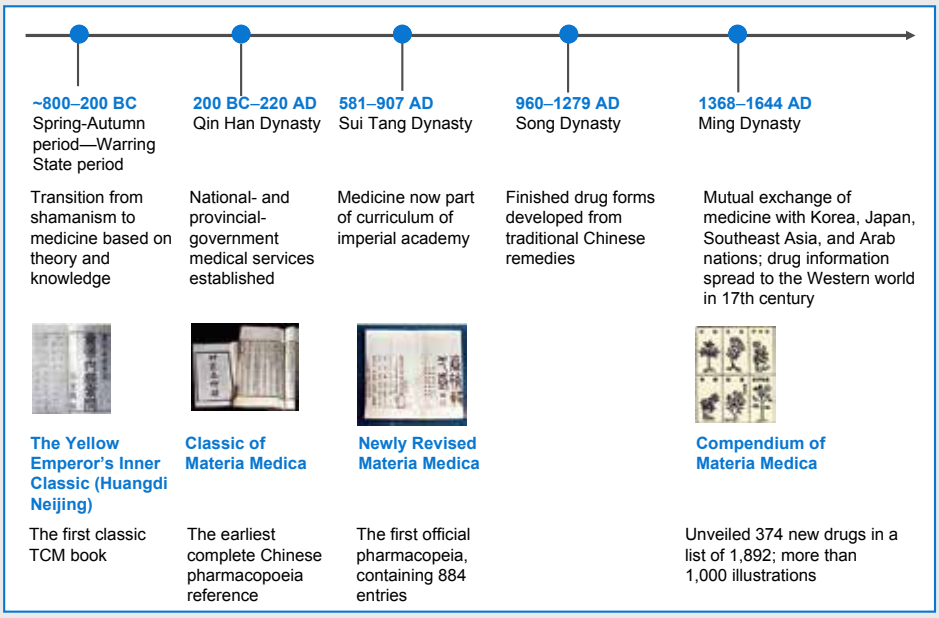
TCM views a patient's condition as a reflection of the interaction of five elements of nature: wood, fire, earth, metal, and water. The goal is to treat each patient holistically, with prescriptions tailored to the individual patient's condition. Chinese consumers generally perceive TCM as more effective for disease and chronic-illness prevention, and they view Western medicine as being more effective for acute and serious illnesses.

Another major difference between TCM and Western medicine is that, until recently, TCM has relied on patients' experience, not clinical trials, for proof of efficacy.

Traditional medicine is founded on the following core concepts:

- ***Qi.*** This is the vital energy or life force that circulates in the body through a system of *meridians*, or pathways. Health requires balance and harmony in the circulation of *qi*.
- ***Yin-Yang.*** Balancing the opposing conditions of *yin* and *yang* is one way to maintain the harmony of *qi*. Too much or too little of either *yin* or *yang* causes disorder or illness. *Yin* represents cold, darkness, female, and moon. *Yang* embodies heat, light, male, and sun. *Yin* and *yang* illustrate how polar or seemingly contrary forces are interconnected and interdependent in the natural world and how they give rise to each other.
- **Five Elements.** Five elements of nature—wood, fire, earth, metal, and water—interact in the body. These elements correspond to particular organs and tissues in the body. For instance, the liver (wood phase) is the mother of the heart (fire phase), and the kidneys (water phase) are the mother of the liver.

Exhibit: Traditional Chinese medicine: ~2,500 years of recorded history



Source: Literature search

TCM combines raw materials, principally herbs, to treat disease. Historically, the formulations incorporated as many as 10,000 ingredients, 90 percent extracted from herbs and 10 percent from animal by-products and minerals. Today, practitioners of TCM regularly use around 300 ingredients in their widely available formulations. Any given formulation requires 4 to 8 ingredients, on average.

The principle used for combining ingredients has its origins in the imperial-ministerial-assistant-servant (*jun-chen-zuo-shi*) framework, documented 5,000 years ago in the *Shen Nong Herbal Encyclopedia*. The framework calls for imperial herb (*jun*), the chief herb or main ingredient of a formula; the ministerial herb (*chen*), ancillary to the imperial herb, which augments and promotes the action of the main ingredient; the assistant herb (*zuo*), which reduces side effects of the imperial herb; and the servant herb (*shi*), which harmonizes or coordinates the actions of the other herbs.

Although only 10 percent of China's two million physicians are trained exclusively in TCM, most medical school students receive some training in the discipline. They can prescribe TCM medications that have earned State Food and Drug Administration (SFDA) approval.

Chinese consumers of TCM use OTC remedies to treat pain, coughs and colds, sore throats, gastrointestinal problems, and dermatological issues. In addition to these categories, which are also common in Western medicine OTC market, TCM accounts for the majority share of several categories of particular interest to Chinese consumers. Some of these treatments are "kidney supplements," kidneys being, according to TCM, the "prenatal root source of the human body" and seen in a very different light from that of Western medicine. Other traditional treatments strengthen weak constitutions, a condition which TCM characterizes as one in which the body is deficient in either *qi*, or *blood*.

TCM accounts for 10 percent of the prescription drug market. Three-quarters of TCM prescription drugs are in cardiovascular, oncology, gynecology, and urology categories. Since 2006, prescription drugs have been growing at a compound annual growth rate of 20 percent, which is slightly lower than the growth of the Western prescription-medicine market. Exhibit 1 provides profiles of selected TCM products.

'Classic' and 'modern' local companies compete in the still-fragmented market

Approximately 1,000 local companies play in the highly fragmented TCM market. Most of these companies target both the OTC and the prescription markets. Only a handful (for example, Sanjiu Pharma, Tasly, and Tong Ren Tang) boast revenues that exceed $200 million. Together, this handful of companies comprise approximately 20 percent of the TCM market.

Leading players generally fall into "classic" and "modern" categories. Classic companies, such as Tong Ren Tang, Dong-E E-Jiao, and Yunnan Baiyao, concentrate on TCM and benefit from a strong brand equity rooted in their long history. For example, Tong Ren Tang was founded in Beijing more than 300 years ago and served the Qing royal family for nearly 200 years.

Most modern companies, such as Sanjiu Pharma and Tasly, offer a diverse portfolio of both TCM and Western medicines and have been building their brands over the past 10 to 20 years. For example, Sanjiu Pharma offers four important OTC products: two TCM products that lead in their respective markets (999 Wei-tai, for gastrointestinal issues, and 999 Zheng Tian Wan, for pain), one Western drug (999 Pi Yang Ping, for dermatological issues), and one combination product (999 Gan Mao Ling, for colds).

Distinct capabilities are required to manufacture TCM and Western medicines. For TCM, raw herbs must be sourced, cut, weighed and mixed, extracted and separated, and then dried and prepared for use. For these tasks, companies use specially designed equipment such as

Exhibit 1: Sample TCM products

Nin jiom pei pa koa

- **Indication:** cough and sore throat
- **Mechanism:** eliminate the "heat" in the lungs, moisten the lungs, resolve phlegm, and relieve cough
- **Key ingredients:** bulbus fritillariae cirrhosae (川贝), folium Eriobotryae (枇杷叶), exocarpium citri grandis (化桔红), radix platycodonis (桔梗), semen armeniacae amarum(苦杏仁), and radix glycyrrhizae(甘草)

Qizheng xiaotong patch

- **Indication:** Rheumatoid arthritis in adults, swelling and inflammation, lumbago, shoulder periarthritis, and tennis elbow
- **Mechanism:** improve blood circulation by removing blood stasis at the affected areas
- **Key ingredients:** unknown; protected as a national secret recipe

999 Zheng Tian Wan

- **Indication:** neural headache, vascular headache and migraine, premenstrual headache
- **Mechanism:** quicken the blood and transform stasis, eliminate dampness
- **Key ingredients:** Szechuan lovage root (川芎), angelica root (白芷), Chinese wild ginger (细辛), and ledebouriella root (防风)

Danhong injectable

- **Indication:** chest distress and palpitations, cerebral infarction, stroke, and myocardial infarction
- **Mechanism:** promote blood circulation and remove blood stasis
- **Key ingredients:** salvia miltrorrhiza (丹参) and safflower (红花)

Source: Company websites; product labels

blenders, extractors, and spray dryers and follow defined processes. Similarly, companies engaged in R&D based on TCM theories require very different expertise, for example, extraction and characterization of effective fractions of herbs.

On the other hand, the sales, marketing, and distribution of TCM and Western medicines are similar in terms of practice and required capabilities. This is particularly true for OTC products. With the exception of classical brands and formulations, Chinese consumers do not always know whether a product marketed on television or sold in a retail pharmacy is a TCM or a Western drug. And local companies that offer prescription drugs are increasingly using sales and marketing practices borrowed from the West, including academic conferences, one-on-one physician detailing, and clinical research to demonstrate their efficacy.

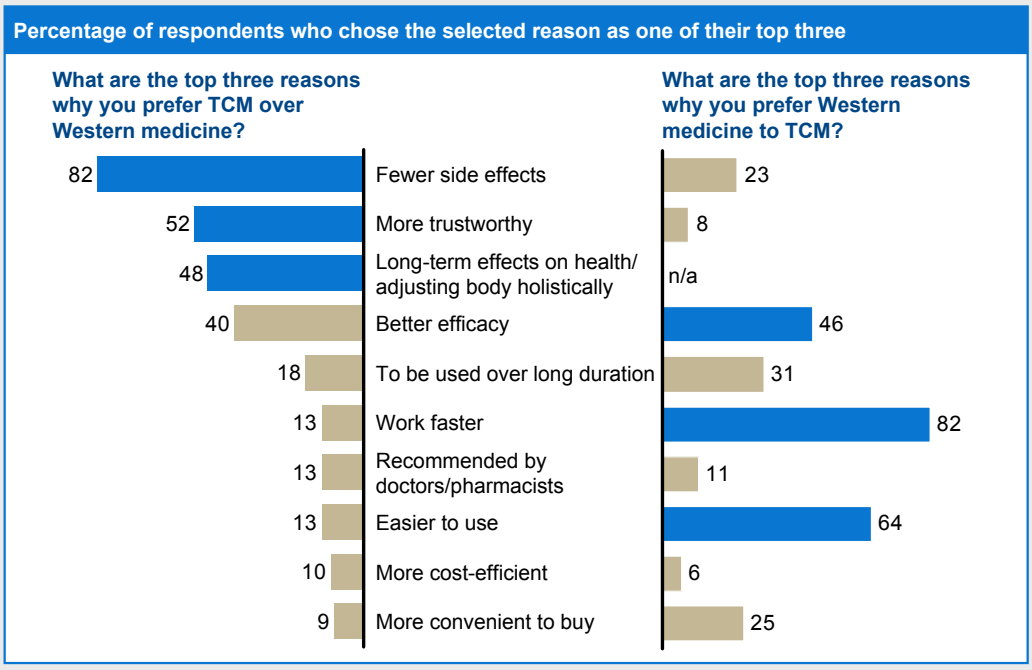
Widespread consumer appeal and innovation drive growth

The same factors that drive growth in demand for healthcare are spurring a concomitant rise in demand for TCM. According to *McKinsey Insights China—Consumer Survey 2010*, 52 percent of the respondents regard TCM as "more trustworthy" than Western treatments, and 82 percent believe TCM treatments have fewer side effects. Almost half of respondents said that they prefer TCM due to the "long-term effects on health/adjusting body holistically," though 82 percent think that Western drugs "work faster" and are therefore more suitable for acute problems, and 64 percent think Western drugs are "easier to use" (Exhibit 2).

Local companies are already stepping up their R&D efforts to create innovative dosage formulations for classic products, thereby addressing TCM's disadvantages and expanding the market. For example, Huoxiang Zhengqi, a classic TCM formula for the treatment of digestive problems, comes in the form of large pills that are bitter, difficult to swallow, and slow to act. Tasly and China Shineway Pharmaceutical Group have both altered their processing techniques to create more convenient and faster-acting formulas, including soft capsules, liquids, and very small pills ("dripping pills"). These new formulations have price premiums five to eight times the price of the classic pills and other undifferentiated dosage forms such as liquids and capsules.

Efforts to develop new products based on TCM principles are also under way. According to the definition of TCM products of the State Food and Drug Administration (SFDA), there are

Exhibit 2: Chinese consumers demand TCM



Source: McKinsey Insights China survey

two classes of products that are truly innovative—Class I (extracts and preparations from plants, animals, and raw materials that have not yet been launched in China) and Class II (newly discovered Chinese herbs and their preparations). From 2005 through 2011, SFDA approved six Class I and Class II TCM products.

Multinational companies are exploring ways to combine Western approaches to drug discovery with the material repertoire of TCM. For example, Novartis has a six-year research partnership with the Shanghai Institute of Materia Medica (SIMM) to identify and test the pharmacological properties of traditional medicines. Others are investigating existing traditional medicines to screen for active ingredients that might complement their global chemical pipeline.

While these multinational companies are doing research in China, leading Chinese players in TCM are pursuing Federal Drug Administration (FDA) registration in the United States. The farthest along the pipeline is Tasly's cardiotonic dripping pill (Fufang Danshen Diwan), which concluded its Phase 2 trial in the US in 2010. Tasly announced in 2011 its plan to conduct a Phase 3 trial for this product.

A clear government priority

Recognizing the popularity of TCM, the Chinese government is actively promoting its usage as part of recent healthcare reforms. For example, all community health centers are now required to establish TCM departments staffed with physicians trained in TCM and equipped with a supply of traditional drugs.

Healthcare policies also mandate greater inclusion of and higher reimbursement rates for traditional drugs in the New Rural Cooperative Medical Scheme (NRCMS). NRCMS is a public insurance scheme that covers more than 800 million rural residents in China. In some provinces (for example, Shandong and Heilongjiang), the reimbursement rate for TCM is 5 to 20 percent higher than that for Western medicine.

Furthermore, the government has increased the number of TCM products on the National Reimbursement Drug List (NRDL): for example, 164 new TCM drugs were added to the 2009 NRDL, for a total of 987. Traditional medicine also accounts for one-third of the National Essential

IP protection category

- **Patent protection**, which covers special ingredients, quality standards, processing techniques, dosages, formulations, and design, is valid for 10 to 20 years. For example, Tasley's Fufang Danshen Diwan has patent protection for its ratio of raw materials and special processing techniques.
- **Innovative-drug protection** offers recently launched drug protection for their formulations and dosage forms for two to five years. This protection mechanism applies to both TCM and Western medicine.
- **Protected TCM** was initiated in 1992 to limit excessive competition among existing formulations. For each protected formulation and dosage form, there can be no more than ten manufacturers. Companies typically apply for Protected TCM status when their innovative-drug protection is about to expire. This protection is valid for 7 to 30 years.
- **Heritage Secret Recipe** offers exclusive protection for trade secrets, formulations, and processes. This IP mechanism lasts 5 to 20 years, but getting approval is very difficult. Fewer than 200 traditional drugs are protected under this category, and many of them—for example, Yunnan Baiyao, which is used to slow internal bleeding, and Pian Zai Huan, which is used to treat mouth ulcers and bee stings—were first introduced more than 100 years ago.

Drug List, which currently includes 307 drugs. Drugs on this list are provided at low cost primarily in grassroots healthcare facilities.

The central government has indicated its intention to modernize the TCM industry and encourage innovation. In the 2011 government Work Report, Premier Wen Jiabao identified the "development of the traditional Chinese medicine industry" as a national priority. China's 12th Five-Year Plan also "support[s] the development of the pharmaceutical industry to adhere to both Chinese and Western medicine...promote the heritage and innovation of TCM, with an emphasis on the development of TCM...." As one indicator of support, the government has invested $2.7 billion over the past three years in TCM clinical research centers and hospital infrastructure upgrades.

Contrary to the myth that intellectual property (IP) protection is very weak for TCM as a result of its long history, multiple IP mechanisms cover these treatments. Indeed, two forms of protection (Protected TCM and Heritage Secret Recipe) are specific to TCM (see sidebar, "IP protection category").

The challenges for TCM's development

The challenges that China faces in making the pharmaceutical sector (including Western medicine) more competitive and accepted globally are all relevant to TCM. These challenges include dealing with the fragmentation of players with largely undifferentiated products as well as building capabilities in innovation.

In addition, however, the TCM industry faces two specific challenges that will continue to constrain its growth in China and global expansion, and the TCM industry needs to determine the best ways to assess efficacy and ensure safety. The current shortfalls in these areas have inhibited multinational companies' significant engagement with TCM so far.

How to assess efficacy

SFDA regulations require TCM manufacturers to follow clinical procedures similar to those required of their Western counterparts. For instance, three phases of clinical trials are required prior to new-product approval.

Exhibit 3: Clinical trials do not meet US FDA standards

	FDA	SFDA for TCM
Trial time line	▪ Phase 1: 6–12 months ▪ Phase 2: 1–2 years ▪ Phase 3: 2–3 years	▪ Typically, 8–12 months per phase, with variations depending on therapeutic area
Number of patients[1]	▪ Phase 1: 10–50 or more healthy volunteers ▪ Phase 2: 100–500 or more patients ▪ Phase 3: 1000 or more patients	▪ Phase 1: 20–30 healthy volunteers ▪ Phase 2: 100 or more patients ▪ Phase 3: 300 or more patients
Clinical endpoints	▪ Safety and efficacy based on objective endpoints compared with placebo or comparator drug	▪ Endpoint is more subjective, set and approved by SFDA on the basis of the committee's judgment, on-site investigation, and double-checking of trial samples
Testing methods	▪ Double-blind randomized controlled trials	▪ Double-blind randomized controlled trials required but not enforced in 90% of cases

1 Refer to average trials

Source: FDA; SFDA; expert interviews

In practice, we have found that TCM manufacturers' trial designs, including time line, patient enrollment, clinical endpoints, and testing methods, do not yet meet US FDA standards (Exhibit 3). For example, although the SFDA requires double-blind randomized and controlled trials for all new drugs, the agency does not strictly enforce its regulation. In part, this is because many TCM products have unique smells and tastes, so it is difficult to create matching placebos. Also, the mechanisms of action in TCM are unknown, so indications are usually difficult to map onto the standards of Western medicine. As a result, setting objective clinical endpoints is not a straightforward task.

Most TCM treatment guidelines acknowledge the absence of conclusive evidence for efficacy. Consider this statement from China's National Cerebrovascular Treatment Guidelines: "Animal testing indicates that some TCM ingredients (for example, salvia, ligustrazine, puerarin, ginkgo biloba) or combinations of such can lower blood platelet aggregation, anti-coagulate, improve blood circulation to the brain, and lower blood viscosity. Clinical experiences have also demonstrated the effects in preventing ischemic stroke. However, currently, there is no large-scale, randomized double-blind study to demonstrate clinical efficacy and safety."[2]

A number of research projects are under way to improve efficacy testing of TCM products. The Murad Research Centre for TCM, headed by Ferid Murad, a Nobel laureate, is collaborating with the Shanghai University of Traditional Chinese Medicine to explore the physiological effects of active ingredients in traditional formulations. In addition, the Consortium of Globalization of Chinese Medicine, composed of more than 60 academic institutions worldwide, is also promoting research on traditional Chinese medicine.

How to ensure safety

China developed a Good Manufacturing Practice standard and made certification mandatory for all TCM manufacturers starting in 2003. However, there have been, on average, two to

2 National Cerebrovascular Treatment Guidelines (guideline published by the Chinese Medical Association in 2007), Chapter 2, "Brain Infarction," item 6.

three significant safety incidents every year in the past decade. Many of these incidents were associated with injectables (non-oral sterile injectables), a relatively new dosage form for TCM.

For example, injectable puerarin, a treatment for coronary heart disease, was linked to more than 1,000 adverse reaction cases and 11 deaths in 2006. The root causes of these incidents were classified under "unforeseen side effect" and "inconsistent product quality."

In response, in 2007, the government introduced more stringent monitoring requirements for the manufacture of injectable products. In 2009, the SFDA issued a Circular to Implement Safety Reassessment of TCM Injections. This is expected to significantly improve the quality and safety profiles of injectable products and lead to a consolidation of the market for injectable products.

□ □ □

There is no doubt that TCM, with its 2,500-year history and fresh momentum, will long continue to be an important part of China's healthcare market. Knowledge about TCM products and the local marketplace could help multinational pharmaceutical companies gain a better understanding of the competition for their Western medicine products. This is particularly important for OTC players: TCM has a large presence in China's OTC market and is in direct competition with Western medicine in many categories.

Furthermore, understanding the TCM industry could reveal attractive opportunities, including new sources of innovation, the possibility of developing new formulation and delivery technologies, and even taking the "big jump," joining the TCM commercial market by extending the boundaries of the product portfolio. It is fair to ask, "When will a big multinational jump into this space?"

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Pills, potions, and potential: The consumer healthcare opportunity in China

Pills, potions, and potential: The consumer healthcare opportunity in China

Rajesh Parekh, Felix Poh, and Ari Silverman

Consumer healthcare has to date taken a back seat to the larger prescription drug market for most multinational healthcare companies operating in China. But with a market that could reach $60 billion by 2020, it is time to rethink some of the misconceptions about China's consumer healthcare market.

The Chinese have taken to consumerism with ease, embracing thousands of new products, services, and brands. As the growth of the Chinese economy becomes driven increasingly by consumption rather than investment, McKinsey forecasts that China will become the world's second-largest consumer market by 2020.[1] Consumer spending on healthcare will become part of this rising tide of consumption-driven growth. Healthcare spending is projected to grow to an estimated 10.5 percent of urban households' total annual spending by 2020 (Exhibit 1). Indeed, the Chinese market has become the world's largest growth opportunity for suppliers of consumer healthcare products.

Despite the potential of China's consumer healthcare market, multinational companies have focused more intensely on—and made larger investments in—their prescription drug and medical device businesses in China. Why have multinationals not moved more aggressively into China's consumer healthcare market? Individual companies may have specific reasons for their particular approach. Still, our discussions with industry participants have brought to the surface several misconceptions about this market that may have led multinationals to adopt a cautious approach. As a result, they may have fallen behind their competitors in addressing issues that are important to building a winning consumer healthcare business in China.

In this paper, we present five misconceptions about China's consumer healthcare market and present the facts that set the record straight. We then consider—and discuss answers to—five questions companies should ask as they seek to build a winning business in this market.

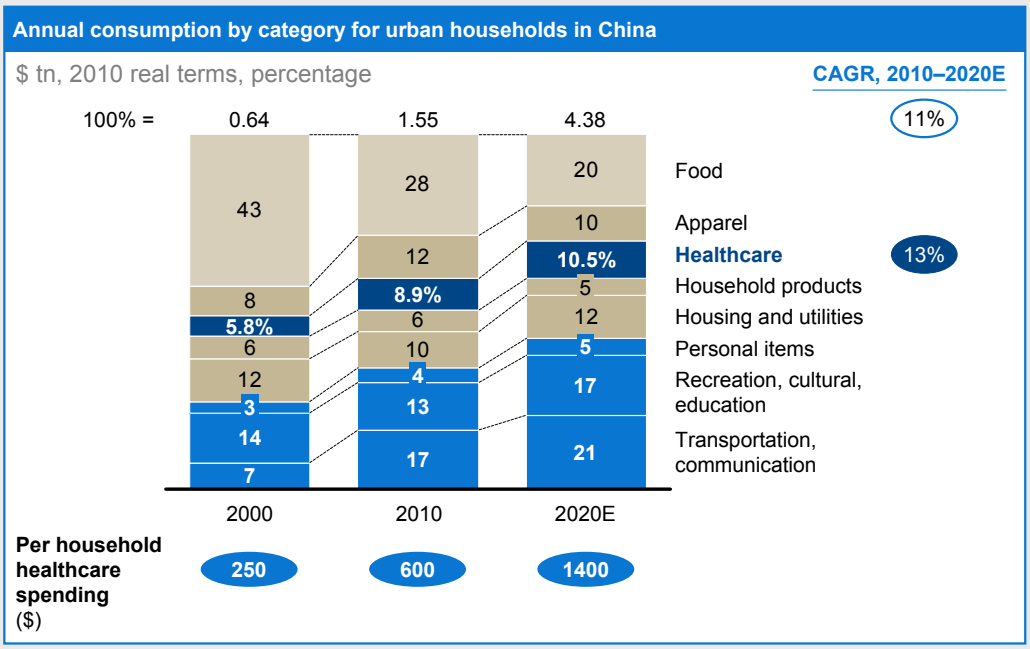
Five misconceptions about the market

Misconception 1: China's consumer healthcare market is small

Fact: The market is already large and is continuing to grow rapidly. In 2010, the markets for over-the-counter (OTC) medicines and health supplements were already worth a combined

1 From McKinsey's 2011 Annual Chinese Consumer Study: *The New Frontiers of Growth*. Since 2005, McKinsey has conducted the largest annual study of Chinese consumers, interviewing more than 46,000 Chinese consumers in more than 60 cities and allowing for a deep understanding of Chinese consumers' attitudes and spending behavior in more than 100 product categories. The respondents represent a wide range of incomes, ages, regions, city clusters, and city tiers and account for 80 percent of China's GDP, 90 percent of its disposable income, and 50 percent of the population.

Exhibit 1: China's consumer economy is coming to the forefront and healthcare spending as share of wallet is growing steadily



Source: McKinsey Insights China

$20 billion. And these categories are projected to grow at a robust rate of 12 percent per year, representing a total market potential of $44 billion by 2017 (Exhibit 2).

Demand growth will be driven by strong macroeconomic and consumer trends, including steady growth in income levels, increased urbanization, improved access to healthcare, and a greater focus on health and wellness by Chinese families. In addition, the market growth is supported by growing investments in advertising, promotions, and innovations (including new formulations and packaging) by leading local companies and some multinationals.

Misconception 2: China's consumer healthcare market is focused on traditional Chinese medicine (TCM), which is all about roots and herbs

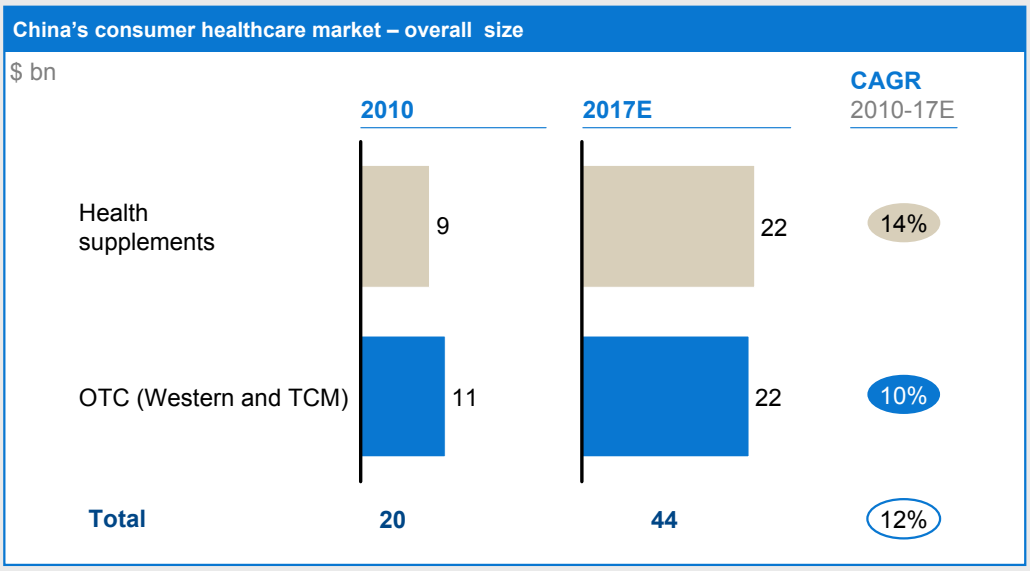
Fact: There is significant room in the market for both TCM and Western products. In the OTC segment, TCM and Western medicine are equally large markets, each worth approximately $5 billion to $6 billion in 2010 and forecast to grow to $10 billion to $12 billion by 2017 (Exhibit 3). Moreover, TCM products are increasingly offered in modern delivery formats such as pills, capsules, and sprays—not just loose roots and herbs—and are strictly regulated by the State Food and Drug Administration (SFDA). Health supplements, such as vitamins, minerals, and other natural products, are similar to those available in Western markets.

That said, consumers' perceptions and use of TCM and Western medicine OTC products differ markedly. Consumers perceive Western products as more effective than TCM products and tend to use them in more advanced stages of an illness. However, they also associate Western products with more side effects. Conversely, they think of TCM products as less effective, are more likely to use them in the early stages of an illness, and consider them to have fewer side effects.

Misconception 3: The market is highly fragmented, and it is difficult for a new entrant to build a sizable position

Fact: Although China's consumer healthcare market does indeed have a large number of competitors, it is less fragmented than the Chinese prescription drug market. The top ten companies command 30 to 40 percent of the market share across the Western medicine OTC, TCM OTC, and health supplement segments. In the prescription drug market, the top

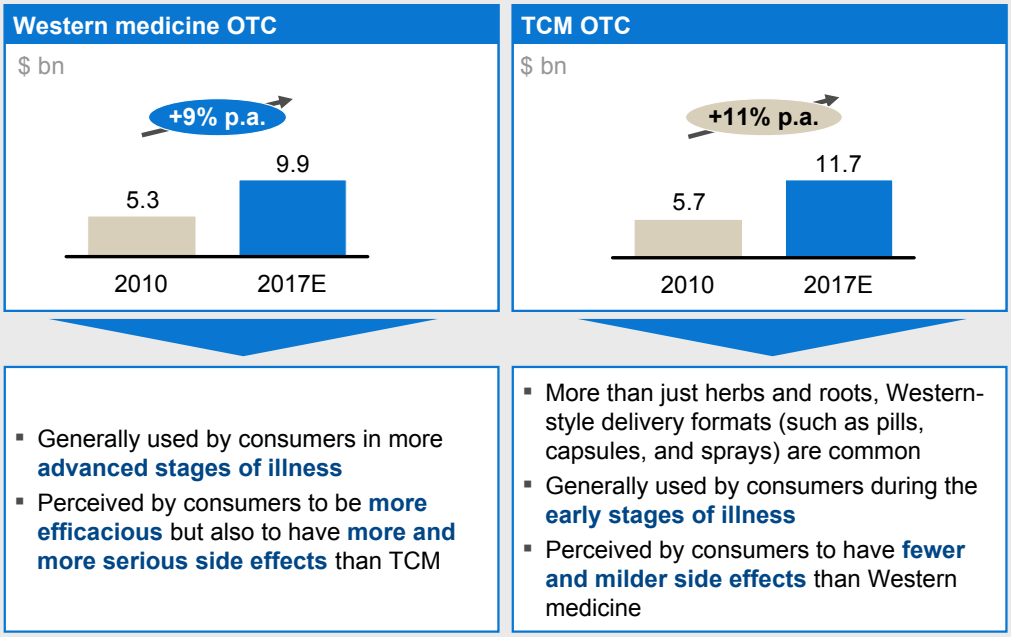
Exhibit 2: China's consumer healthcare market could be worth $44 billion by 2017



NOTE: Market value is at ex-manufacturer prices

Source: Nicholas Hall; Euromonitor; Blue Paper on OTC Industry Development in China (2010); McKinsey analysis

Exhibit 3: Western medicine OTC and TCM OTC are equally large markets



NOTE: Market value is at ex-manufacturer prices

Source: Nicholas Hall; Euromonitor; Blue Paper on OTC Industry Development in China (2010); consumer research; McKinsey analysis

ten companies account for less than 20 percent of the market. Similarly, while there are a large number of brands competing in any given category, more than 20 Chinese and multinational brands (for example, Daktarin, Caltrate, Si Da Shu, Nin Jiom, and 999 Gan Mao Ling) have been able to build leadership positions and cross the $100 million mark in annual sales.

Given the importance Chinese consumers attribute to brands and a brand's (or a company's) reputation, most leading competitors have been actively investing in brand-building initiatives for some time. The market is highly dynamic, however. Many new entrants have recently entered the

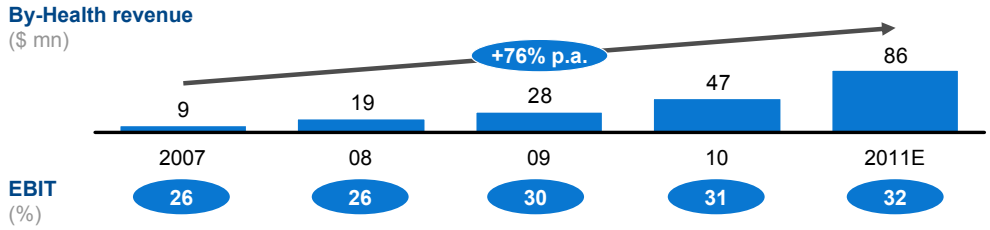
market and rapidly built sizable businesses. By-Health, a new entrant in the health supplement category, is one example (Exhibit 4).

Exhibit 4: Case study: By-Health

By-Health is a relative newcomer to the health supplement market

- By-Health **entered the health supplement market in 2002**, when the company incorporated in Guangzhou
- The company has a **comprehensive product line** that includes vitamins, minerals, supplements, and natural extract products
- It **invests heavily in brand building**
  - Signed Yao Ming as brand spokesperson
  - Invests ~10% of revenue in above-the-line marketing activities
  - Emphasizes the high quality of products and raw materials in ads
- By-Health developed **strong distribution capabilities** to penetrate different retail channels such as general modern trade, retail pharmacies, and e-commerce

Key financials



Source: Prospectus; annual report; company website; literature search; McKinsey analysis

Misconception 4: Success is all about winning in the retail pharmacy channel

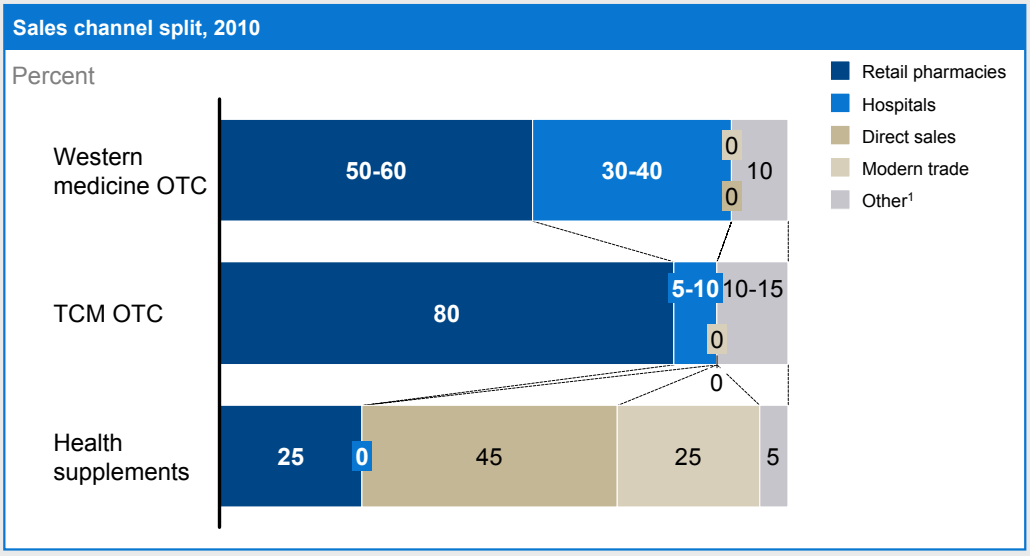
Fact: Winning in the retail pharmacy channel is important for OTC products, especially for TCM OTC, but this channel is not the only playing field. Hospitals continue to be an important channel for the sale of Western medicine OTC products, accounting for 30 to 40 percent of total sales. Retail pharmacies account for only about 25 percent of health supplement sales, while direct sales and modern trade, such as hypermarkets, supermarkets, and convenience stores, play a much bigger role (Exhibit 5).

In recent years, retail pharmacies have become an increasingly important channel for the sale of Western medicine OTC treatments and now represent 50 to 60 percent of sales. However, hospitals also continue to be an important channel for these Western products because a physician's recommendation can trigger many initial purchases. Indeed, for new product launches—and particularly for new OTC product categories—hospitals are a critical channel for establishing the brand with physicians and consumers.

Misconception 5: It is difficult to generate attractive margins in consumer healthcare

Fact: The high levels of investment required in both above-the-line advertising and promotion (through media such as television, radio, and print) and below-the-line approaches (including sales promotions, point-of-sale (POS) initiatives, and telemarketing) make it expensive to compete in China's consumer healthcare market. As a result, many companies fail to earn returns above the cost of capital. However, by employing the right business model and sufficient scale, it is possible to achieve attractive margins. Our analysis of available financial data of top competitors reveals that earnings before interest and taxes (EBIT) margins in the range of 20 percent are achievable. Such margins tend to accrue to the larger companies because they enjoy scale efficiencies stemming from their POS coverage and marketing investment, and these larger companies also generally have a broader portfolio of products to sell, leading to higher returns on investment. Conversely, a lack of scale may limit EBIT margins to 10 percent or less for smaller competitors or for companies in the midst of brand building and expansion.

Exhibit 5: Retail pharmacies and hospitals continue to be the main channels for OTC products, while modern trade and direct sales play a bigger role in other categories



1 Other channels include small clinics, home shopping, and online

Source: Euromonitor; McKinsey analysis

What does it take to build a winning business?

With these facts in mind, companies should turn to considering a set of five key questions as they seek to develop their strategy for winning in China's consumer healthcare market. While the following questions are not exhaustive, and each company's strategy and priorities will be different, the answers will provide a good starting point for efforts to define a strategy.

1) Should the company stay focused on core global brands or expand into new areas?

A central question multinationals face is whether to focus solely on areas in which they already compete globally or to expand into new areas that are specific to China. Expanding into new areas may present significant challenges, but companies that opt to stay within their "comfort zone" may severely constrain their market share. If Western OTC companies focus solely on Western medicine OTC products, they can expect to limit themselves to only 25 percent of the broader consumer healthcare opportunity. Building a comprehensive product portfolio (spanning OTC, supplements, and even health food) is important for gaining a competitive advantage: it positions the company to capture more shelf space within the retail channel, as well as greater support from retailers. Our research also suggests that companies can successfully leverage an "umbrella brand" strategy, applying its brand equity across a broader range of products. Sanjiu (999) is an example of a leading Chinese company that has successfully deployed an umbrella brand strategy (Exhibit 6).

To win in health supplements, however, Western OTC companies must augment their existing strengths. Retail pharmacies are an important channel, but mainstream modern trade and direct sales are more dominant channels that require new sets of capabilities in sales, trade marketing, and distribution.

Some Western OTC companies are taking steps to adapt to the health supplements segment by reformulating existing OTC vitamin products to meet the stipulated lower-dosage levels. For example, Pfizer has taken this approach with its Centrum multivitamin brand. In contrast, Sanofi has pursued an approach based on partnerships and acquisitions to quickly become a leading company in the market. For example, it has acquired BMP Sunstone, a company with strong local OTC brands in categories such as cough-and-cold treatments and women's

hygiene. It has also launched a joint venture with Minsheng Pharmaceutical Group to expand its presence in the multivitamin segment.

Exhibit 6: Case study: Sanjiu (999) Pharma

Key success factors

Consistent use of the "master" brand for product line extension	▪ Most of the OTC products are launched under the master 999 brand ▪ Consistently positions itself as a brand that "cares for consumers"  *"Warm your stomach"* **Wei-tai (GI)**  *"Good friend"* **Gan Mao Ling (CASF)**  **Zheng Tian Wan (Analgesic)**	**Strong sales and distribution network**	▪ The OTC sales team comprises approximately 800 people ▪ The sales team directly covers about 50,000 retail stores ▪ Over 250,000 additional retail stores covered by some 600 distributors
		Rigorous quality controls	▪ GAP certification for TCM ingredients plantation; GMP certification for drug manufacturing ▪ Implemented systems to improve internal processes and ensure quality since 2000, for instance ERP, and GSP

Source: Company website; annual report; literature search; McKinsey analysis

2) How can the company build large brands and manage its brand portfolio?

Many Chinese consumers, who typically have strong positive associations with well-known, highly successful brands, concentrate their spending on those brands, creating a virtuous cycle. Additionally, because television and mass advertising are essential in China, these brands benefit from their ability to invest in such advertising, enabling them to capture a disproportionate share of the profit pool.

In general, there are no shortcuts to building a successful brand. Companies need to sustain a long-term mindset, develop deep consumer insights, and ensure ongoing investment across each stage of the brand purchase funnel. Despite the challenges, we have seen some local companies use creative strategies coupled with aggressive investment to build relatively successful brands in a very short space of time.

For instance, Yunnan Baiyao, which placed first among pharmaceutical companies and 27th overall in Interbrand's 2011 ranking of top Chinese brands, successfully launched a new toothpaste in 2005. The company's focus on a core brand value of consistently maintaining homeostasis (internal stability) served it well when it began selling and promoting its toothpaste as being an effective treatment for bleeding gums. Despite its high-end price (three times the price of regular toothpaste), Yunnan Baiyao's product achieved sales exceeding $100 million by 2010: consumers trust the brand and the manufacturer's assertions regarding the product's effectiveness. Yunnan Baiyao has not simply relied on its brand heritage and product claims, however. It has launched award-winning advertising campaigns with a focus on families, and it regularly sponsors a series of street basketball games that appeal to youth and reinforce an image of vitality for its products.

Companies must also decide how to allocate investments across the portfolio of their brands. Some companies try to support all the brands they have registered in China. However, in many cases this has resulted in subscale investment across the board. What's more, local competitors in individual segments are able to out-compete the multinational brands, with local brands attaining two to three times higher share of voice.

3) Where should the company compete, and how can it win in lower-tier cities?

As is true for other consumer categories in China, the market for consumer healthcare products is not monolithic. There are significant differences across China in consumer preferences, responsiveness to promotional techniques, local competitive dynamics, and market potential per customer. Our consumer research reveals that China comprises 22 regional clusters, defined by economic linkages and consumer attitudes. For instance, across a broad range of consumer categories, in-store promotion is most effective in the Chengdu cluster, but considerably less effective in the Hangzhou cluster. And although, nationwide, being "fast acting" and having "limited side effects" are the two leading digestive-remedy buying factors, both factors rank significantly lower for consumers in the Nanjing cluster. To successfully navigate through these variations, companies must obtain a granular view of the market and tailor their strategy and execution to local needs.

Multinationals must also select the cities they will target for expansion. The OTC market is more dispersed than the prescription drug market, but our estimates suggest that for the vast majority of multinationals, the relevant market is concentrated in fewer than 150 cities.

Companies often struggle to balance the pace of expansion, the quality of execution, and their financial returns. Some companies have focused on maximizing returns from an initial set of top-tier cities only to find themselves with a very narrow geographic "footprint" while competitors have moved on to build strong positions in the next tier of cities. However, we have also seen companies that aim for very rapid expansion encounter a range of execution challenges that cause them to fall short of performance targets. This can result in the company pulling back on investments, which can initiate a downward spiral in the market.

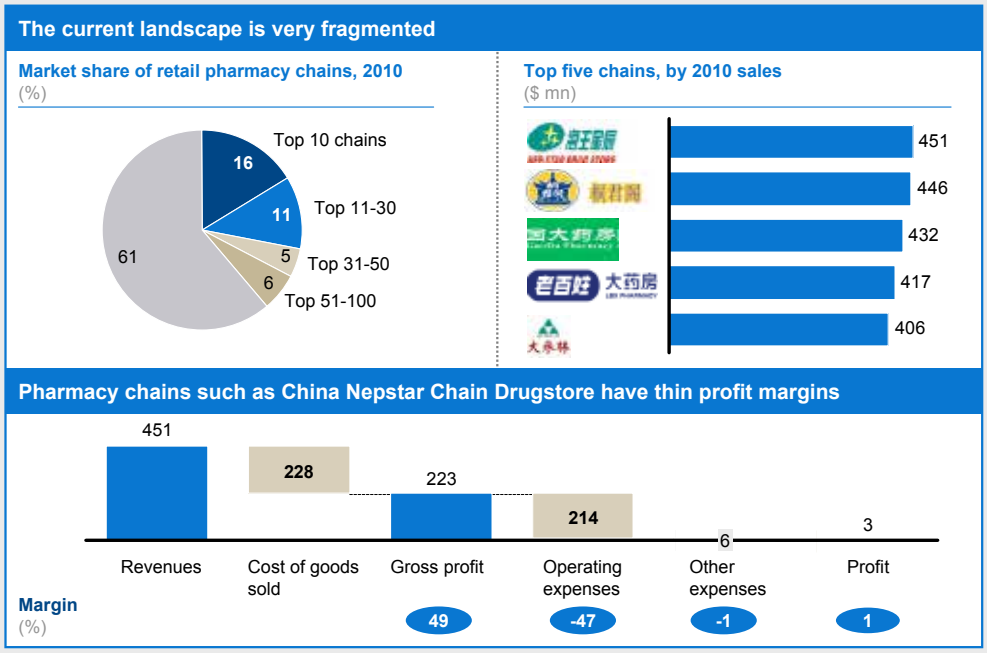
As they expand beyond the top-tier cities (top 20-30 cities), companies should determine how they can best work with distributors to increase coverage of relevant retail accounts. Working with distributors can be a cost-effective way to increase coverage, especially with respect to smaller retail outlets, but control mechanisms should be put in place to ensure effective execution at the POS. For instance, in-house sales managers can be tasked with overseeing distributor representatives as a form of "shadow management" aimed at ensuring that store activities are being carried out according to plan. Data system linkages between companies and the larger distributors are another effective way to monitor distributors' performance in terms of sales and inventory levels.

4) How can the company win the battle for consumers at the retail POS?

As noted above, the retail pharmacy is the largest OTC channel, and mainstream modern trade retail is extremely important for health supplements. The competition is fiercest at these retail establishments, and multinationals in particular need to adapt their approach to winning a share of the consumer's wallet. Investments in above-the-line marketing are necessary to create consumer awareness, and excellence in retail execution is necessary to convert awareness to brand purchases. Indeed, as many as 70 percent of China's consumers make their final purchase decisions in stores.

The retail pharmacy industry continues to be highly fragmented, and even the industry's leaders face significant challenges in generating acceptable returns (Exhibit 7). Their actions across categories are driven in large part by the economics offered them by suppliers. Local manufacturers tend to allow retailers significantly better margins, and, as a result, retailers have a strong incentive to actively encourage consumers to switch from, for example, a multinational's OTC brand to one of a local company. Multinationals generally rely on consumers' strong brand preferences, but they also tend to underestimate the potential for switching that can take place at the retail location. To counter their margin disadvantage, multinationals should invest sufficiently in below-the-line marketing activities with the goal of developing retailer loyalty and thereby increasing the likelihood that pharmacy assistants will support their brands rather than those of competitors. For instance, Xian-Janssen Pharmaceutical (XJP) holds Star Pharmacy Assistant competitions in partnership with its key accounts, evaluating pharmacy assistants on product knowledge, communication skills, and

Exhibit 7: The retail pharmacy industry is highly fragmented with low profitability



Source: Ministry of Commerce; trade publications; McKinsey analysis

customer service. It also conducts a range of other educational programs for store managers, all intended to build exposure to its products and gain the commitment of store personnel at key accounts.

5) How can the company capture the lead in the emerging digital channel?

The online retail channel for Western medicine OTC products is small but growing rapidly. The SFDA heavily regulates this channel, and online sellers of OTC products require a special license. Data from the SFDA indicate that more than 50 such licenses have been granted, an increase from 10 licenses three years ago. However, some key challenges remain. For one, health insurance does not cover OTC products purchased online. Furthermore, older consumers are big purchasers of OTC products, but their Internet penetration and use is lower than that of younger age groups.

In addition to its importance as a sales channel, the Internet is important from a digital marketing perspective. Blogs and online communities are fast becoming the modern-day equivalent of word-of-mouth and a powerful way of building brand awareness and credibility among consumers. In addition, the Internet can increase consumer engagement with products through the use of games and targeted advertising.

□ □ □

The outlook for China's consumer healthcare market is quite promising given the surge in consumption and consumers' increasing attention to health and wellness. The anticipated market size of approximately $60 billion by 2020 is too large to ignore, and winners can expect to build multibillion-dollar businesses by then. To win, companies must make strategic choices, regarding the product segments they will focus on, the brands they will promote, and the locations where they will compete. They must also adapt their commercial model to the realities of China. Because competition for the Chinese consumer is intense from both multinationals and local companies, companies aiming for leadership will need to take a long-term approach and continue to invest in developing innovative products and expanding their presence across China.

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Taking the best shot at China's vaccines market

Taking the best shot at China's vaccines market

Yinuo Li, Li Ma, and Rajesh Parekh

China's vaccines market offers an attractive opportunity with healthy growth potential. However, clear challenges arise from supply-side dynamics and channel complexities. How should multinationals position themselves strategically to capture profitable growth in China's vaccines market?

China is by far the world's largest market for vaccines, as measured by volume. This fact may come as little surprise, given that China has the largest population in the world, and an additional 16 million babies are born each year. What may be surprising is that China has the world's largest domestic manufacturing capacity for vaccines, with 55 registered manufacturers collectively producing one billion doses of vaccines every year.

The nation's supply-side prowess reflects the government's policy of self- reliance in vaccine provision, especially for vaccines in the publicly-funded Class I category. The recently announced 12th Five-Year Plan frames biomedical as one of the country's seven strategic industries. The Plan emphasizes that the manufacturing of vaccines is, along with innovation, a critical development area in which to further strengthen domestic capability.

The market stands at the sizable value of about $2 billion (on the basis of ex-manufacturer prices[1]), and has healthy growth prospects. While the market size is attractive, the supply-side dynamics we describe in this article make China a challenging market for both multinational and local companies. Companies therefore face a challenge in determining an effective strategy for building a profitable and growing vaccines business there.

The anatomy of the vaccines market

The three salient dimensions of the vaccines market in China today are the levels of penetration, the supply-side competitive landscape, and the complexity of the distribution channels.

Varying levels of penetration

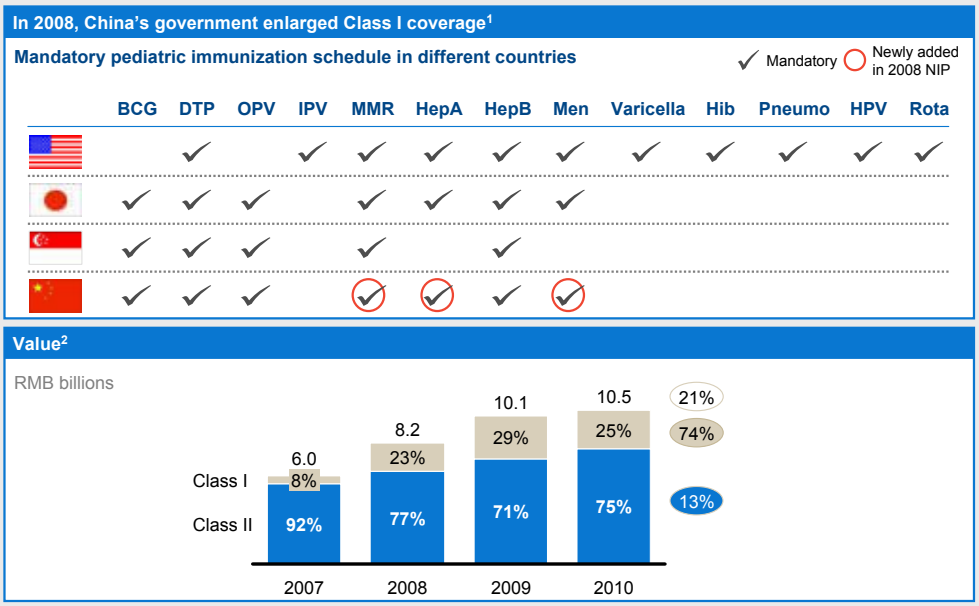
In the publicly-funded Class I segment there is extensive penetration of vaccines; in the self-paid Class II segment, however, penetration is uneven but expanding.

From 2007 to 2010, the vaccines market in China enjoyed annual growth at a rate exceeding 20 percent, reaching a value of approximately 12 billion renminbi (about $2 billion) in 2010. A major driver of this growth was the expansion of the National Immunization Program (NIP) in 2008. This program covers Class I vaccines, which are administered free of charge to designated populations. New product releases and the increasing affordability of vaccines also contributed to the market's healthy growth.

1 All market sizes in the article have been calculated on the basis of ex-manufacturer prices and do not reflect the channel mark-up that results in significantly higher purchase prices for points of vaccination and patients.

The NIP now covers 15 diseases nationwide and three at the regional level, thus matching the coverage offered in Japan and exceeding that of Singapore. Before the NIP expansion of 2008, the Class I segment accounted for 8 percent of the total value of the vaccines market and 60 percent of the volume; since the expansion, this segment has grown to 25 percent by value and about 80 percent by volume (Exhibit 1).

Exhibit 1: NIP expansion in 2008 significantly expanded the market and shifted the balance toward the public segment



[1] In addition, epidemic hemorrhagic fever, anthrax, and leptospirosis are also included in NIP in provinces where the diseases posts public health threats
[2] Excludes H1N1

Source: WHO; China National CDC; NIFDC (National Institute for Food and Drug Control) lot release; industry reports; McKinsey analysis

By contrast, vaccine penetration is much lower for the privately paid-for Class II vaccines. For example, in the eligible pediatric group, the vaccination rate is less than 40 percent for the Hib (haemophilus influenzae type b) vaccine, and 15 percent for the rotavirus vaccine. The seasonal flu vaccination rate is also very low, with a vaccination rate among the most vulnerable elderly population of only 1 percent in urban areas, compared with 65 percent in the United States.

Class II vaccination rates are increasing, however. Penetration of the varicella vaccine has been increasing at an annual rate of 21 percent, while penetration of the Hib vaccine increased by 14 percent annually from 2007 to 2011. Newly marketed products, such as Prevnar from Pfizer (for pneumococcal bacteria) and Pentaxim from Sanofi Pasteur (a combination of five pediatric vaccines) also have enjoyed healthy growth since their launch.

An unusual competitive landscape

China's very numerous manufacturers generate unique supply-side issues. As of 2012, there are 55 vaccines manufacturers[2] currently competing in China, which is far more than in any other country. The presence of such a large number of manufacturers makes the dynamics of the market quite different from other countries where, typically, four or five major competitors account for most of the market.

The 55 manufacturers can be categorized into three groups: the ten state-owned enterprises (SOEs), led by the China National Biotech Group (CNBG, now part of Sinopharm Group), which comprises six research institutes/manufacturers; the privately-owned Chinese companies

2 Fifty-five vaccine manufacturers are currently registered at the State Food and Drug Association with NDA for vaccine products.

Exhibit 2: There are three groups of vaccine manufacturers in China

AS OF 2012

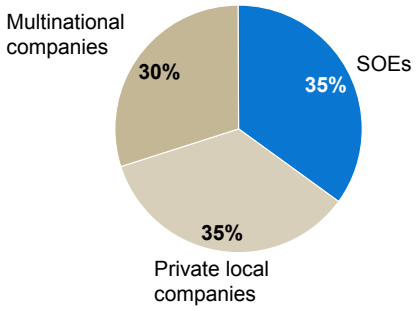
Type of manufacturers	Number of manufacturers	Select company examples
SOE manufacturers	10	SH Institute of Biological Products; Temple of Heaven; WH Institute of Biological Products; Institute of Medical Biology Chinese academy of medical sciences
Domestic private companies	36	HUALAN BIO; WALVAX; sinovac; 民海生物; Chengda; BJ Lvzhu Pharmaceutical Co. Ltd; INNOVAX
Multinational companies	9	GSK; SANOFI PASTEUR; Pfizer; NOVARTIS; MERCK

Source: SFDA; McKinsey analysis

Exhibit 3: SOEs and Chinese private companies lead Class I segment; multinational companies have significant presence in Class II segment

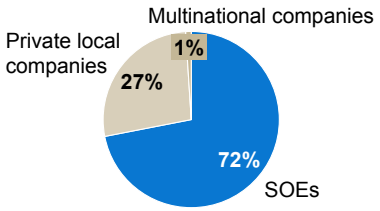
SOEs, Chinese private companies, and multinational companies have similar presence in overall China vaccine market

Overall 2010 market[1]: 10.5 bn RMB

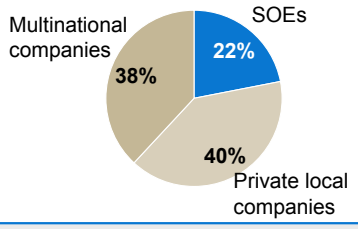


Locals lead Class I segment, while multinationals have a relatively larger presence in Class II segment

Class I 2010 market: 2.6 bn RMB



Class II 2010 market: 7.9 bn RMB



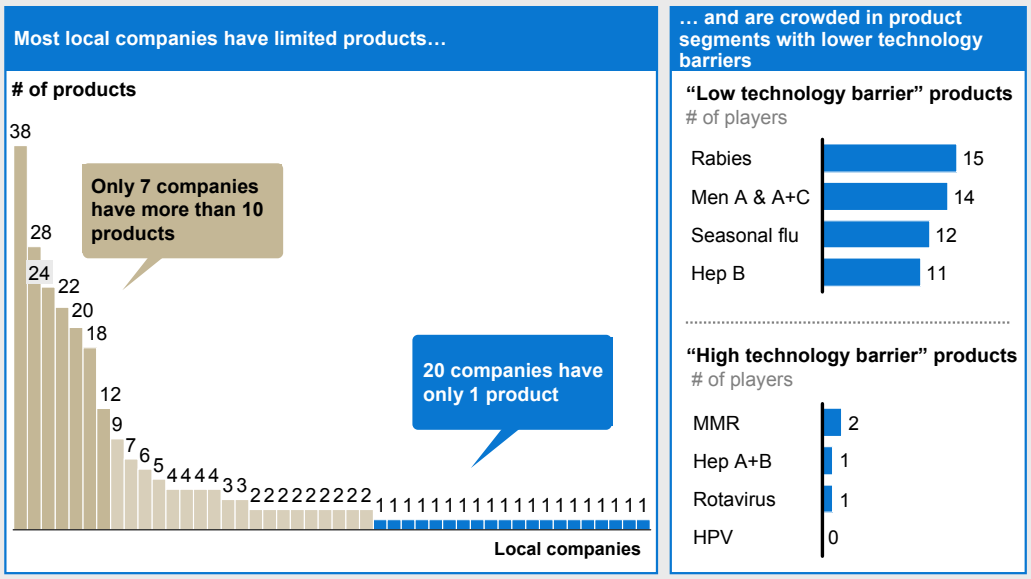
[1] Excluding H1N1

Source: NIFDC (National Institute for Food and Drug Control) lot release; McKinsey analysis

(36 companies); and multinational companies (nine companies) (Exhibit 2). In 2011, each of the three groups had roughly the same share of the overall market, but had varying shares of the Class I and Class II segments (Exhibit 3). SOEs have a 35 percent share of the overall market, but account for a 70 percent share of the Class I segment. Private Chinese companies also have a 35 percent share of the overall market; they take the remaining 25 percent to 30 percent share of the Class I segment. Multinational companies have a 30 percent overall share, with almost all of their revenues coming from Class II.

Currently, local Chinese companies lag behind their multinational counterparts in overall R&D and manufacturing capabilities. Chinese companies take a majority share in those 'easy' segments that have lower technological barriers (such as OPV, BCG, vaccines for seasonal flu, Hib, and rabies), and they compete on cost. Most local Chinese manufacturers have limited scale and breadth of portfolio: 20 of the 46 Chinese companies that are marketing in China have only one product, and these products usually have only limited differentiation from those of competitors (Exhibit 4).

Exhibit 4: Many local companies have narrow portfolios and offer products with limited differentiation



Source: Literature research; McKinsey analysis

As a result of oversupply (for example, in seasonal flu vaccine), there are also significant pricing pressures. It is estimated that the overall manufacturing capacity for seasonal flu reached about 110 million doses in 2010, about three times the market demand. As a result, the average ex-manufacturer price from local companies dropped from about 35 renminbi per dose in 2007 to 15 to 20 renminbi per dose in 2011; prices from multinational companies dropped from 45 to 50 renminbi in 2007 to 35 to 40 renminbi in 2011.

Complexity in distribution channels

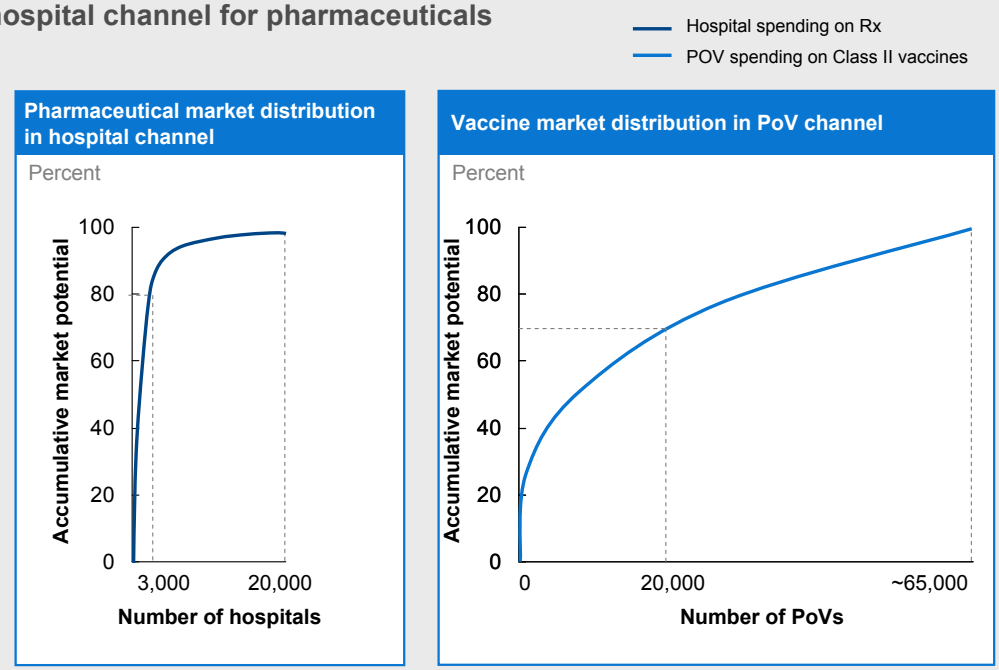
There are two channels for distributing vaccines: the Chinese Center for Disease Control (CDC) system and the commercial channel. Although positioned as a technical advisory group, the CDC also acts as the government's policy-body for the management of vaccines. For Class I vaccines (and in some provinces, also Class II), the provincial/county/city/city-district CDCs act as a channel for vaccines distribution and for the administration of vaccines to eligible populations through CDC-run Points of Vaccination (PoVs: sites at which vaccines are administered).

Commercial distributors have been permitted to participate in the distribution of Class II vaccines since the government's deregulation of vaccines distribution in 2005. Despite the deregulation at the central level, whose purpose was to introduce a 'market' dimension, provincial CDCs have adopted a diversity of approaches to deregulation and the extent to which they permit commercial distributors' participation. The result is that channel models at the province level (and sometimes at the city level) range from 'tight CDC control', where there are no commercial distributors, to various degrees of 'partial CDC control'. In some very rare instances, there is an open market in which commercial distribution is unrestricted.

Concerns that inhibit a more open approach include some city CDCs' reluctance to relinquish the incentives they enjoy, and the concern around the quality of distributors. Consequently, commercial distribution of Class II vaccines is quite complex for manufacturers.

Additional complexity arises for Class II vaccines because the so-called PoVs are highly dispersed. Reflecting a commitment to provide easy access to healthcare, PoVs are each intended to cover 10,000 to 60,000 people in urban areas and possibly fewer people in remote areas, with the result that there are at least 65,000 PoVs in China. They are either independent vaccination offices or collocated with Community Health Centers (or Stations) or township clinics. For vaccines suppliers, this implies highly dispersed volumes and value distribution at the PoV level in comparison with that of prescription drugs. We estimate that the 20,000 largest PoVs account for 70 percent of the value of Class II vaccinations. In contrast, for the prescription drugs market in China, the 3,000 largest of a total of 20,000 hospitals account for approximately 80 percent of the prescription drug market (Exhibit 5). Because promotion to physicians at the PoV level is important to drive sales of Class II vaccines, this dispersed market poses obvious challenges to manufacturers with respect to geographic coverage and sales force productivity.

Exhibit 5: Points of vaccination are more dispersed compared with the hospital channel for pharmaceuticals



Source: MoH hospital database; McKinsey analysis

How the market is evolving

We believe that four forces will shape China's future vaccines market: its strong growth fundamentals, the higher quality standards imposed by the government, the intensifying competition from local competitors, and the persistent complexity of the distribution channels. The winners in this market will be those who grasp the implications of these forces and thereby survive the shakeout that will be the inevitable result of more demanding quality standards, increases in supply, and intensifying competition.

Strong growth fundamentals

Over the next five years, several factors will promote continuing robust growth in China's vaccines market: these are increasing affordability, arising from strong economic growth; improving public awareness of disease prevention; and the government's emphasis on promoting disease prevention as part of its latest healthcare reform policy. In light of these

factors, we believe that the market could sustain an overall annual growth rate of 10 percent to 15 percent, albeit with differing dynamics in the Class I and Class II segments.

Class I. The expansion of the NIP in 2008 increased the number of diseases under national public coverage from 7 to 15. Liang Xiaofeng, deputy director of China's national CDC and former director of the CDC's NIP department, stated in an interview: "We are very clear that China is still a developing country, and we will design our NIP coverage in line with China's overall economic development stage." We therefore do not anticipate another significant NIP expansion before 2015. Before considering a future expansion, the Chinese government is likely to continue to emphasize the full implementation of the current NIP and the surveillance of newly-added Class I vaccines.

The government will need to address several issues arising from the 2008 NIP expansion. Penetration is still limited in less developed regions (western provinces) and among certain population segments (such as migrant workers). In areas with more extensive penetration, the workload for PoV physicians can be very demanding because most shots are still mono-vaccines. The 2008 NIP expansion also led to shortages in the supplies of certain vaccines: there was a shortage of 38 million doses for the DTaP-combo vaccine and of 26 million doses for the MMR-combo vaccine in 2008. The supply gap may not be completely closed by domestic manufacturing capacity until 2013 or 2014.

In the long run, we believe China will continue the steady expansion of the NIP. Although there have not been official discussions regarding the additional vaccines that will be covered, potential candidates are Hib and rotavirus, along with combo-vaccines to replace the mono-vaccines currently in the NIP. Pneumococcal vaccines and the replacement of OPV with IPV are also mentioned from time to time, but their inclusion in the NIP is unlikely until China has both the capability and the capacity to manufacture these vaccines domestically. Our projections are that, as the implementation of NIP continues, the Class I segment will show steady growth in volumes, and the overall market will grow at a moderate 5 percent a year in value.

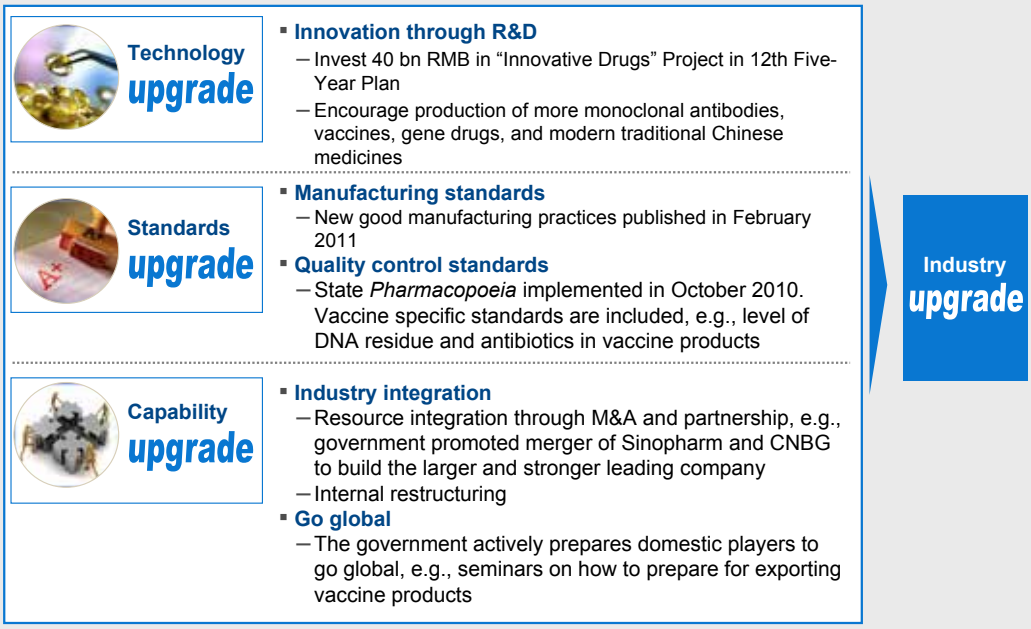
Class II. We believe the Class II market could sustain robust growth of 10 percent to 15 percent annually over the next three to five years, driven mainly by greater affordability, an improved awareness of disease-prevention options, and the increased availability of innovative products. Most of the growth will come from future launches of innovative products, such as HPV and rotavirus vaccines from GSK and Merck, and from increased sales of products that are newly marketed in China, including IPV and combo-products such as Pentaxim from Sanofi Pasteur. We expect limited growth for the existing and mature Class II products, such as vaccines for varicella, Hib, seasonal flu, and rabies, since the scope for increased penetration is likely limited and pressure on pricing will continue.

Higher quality standards imposed by the government

The Chinese government has been placing greater emphasis on promoting an upgrade of the pharmaceutical industry and the enhancement of domestic capabilities (Exhibit 6). Biotechnology was included among the seven national strategic sectors in China's 12th Five-Year Plan, and vaccines are a key area of focus in this sector. Funding from the central government to support the development of the biotechnology sector is expected to grow more than 16-fold, increasing its value from 385 million renminbi during the period from 2001 to 2005 to 6.2 billion renminbi during the period from 2011 to 2015. Recently, seven regulatory agencies[3] jointly released the *China Vaccine Supply System Development Guidelines*, and allocated 9.4 billion renminbi in dedicated government investment to support the development of the supply system. The guidelines further confirmed the government's focus on developing the local industry: promoting the innovation capabilities of domestic companies,

3 Including the National Development and Reform Commission (NDRC), the Ministry of Science and Technology (MoST), the Ministry of Industry and Information Technology (MoII), the Ministry of Finance (MoF), the Ministry of Agriculture (MoA), the Ministry of Health (MoH), and the State Food and Drug Administration (SDFA).

Exhibit 6: The 12th Five-Year Plan for the pharmaceutical industry emphasizes "upgrade"



Source: Literature search; analyst reports; McKinsey analysis

upgrading manufacturing and distribution to international standards, and supporting the competitiveness of local companies in the global market.

The government's commitment has gone beyond the guideline stage: implementation efforts are already well under way. Examples include the new *Pharmacopeia*, released in 2010, and the new Good Manufacturing Practice (GMP) for pharmacos that was released in early 2011. The new *Pharmacopeia* raised quality standards for 70 percent of all pharmaceutical products, with some standards becoming more stringent than those in the United States and the European Union.

It is not only the locals that are affected by the upgrade of standards. Some leading multinational companies, known as 'premium quality' suppliers, have been obliged to withdraw some of their major products from China because they failed to meet the requirements of the new *Pharmacopeia*.

Intensifying competition from local companies

Over the next three to five years, we expect domestic companies to continue making investments to improve their own capability and capacity. Local companies have already started to demonstrate enhanced technical competencies. With strong backing from the government, the SOEs are making significant improvements to their R&D infrastructure. The National New Vaccines Engineering Research Center at Yizhuang Biotechnology Park, a Beijing suburb, was co-founded by CNBG, Temple of Heaven (ToH), Beijing Institute of Biological Products (BJIBP), and the national CDC, with the aim of becoming a world-class vaccine R&D and pilot production platform for large-scale manufacturing. ToH also has built a vaccine production base, funded by the Ministry of Science and Technology (MoST) with an investment of 2.7 billion renminbi. The objective is to build this base into a National Combo-Vaccine Engineering Technology Research Center, starting with a focus on the DTaP vaccine-based combo-technology.

Private companies are also actively strengthening their R&D capabilities, raising funds from capital markets and from government at central and local levels.[4] As an example of government support for R&D capabilities, Walvax received funding of 14 million renminbi from the central government's 863 program[5] for its Meningo A+C vaccine development, and R&D funding of 4 million to 9 million renminbi every year from the provincial government.

As a result of initiatives such as these, both SOEs and private companies have promising and innovative products in their pipelines. Three companies have received clinical trials permission (CTP) for an EV71 vaccine—ToH, Sinovac, and Kunming Institute of Biological Products (IBP). Phase 1 trials are under way for Beijing Wantai's HPV vaccine, while Shanghai Wison has submitted a CTP application for this vaccine. Kunming IBP's Sabine IPV completed Phase 2 in 2010. Lanzhou IBP has progressed its trivalent rotavirus vaccine into Phase 2 trials (Exhibit 7).

Exhibit 7: Local companies are actively developing innovative products

(20xx): expected launch date

	File CTP	CTP approval	Phase 1	Phase 2	Phase 3	Launch
EV71[1]		▪ Temple of Heaven (2017) ▪ Kunming IBP[2] (2017) ▪ Sinovac (2017)				
HPV	▪ Shanghai Wison (2017) ▪ Beijing Wantai (6+11) (2017)		▪ Beijing Wantai (16+18 *E. coli*) (2016)			
IPV (Sabine)					▪ Kunming IBP[2] (2014)	
Rota	▪ Shenzhen Kangtai (Monovalent)			▪ Lanzhou IBP[2] (Trivalent) (2014)		▪ Lanzhou IBP[2] (Oral Monovalent)

1 One strain of Enterovirus, the virus causing hand, foot and mouth disease
2 Institute of Biological Products

Source: SFDA; industry expert Interview; McKinsey analysis

The development of the H1N1 vaccine is a notable example of China's R&D and manufacturing capabilities. The government's proactive approach to preventing an H1N1 pandemic in 2009 enabled China to become the first country to complete the clinical trials for an H1N1 vaccine, and it rapidly built up manufacturing capacity. By February 2010, 77 million people had received an H1N1 vaccination, according to official estimates.

With the world's largest manufacturing capacity and rapidly improving local capabilities, China has clearly expressed its aspiration to play a major role in the global market. China's State Food and Drug Administration (SFDA) received prequalification from the World Health Organization (WHO) in March 2010, which is a milestone in enabling China to access the global market. Almost immediately after this, the SFDA offered a series of mandatory seminars on 'how to prepare for going global' for leaders from 13 major provincial FDAs and the 36 local companies. Leading Chinese players are actively pursuing WHO prequalification at the company level, and

4 Currently, six local vaccine companies are publicly listed: Chongqing Zhifei, Walvax, Sinovac, Liaoning Chengda, Temple of Heaven, and Hualan.

5 863 program or State High-Tech Development Plan (国家高技术研究发展计划), a program funded and administered by China's government. It is intended to stimulate the development of advanced technologies in a wide range of fields for the purpose of making China independent in technological development.

some are already making formal progress in their applications: Chengdu IBP submitted its prequalification document to the WHO in February 2012.

Persistent complexity in distribution channels

Distribution of Class II vaccines in China has been challenging, and we do not expect the distribution channels to become easier to navigate over the next three to five years. Besides the complex CDC and commercial distributor models, and the dispersed PoVs described above, two additional factors drive complexity in the channel.

The first is that, while the CDC and commercial channels operate in parallel, the relative importance of these two channels at the provincial or city level can shift very rapidly, with a province or city switching from a commercial-distributor model to a CDC model if the provincial CDC so decides. Some provinces and cities have made such a shift in response to complaints or concerns about the quality or safety of commercially distributed vaccines. The second is that China lacks large-scale, high-quality vaccines distributors. Even the top vaccines distributors (such as Sinopharm, Keyuan, and NT Pharma) have limited direct reach on their own, and therefore must use second- or third-tier distributors to reach end-customers, district CDCs and PoVs. This leads to a lack of transparency in product flows and pricing, and to complexity in distributor management.

Implications for multinational companies

The potential size of the China's vaccines market captivates multinational vaccines producers. However, capturing a significant share of the market has proven to be a challenge. Considering the market's current structure and its likely evolution, we believe multinational companies should have the following priorities as they set about building a profitable and growing vaccines business in China: setting a distinct strategy for each segment, deepening their roots in China through local partnerships, and keeping an eye on the implications for the global market.

Set a distinct strategy for each segment

Each market segment presents distinct opportunities. The Class I market has significantly larger volume with low demand volatility, along with tight government control over prices and margins. In the case of some vaccines, gaining access to the public market will be a major boost to revenues, while for others it may simply mean harsher price cuts with limited upside for volumes. If NIP inclusion presents an attractive opportunity, a manufacturer needs to have a long-term stakeholder engagement plan to facilitate the right discussions with the right stakeholders. The manufacturer also must be prepared to cope with the frustrations that stem from decentralized decision-making and the uncertain timeline for discussions regarding inclusions in the NIP. The most important consideration is that the government's 'self-reliance' mindset means that multinational companies will need to initiate significant partnerships with Chinese companies if they are to participate in this segment in any meaningful way, other than in cases of shortages of supply.

For Class II vaccines, the market's attractiveness and the core competencies required for success vary according to product types. Mature products, such as vaccines for seasonal flu and Hib, already face oversupply and therefore significant pricing pressures. To win in the mature markets, a manufacturer needs a superior cost-position and extensive market coverage to capture maximum volume share. Innovative products, such as vaccines for HPV and rotavirus, along with combo-vaccines, are often proprietary to multinational companies, which traditionally excel in this space. To win with innovative products in China, multinational companies must be prepared to make multi-year investments in market development, while deploying a commercial and pricing strategy to drive the adoption of the products in the private market segments.

Deepen Chinese roots through local partnerships

In the long run, being a niche player could be a risky and unsustainable position for a multinational company in China, particularly given both the government's intention for China to be self-reliant in vaccine supply and the threat arising from the rapidly improving R&D and manufacturing capabilities among local competitors. Although it will be a delicate balance to

strike, multinational companies need to consider ways of establishing commercial success through their own organizations and sales forces while also deepening their roots in China by seeking partnership with leading local manufacturers.

Keep an eye on global market implications

Though Chinese vaccines manufacturers' globalization efforts are currently still in their infancy, some of the these companies will be enabled to become significant players in the global market in the coming decade through strong government support, improvements in quality, and investments in large-scale, low-cost manufacturing capacity. The way multinational companies compete with these future Chinese leaders in their home market will have implications not only for their success in China, but also for their global business in the long term.

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Tailwinds but with turbulence: The outlook for China's medical products industry

Tailwinds but with turbulence: The outlook for China's medical products industry

Lifeng Chen, Yinuo Li, Rajesh Parekh, and Jin Wang

Robust growth prospects are creating tailwinds for China's medical products industry. However, multinationals should prepare for turbulence ahead given the complexities of market access, increasing pressures on manufacturer prices, and intensifying competition from local companies.

Given the robust growth prospects for medical products manufacturers in China today, some multinational companies may be tempted to think that they are in for a smooth flight. The medical products market in China is growing at a rapid pace that promises to continue: demographic changes, increasing affordability, healthcare reform, and government investment as part of the 12th Five-Year Plan are all creating conditions for continued expansion that will prevail for at least the next five years. Nevertheless, multinationals involved in the medical products industry may encounter a significant degree of turbulence that will result from the increasing fragmentation and complexity of market access, from steadily increasing pressure on manufacturer prices, and also from intensifying competition among both multinational and local companies.

In this article we share our perspectives on the state of the medical products market in China today, the opportunities and challenges we see for the next 3 to 5 years, and the issues that multinational companies should consider as they develop their strategies for succeeding in China.

Getting a clear view of today's market

In China the medical products market is heterogeneous and fragmented, comprising more than 6,000 manufacturers. Companies typically use a multi-tier distribution channel to get their products to hospitals and other treatment centers. The complexity of the channel and the lack of high-quality industry data have often led to confusion about the market's size and structure. We have attempted to provide clarity on this topic by offering a systematic analysis of the major segments within the industry that draws on a variety of sources, including McKinsey's proprietary medical products industry database, interviews with industry experts, and a review of publicly-available third-party reports.

- **Size.** China's medical products market, including all its major segments, currently stands at about $20 billion at ex-manufacturer prices[1] and has grown at approximately 20 percent a year for the past 5 years. This places China in the top three medical products markets globally; it is one of the largest growth opportunities for the industry.
- **Product segments.** The key segments of the $20 billion market in China are capital equipment ($5 billion), personal medical equipment ($3 billion), implantables ($2 billion),

1 All market sizes in the article have been calculated on the basis of ex-manufacturer prices and do not reflect the channel markup that results in significantly higher purchase prices for hospitals and patients.

in vitro diagnostics ($2 billion), and other high-value medical devices or consumables ($1 billion). The remaining approximately one-third of the market ($7 billion) is accounted for by low-cost consumables and equipment, such as standard diagnostic equipment, commodity surgical tools and medical materials, drug delivery systems, and surgical dressings.

- **Competition.** Multinational companies face strong local competitors in all market segments (Exhibit 1). Overall, local companies now capture about 40 percent of the $13 billion major segments of the market that exclude low-cost consumables and equipment. There is significant variation of multinational and local share within segments or sub-segments. In the orthopedic-implants sub-segment, for example, a few large multinationals—Medtronic, Johnson & Johnson, Stryker, and Synthes (acquired by Johnson & Johnson in April 2011)—collectively account for more than 70 percent of the market for spinal implants, with some 50 local companies supplying the rest. By contrast, local companies currently have about 60 percent of the market for trauma implants, spearheaded by local leaders such as Trauson and KangHui Medical. (For more details on local competitors, please see our paper *From imitation to innovation in medical products: The ascent of China's local players*.)

Exhibit 1: Market share of Chinese companies across segments

Segment (Market size[1])	Local share (%)	Sample multinational companies	Sample Chinese companies
Capital equipment ($5 billion)	40	GE Healthcare, Siemens, Philips	Mindray, WOM, SIUI, BLT
Implantables ($2 billion)	40	Medtronic, Johnson & Johnson, Abbott, Smith&nephew, Zimmer	KANGHUI, MicroPort
Personal medical equipment ($3 billion)	60	Omron, Panasonic	YUYUE, andon
In vitro diagnostics ($2 billion)	35	Roche, Abbott, Beckman Coulter, Sysmex	Mindray, KHB, Da An Gene
Other high-value medical products ($1 billion)	25	Fresenius Medical Care, Johnson & Johnson, Gambro, Covidien	WEGO, Frankman, KANGDI

1 Value measured at ex-manufacturer price; does not include US $7 billion in low-value consumables
Source: Industry reports; McKinsey analysis

The market outlook: Strong double digit growth in demand

China's medical products market has enjoyed compound annual growth rates of approximately 20 percent over the past five years; we believe the growth will continue at 15 to 20 percent a year, more than doubling the market's current size over the next five years. Growth will be driven by steady increases in patient flow and in the affordability of treatment, the expansion of hospital infrastructure, the effects of healthcare reform and the government's commitment—articulated in the 12th Five-Year Plan—to invest in the medical products industry.

Growth in patient flow is driven by ongoing demographic shifts in addition to the growing disease burden, and increased access to healthcare facilities. On the demographics front, aging and urbanization are the significant long-term trends. From 2010 to 2020, the number of China's population aged 50 and older will increase by approximately 150 million, a quantity roughly equivalent to the combined populations of France and Germany. Massive urbanization is the other main contributing factor: the urban population reached 680 million in January 2012, outnumbering the rural population for the first time.

We note the underdeveloped nature of the market, particularly in the case of complex therapies but also even in relatively mature therapies. In percutaneous coronary intervention (PCI, commonly known as coronary stent implants), for instance, the application among urban Chinese patients with acute coronary syndrome was only about 9 percent in 2009; the equivalent usage rates in other countries (11 percent in India, 44 percent in Germany, 60 percent in South Korea, and 71 percent in Switzerland) suggest significant room for growth in the Chinese market.

In addition to such market fundamentals, the affordability of medical products in China is improving as a result of increasing disposable incomes and healthcare reform. For example, the government's efforts to expand basic medical insurance programs, have increased the proportion of the population covered by government-sponsored insurance to over 95 percent in 2011,[2] an increase that affects not only the urban but also the rural population. In the future, the government will shift its focus from expanding coverage to increasing insurance subsidies, aiming to bring out-of-pocket spending—which stood at more than 60 percent in 2006 and approximately 35 percent in 2011—below 30 percent of total health expenditures by 2015.

The reform mandate for developing a primary healthcare services system (including community health centers, and county, township, and village hospitals and clinics) has also had a significant positive impact on demand for medical products. There has been particular demand for capital equipment for lower-tier medical service providers. For example, county general hospitals and county Traditional Chinese Medicine hospitals were allotted medical products budgets of about $400,000 and $320,000 respectively from 2009 to 2011 for 'equipment refurbishing'. During the same period, the central government spent about $2.1 billion to refurbish approximately 4,000 county hospitals, more than 6,000 township hospitals, and approximately 25,000 township clinics. According to the official guidelines for central- and local-government healthcare spending, local governments reportedly spent twice as much as that, bringing the total national expenditure for medical products to about $6.2 billion.

Coupled with increased direct funding, healthcare reform also imposes greater scrutiny on the revenues and markups hospitals have been generating from drugs, historically the principal source of their income. As drug budgets come under increasing pressure, hospitals have started to focus on increasing their use of diagnostic services and devices as sources of revenue and profits to balance the declining contribution from drugs.

In addition to the effects of healthcare reform to date, the medical products market in China stands to benefit over the next 5 years from the central government's strategic and spending priorities. The 12th Five-Year Plan for the medical products industry, released by the Ministry of Science and Technology (MoST) in January 2012, sets out strategic and tactical objectives for developing the industry (Exhibit 2). We believe that the government's continued investment and commitment will help sustain the sector's healthy growth for the duration of the current Five-Year Plan, although the actual impact will be seen only as more specific policies are put in place.

The challenge now is to change gear

While China will present the largest growth opportunity in medical devices, many companies may fail to capture a share of this prize. Most companies have been reasonably successful during the past 5 to 10 years, but from now on there will be an increasing separation of winners and losers. Companies seeking to take advantage of the market's attractive growth prospects must transcend diverse challenges: a fragmented market with complex access issues, intensifying pressure on pricing, and increasing competition in the midrange market.

2 According to official government statistics, public health insurance had achieved a 95 percent coverage of the population by the end of 2011; the actual figure is likely to be lower because people with multiple types of public health insurance would sometimes have been counted more than once.

Exhibit 2: China's intent to develop the local medical products industry is reflected in the 12th Five-Year Plan

Announcement of **12th Five-Year Plan for the medical products industry**

Released by **China's Ministry of Science and Technology (MoST)** on Jan 18, 2012, the plan emphasizes a list of goals for developing a robust domestic medical products industry

Themes and goals	Relevant policies and measures
▪ **Scientific goals**	▪ Obtain **200 core patents** ▪ Develop **50 to 80 key medical equipment items and products** ▪ Establish **10 national engineering and science research centers and national key laboratories** ▪ Build **8 to 10 national scientific industrial bases** ▪ Build **20 to 30 technology research platforms**
▪ **Technology goals**	▪ Focus on prevention studies through **disease screening** and **early warnings** in order to **achieve early diagnosis and improve cure rates** ▪ Develop **50 to 80 disease-diagnosis and treatment technologies**, health promotion technologies, and innovative products that are suitable for **rural areas**
▪ **Economic goals**	▪ **Improve export value** beyond 5% of the global medical devices market ▪ **Form 8 to 10 large medical products companies** with revenues exceeding 5 billion renminbi (US $800 million)

Source: Literature search; McKinsey analysis

Market access remains fragmented and complex

Gaining access to the Chinese market continues to pose difficulties for medical products companies. The decision-making process is often fragmented, localized and significantly varied among provinces and cities, and even among hospitals within a city. As multinational companies penetrate more deeply into China, they will need to invest in building the capabilities to overcome the series of market access hurdles that include new product registration, distribution, and tendering.

The process of new product registration exemplifies the difficulty of market access in China. Since the publication of the first *Medical Device Registration Guidelines* in 1996, the government has released some ten sets of revisions and addenda that entail heightened approaches to stringency. For example, local clinical trials are increasingly required for imported Class III products (for example, implantable medical products). Although the total number of registered medical products has been steadily increasing, the result of these constraints is that the number of registered Class III products has remained largely unchanged.

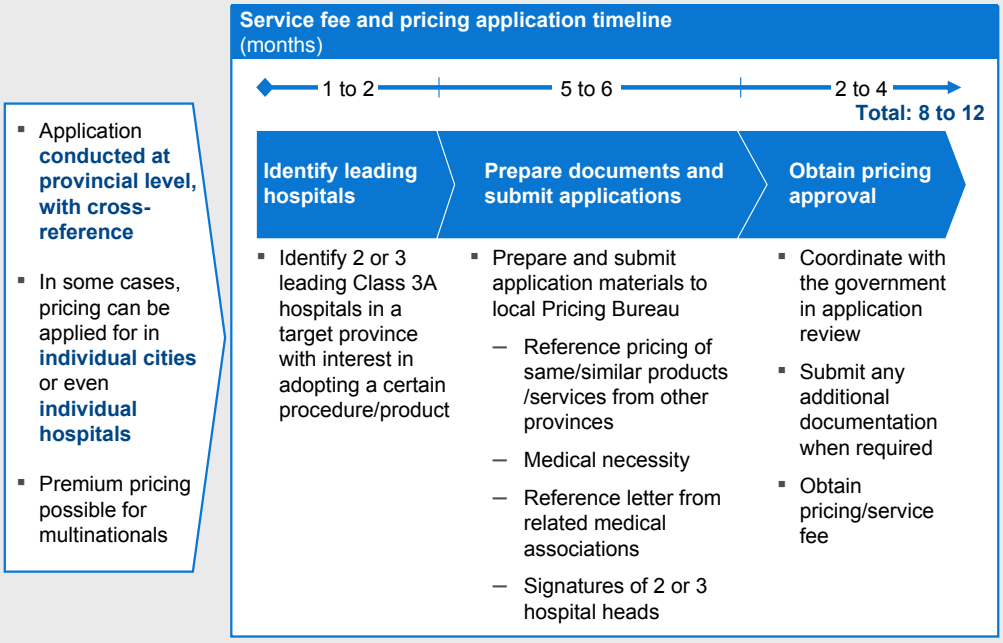
The medical products distribution system is another source of complexity. Owing to the importance of maintaining hospital-level relationships, distributors will likely remain indispensable. In contrast with the emerging national pharmaceuticals distribution system, the country's more than 15,000 medical products dealers remain, for the most part, small, regional, and focused on a few products. As a result, multinationals need to make use of various distribution models—based on products, geography, or a combination of the two—to reach the market efficiently. Most multinational medical products companies with a national presence in China therefore have to deal with hundreds of distributors, either directly or through provincial/regional tier 1 distributors.

The tendering process both magnifies the complexity of market access and increases pricing pressures. Medical products tendering in China has historically been chaotic, and the government continues to search for a better model. In 2004, the Ministry of Health required eight provinces to initiate centralized tendering, and most other provinces adopted the outcome of this process. In 2008, in what was meant to become a biennial process, the ministry held a national tender for four product categories. The responsibility to set up a tendering process has since been delegated to the provincial level. In 2011, Guangdong and Henan held provincial tenders that led to price-cuts of 20 to 30 percent. The status of the ongoing Beijing tender, which may be postponed until later in

2012, is unclear. However, the Beijing city government is said to be aiming for 20 to 30 percent price reductions on high-value consumables such as drug-eluting stents.

The fragmentation in the tendering process is echoed in China's system of service charges and reimbursement for medical products. Policies in these areas are formulated and applied at the local level and there appears to be no movement to centralize them at a higher level. For example, pricing of usage fees for an energy-based surgical-device procedure ranges from 200 renminbi in Yantai to 30 renminbi in Changzhou, and in Shenyang the process is not chargeable. The process for obtaining approval for service fees is also quite cumbersome, and can take a year or more (Exhibit 3). Similarly, reimbursement for medical products varies by city, and the processes for obtaining reimbursement vary significantly at the local level: the decentralized reimbursement process can involve even hospital specific policies. For example, at the beginning of 2012, Xuanwu Hospital was the only hospital in Beijing that had managed to secure reimbursement for CT-guided radio-frequency ablation.

Exhibit 3: The process of obtaining approval for service fees/pricing at the provincial or city level can take a year or more



Source: Interviews; McKinsey analysis

Pricing pressure is intensifying

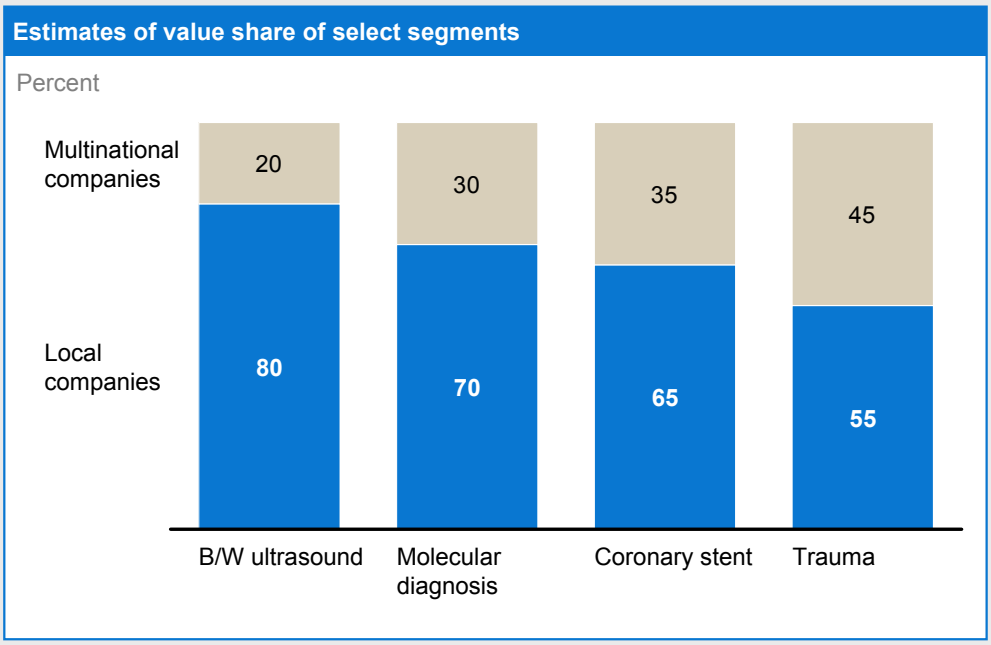
Pricing pressure has intensified, mainly as a result of the tendering process. Currently the government is exploring a range of policy measures to control markups in the channel, which will very likely also have an impact on ex-manufacturer prices.

In parallel, as part of its reform of payment-schemes, the government is piloting a set of measures intended to change the current payment-by-item scheme and better contain medical costs. Examples of these measures include basic medical insurance budget control in all Shenkang-managed hospitals in Shanghai; the introduction of 108 diagnosis-related groups in six Beijing Class 3A hospitals; and a per-capita payment scheme in Guangdong. The government has set clearly defined policies with real teeth. For example, a budget containment measure is now embedded in key performance indicators in Shanghai: hospitals that exceed the budget cap are penalized by delayed budget allocations in subsequent cycles and prohibitions on expansion. As hospitals pay more attention to their actual spending, such cost-containment measures will put indirect but real pressure on the pricing of medical products.

Competition will heat up in the midrange market

In the past there has been a clear division between multinational and local companies in terms of products and markets, resulting mainly from product quality and technological barriers. In recent years, the boundaries in the midrange market have blurred. In coronary stents, for example, locals have taken over the market created by multinationals and now enjoy a 75 to 80 percent share by volume (60 to 65 percent share by value); locals have also taken over 70 percent share of value in molecular diagnostics (Exhibit 4). There is no doubt that the midrange market will become a major battlefield for multinationals and locals in the future, as each camp significantly expands its product portfolio and caters to customer needs in China with increasing breadth. Multinationals will extend their reach beyond the top 20 or 30 cities, and local companies will seek to move beyond the midrange and into more advanced/premium market segments.

Exhibit 4: Examples of medical products sub-segments where local players have built leadership positions



Source: Industry reports; McKinsey analysis

Local companies have to date largely focused on 'easier' categories (such as low-end capital equipment) with relatively well-developed markets and procedures, such as PCI. We do not anticipate that local companies will significantly spearhead market development and therapy introductions, but they will certainly move into more sophisticated categories with the support of both government policy and the capital markets. (For more on local competition and innovation, please see *From imitation to innovation in medical products: The ascent of China's local players*.)

Meanwhile, multinationals are tailoring their approach to compete in the midrange segment. Leading companies such as GE, Philips, and Medtronic have launched or are planning to launch products with a more attractive price-to-value proposition; they are tailoring their commercial model to reach deeper into China, and are exploring partnerships and acquisitions that will expand their presence in the midrange segment.

Questions for executives who lead medical products companies

In recent years multinational companies have made great headway into China's medical products arena with robust fundamentals providing them with strong tailwinds. Despite these fundamentals remaining robust and healthcare reform providing additional forward momentum, there will be no way to avoid turbulence. To sustain a winning strategy for China, executives

leading medical product companies need to have well-informed answers to the following important questions:

What is the right opportunity and segment for your business to focus on?

The attractiveness of opportunities varies significantly among the various segments of the medical products industry, and across product categories within segments. Aiming for broad-based leadership in China in all the segments in which the company participates globally is likely to prove futile. We have often seen companies over- or underestimate the potential size of an opportunity and their ability to capture significant share of a market; these flawed estimates result from an inadequate understanding of the particular dynamics of a given medical category. Misunderstandings may arise from the failure to recognize the differences in rates of adoption across hospital classes and city tiers (where the penetration of PCI varies by a factor of more than seven between Tier 1 and Tier 3 cities), or to make accurate predictions about the rate of change in medical standards (which may be faster or slower than expectations that are based on US and Europe experience), or from an insufficient understanding of the motivations and incentives of the key stakeholders involved in the procurement and usage of medical products.

How should you accelerate growth in the premium segment?

For most multinational companies, the premium segment of the market will continue to be the most relevant opportunity. Though its market share may decline over time, the premium segment will continue to grow in terms of absolute volume and value across most medical products categories. Multinational companies' focus and investment should therefore be on gaining share from their multinational competitors in this segment. In China the market is significantly underpenetrated in many medical products categories, and leading companies need to make sure they are pursuing initiatives to accelerate the growth of the premium segment overall, such as increasing capacity of trained physicians for implants, increasing patients' awareness of the benefits of specific medical procedures, and helping to create referral-flows between classes of hospitals. Companies need to resist the temptation to start 'milking' their rapidly growing China business through excessive focus on near-term share gain, and should instead continue to strike the right balance with investments that will ensure sustained market growth.

How will you navigate the increasing complexity of market access?

Having a well-conceived strategy for market access and the potential to leverage scale in China matter more than ever before, particularly for companies with multiple business units. Specifically, multinationals need to build market access capability at multiple levels, starting with strategic partnerships and relationships with central and provincial government and with the capabilities at the local level (often in partnerships with distributors) to work with various government agencies on issues such as tendering, service fees/pricing, and reimbursement.

How will you compete effectively in the midrange market?

Many multinational companies increasingly view competing in the midrange market as a critical part of their strategy in China, though the lessons of the early movers suggest that this will not be an easy task. The first priority is problem-solving for the midrange product: working out how to go from idea to marketable product, with the right cost, technical features, and development timeline for effective competition against local players. Most multinational companies have a product development approach that is often not well suited to creating a 'midrange' product; development cycles are too long and the resulting products are not 'fit for China'. Companies will also need to design the right business model for commercializing midrange products, including considering setting up independent sales and distribution channels to commercialize them, and a low-cost service model to reach the more geographically distributed customer base.

How to build the organizational capabilities needed for success in China?

As in other rapidly growing industries in China, medical products companies face a significant challenge in developing the organization capabilities to keep pace with business changes in

a highly dynamic market environment. Companies that are busy addressing the challenge of scaling-up the organization often devote insufficient attention to developing the capabilities that are required to win in the changing market environment. Particular opportunities for medical products companies in China are the significant improvement of their capabilities in sales force effectiveness, distributor/channel management, market access, and the development of therapies.

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China is likely to become the second-largest medical products market over the next 5 to 7 years. It offers the largest growth opportunity for medical products companies across categories ranging from large imaging equipment to cardiac stents and surgical devices. However, it is a highly dynamic market, with intensifying competition from both multinational and local competitors. Medical products companies with ambitions for leadership in China need to ensure that they have a tailored strategy for specific product categories/market segments they compete in, and that they are building the organizational capabilities required for effective execution of their strategies. Only then will the strong tailwinds in a dynamic and growing market take them where they want to go.

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From imitation to innovation in medical products: The ascent of China's local players

From imitation to innovation in medical products: The ascent of China's local players

Lifeng Chen, Yinuo Li, Rajesh Parekh, and Fangning Zhang

Local medical products companies have been making their mark in many less-sophisticated product categories in China. Now they are turning their attention to higher-end, more technologically complex categories, including implantable devices and advanced imaging systems. Here we offer our perspectives on the factors that propel these local companies on their innovation journey, and what the implications are for the multinationals.

The market for medical products in China, already worth $20 billion a year in terms of manufacturers' prices, is expanding at a rate of approximately 20 percent annually; the size of the market will more than double in the next five years.

Having claimed a leadership position in many less-sophisticated product categories, such as black-and-white ultrasound, local Chinese companies are now turning their attention to higher-end, technologically complex categories, such as orthopedic devices, pacemakers, and computed tomography (CT) imaging where, until very recently, multinational companies had taken the majority share. Will local players soon overtake the multinationals in these attractive categories?

Local companies currently account for approximately 50 percent of China's medical products market, but so far they have been less successful in penetrating the higher end of the market. As they mature, many local companies are making a transition from imitating multinationals' products to inventing their own, and tailoring them to meet local needs and priorities. The evolution of the nation's medical products market will be a reflection of the effectiveness of this transition.

This article takes the pulse of the industry, describes the role that local companies play and suggests the reasons why these companies have been so successful in winning market share thus far. We examine the four themes that will underpin the next round of growth for the local leaders, and consider their chances of success. Finally, we review the implications for those multinationals that are seeking to defend or expand their market share in China.

The position of local companies in the medical devices market

The local medical products industry is a crowded place. China's Medical Devices Industry Association alone has a membership of over 4,000, comprising mostly local companies with annual revenues ranging from 10 million renminbi to 50 million renminbi ($2 million to $8 million). A quick scan of the market illustrates local companies' roles in various product categories and the ways in which their approaches contrast with those of the multinationals.

In the category of patient monitors, for example, local players offer high-quality products with comprehensive features, including electrocardiogram and arrhythmia analysis. The functionality of the multinationals' products still tends to have an 'edge' over local products that goes beyond

standard features: for example, integrated solutions linked with hospital information systems; high reliability, especially in critical care settings; and superior functionality in intensive care and operating room settings. However, this level of differentiation often exceeds the needs and budgets of smaller Chinese hospitals. By offering a 'good enough' range of patient monitors, Mindray Medical International, China's largest medical devices manufacturer, was able to capture approximately 45 percent of the patient monitors market in China. Two multinationals—General Electric and Philips (strengthened by its 2008 acquisition of Shenzhen Goldway Industrial)— jointly held approximately 30 to 35 percent of the market. Other local players such as Guangdong Biolight Medtech accounted for the remainder.

In contrast with the market for patient monitors, the orthopedic implants category has quite a different market share profile. Currently, more than 70 percent of the $180 million-a-year spinal-implant category is covered by a few large multinationals: Medtronic (with its joint venture partner Weigao), Johnson & Johnson, Synthes (acquired by Johnson & Johnson in April 2011), and Stryker. Two local companies, Trauson Medical Instrument and KangHui Medical, have so far captured only tiny slices of no more than 5 percent each.

Even though the multinationals still rule the premium medical products market, local companies are also clearly keen to participate. Trauson and KangHui, for example, are moving into the knee joint- and spinal-implant categories. Other Chinese players have shown how quickly they can build a leadership position in categories such as coronary stents

Local players have little presence in more technologically complex categories such as pacemakers. Only a few multinationals, such as Medtronic, St. Jude Medical, and Biotronik have products in this $180 million-a-year category. Local companies are exploring opportunities: Qinming Medical (30 percent of which is owned by Lepu Medical) launched its first single-chamber pacemaker in 2009. Still, it will likely take time before locals have significant impact at the high end of China's medical products market.

Drivers of success for local companies

Various factors account for local players' increasing success. These include an attractive price/features proposition, market access advantages, deeper and broader hospital coverage than is provided by multinationals, services tailored to local needs, and an increasing awareness of the importance of physician education.

An attractive price/features proposition

Chinese hospitals and physicians adopt local products because they are less expensive and are 'good enough' for their needs. For patients, the lower prices and higher reimbursement help significantly to reduce the out-of-pocket expenditure. For physicians, the 'technical performance' of local medical products is often 'good enough' for them to be considered as a viable alternative to imported products from multinationals. The drug-eluting stent category provides a vivid example of the attractive price/features proposition of good-enough local replacements. Prior to 2004, Johnson & Johnson and Boston Scientific dominated the category. Over the subsequent few years, MicroPort Medical, Lepu Medical, and Shandong JW Medical Systems won market share by launching high-quality products at a price point roughly 30 percent lower than that of the multinationals' products. By 2011, these local companies had captured around 75 percent of the market by volume and 60 percent by value.

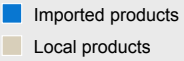
Market access advantages

Compared with multinationals, local players have easier market access, especially in terms of regulatory approval and more favorable reimbursement. For example, although all imported products are registered at the State Food and Drug Administration (SFDA) level, local Class I and II medical products are approved at the provincial FDA level, while only Class III medical products (for example, implantables) need registration at the SFDA level. Local products often have better coverage as a result of reimbursement policies. Orthopedic implants from multinationals, for

example, are reimbursed in the 30 to 60 percent range; in contrast, local products enjoyed 60 to 70 percent reimbursement rates in 2011 in various cities (Exhibit 1).

Exhibit 1: In many cases, reimbursement policies favor local medical products

NON-EXHAUSTIVE



Region	Reimbursement ratio for orthopedic products	Comments
Nanjing	60% / 70%	Capped at 15,000 renminbi
Yunnan	60% / 70%	Capped at 10,000 renminbi
Chongqing	50% / 70%	No reimbursement for imported implants under NRCMS or for work-related injuries[1]
Beijing	40% / 60%	
Wuhan	30% / 65%	

[1]NRCMS = New Rural Cooperative Medical Scheme, the major insurance scheme for the rural population
Source: Interviews; literature search

Deeper and broader hospital coverage

Major multinationals generate approximately 75 percent of their revenues from the more than 1,350 large Class 3 hospitals, and the remainder mainly from Class 2 hospitals. By contrast, local companies such as Mindray generate roughly 30 percent of their domestic revenues from Class 3 hospitals and 70 percent from Class 2 or smaller hospitals. Mindray has built one of China's largest distribution, sales, and service networks for medical equipment, supporting more than 2,400 distributors and 1,500 sales and sales-support personnel. Mindray uses a direct-sales model to cover key accounts, and leverages its distribution network to reach lower-tier markets.

Local needs addressed by tailored services

Local companies have recognized the importance of tailoring their service models to provide timely service and a better customer experience than that of their multinational competitors. For example, China Resources Wandong Medical Equipment, a leading local player in X-ray imaging equipment, has built an infrastructure to provide the responsive and 'high touch' service that is influential in hospital customers' purchasing decisions. It has a dedicated technology and service subsidiary that in 2011 had 280 engineers in 80 service centers across about 30 of China's provinces

Investments in physician education and clinical research

Local Chinese companies are starting to imitate the multinationals' investments in educating physicians and generating clinical data to support therapy adoption. MicroPort, for example, has in recent years sponsored numerous local post-market studies to demonstrate clinical safety and efficacy in certain patient populations, thereby increasing its user experience and enhancing its brand image. The result was that by March 2012 Chinese physicians had been citing MicroPort's product brands in approximately 200 publications, which outnumbered those who cited major multinational brands during the same period.

Government policy could further fuel local innovation

In January 2012, China's Ministry of Science and Technology (MoST) released the 12th Five-Year Plan for the medical products industry, with a goal to develop a robust and more innovative domestic medical products industry.

The Plan sets very specific objectives for accelerating local innovation under headings of science, technology, and economics. Scientific goals include generating 200 core patents, developing 50 to 80 significant items of medical products and equipment, establishing 10 national engineering and science research centers and laboratories, building 8 to 10 national scientific industrial bases, and 20 to 30 technology research platforms. The technology goals focus on the prevention of illness through screening and early warnings to improve early diagnosis and cure rates, and they call for the development of 50 to 80 diagnosis and treatment technologies, as well as innovative products. Economically, the government intends to increase exports of Chinese medical products to over 5 percent of the global medical devices market, to support 10 to 15 industry leaders and 40 to 50 innovative enterprises, and to form 8 to 10 medical devices companies with revenues over 5 billion renminbi ($0.8 billion) by the end of this five-year period.

Although this policy is still at the guideline level and to date lacks implementation specifics, it has nonetheless inspired confidence in the local medical products industry, and it will continue to stimulate the capital markets' enthusiasm for the sector. Private equity and venture capital investors are particularly interested.

Four themes for the next round of growth of local leaders

Looking to the future, we see four themes that will underpin the growth strategies of leading Chinese medical products companies:

- Steady organic growth and upgrading of capabilities will be fueled by healthy P&Ls and external capital.
- Local companies will tap multiple sources of innovation.
- Acquisitions will provide traction in both existing and new categories.
- Local market leaders will start to build a global presence.

Organic growth will be fueled by healthy P&Ls and external capital

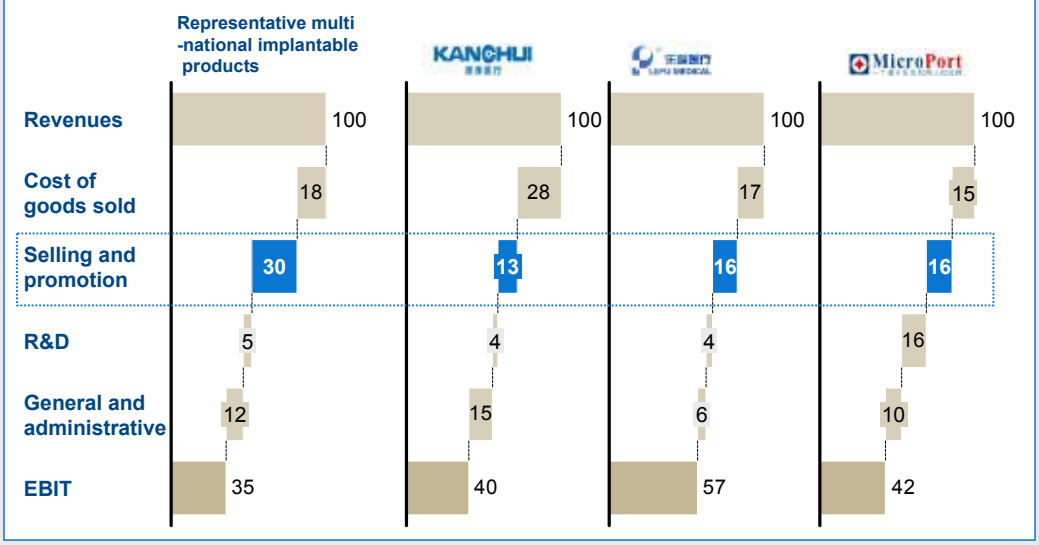
Chinese medical products companies have been able to achieve healthy profitability; orthopedics products companies such as Trauson and KangHui reported operating margins of 40 to 50 percent between 2008 and 2011. Leading stent manufacturers such as MicroPort and Lepu reported operating margins of 35-55 percent over the same period (Exhibit 2).

A healthy P&L has enabled many locals to fund capability upgrades, such as R&D investment, the hiring of more expensive returnee talent, the expansion of sales forces and distribution for both domestic and international coverage, and building enhanced capabilities in channel management.

Over the past few years, locals have also been enjoying easy access to capital. In 2011, six medical product companies went public, including Grandhope Biotech, a biological mesh company; Zhuhai Hokai Medical Instruments, a producer of minimally-invasive oncology-treatment devices; and Edan, a patient-monitor and ultrasound devices company (Exhibit 3). Private equity financing and venture capital, investment also increased from one or two deals per year in the period from 1996 to 2000, to an average of about twenty a year from 2007 to 2011 (Exhibit 4). The diversity of the investment targets is notable, ranging across imaging, anesthesia machines, implantables, in vitro diagnostics, personal medical equipment, surgical tools, and healthcare information systems, with investments averaging about 50 million renminbi per deal.

Exhibit 2: Local medical product companies are able to achieve healthy profit margins

A cost structure comparison of leading local and multinational medical products companies, 2011
Percentage of revenues



Source: Company annual reports; McKinsey analysis

Exhibit 3: Capital market support for emerging local medical products companies

Year of IPO

	2006	2009		2010		
	mindray	MicroPort		TRAUSON	KANGHUI	andon
Market capitalization[1,2] (Bn $)	3.5	0.6	1.7	0.3	0.5	0.3
Revenues, 2011[2] (Mn $)	873	133	146	61	52	56

	2011						2012
					EDAN	Lifetech	
Market capitalization[1,2] (Bn $)	0.3	0.6	0.2	0.7	0.3	0.3	0.5
Revenues, 2011[2] (Mn $)	77	78	25	20	60	22	40

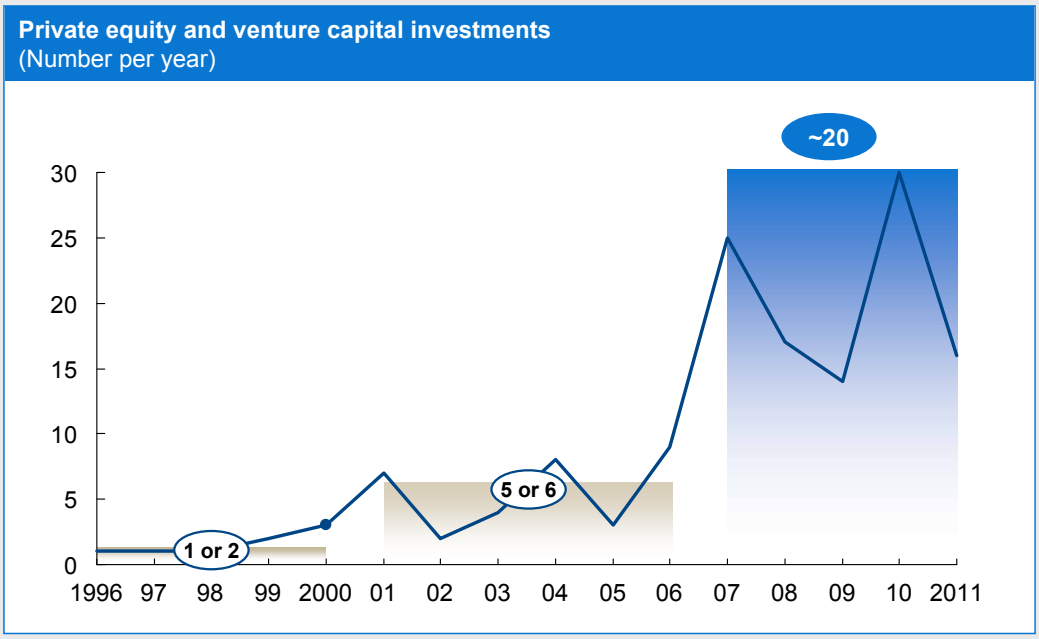
1 Market capitalization as of end of June, 2012
2 At a constant exchange rate of $1 = 6.3 renminbi

Source: WIND; Bloomberg

Local companies will tap multiple sources of innovation

Previously, Chinese companies were satisfied to imitate successful multinational products, a strategy that enabled them to cash in on markets that had been developed by their multinational peers. As the locals have matured, however, they have become more ambitious. Innovation, rather than imitation, is expected to be the basis of sustainable growth. Building their own innovation capabilities will require companies to combine internal development, external sourcing of technology/products, and collaborations with academic institutions.

Exhibit 4: Private equity and venture capital activity has been increasing in the local medical products industry



Source: Literature search; McKinsey analysis

Innovation from internal development. Investments in internal R&D are steadily increasing. MicroPort's 2011 R&D budget accounted for around 18 percent of its revenues, a 30 percent increase since 2010 for a company that employs more than 180 scientists and engineers on its R&D team. MicroPort is also launching its application for the CE mark[1] for Firehawk, its third-generation drug-eluting stent, and is expecting SFDA approval for its new neurovascular stent. The company is also developing products in new categories such as orthopedic, cardiac rhythm management, and insulin pumps.

Lepu and Mindray also put a strong internal focus on R&D. Lepu has increased its R&D investment, to a level of 66 million renminbi in 2011 (around 7 percent of revenues). The output of Lepu's continuing investment in R&D is 12 new product registrations, including a polymer-free coronary stent, in 2011. Over the past few years, Mindray's R&D spending has remained at approximately 10 percent of net revenues, and has involved the establishment of R&D centers across China, the European Union, and the US, staffed by over 1,500 engineers in China alone. A steady stream of new products has followed: Mindray launched 10 new products in 2010, followed by 13 new products in 2011.

Innovation from external sourcing. Chinese medical products companies are following the industry's proven path of sourcing innovation from smaller, specialized companies. They are being aided in many cases by the network and connections from the US and European investors that have taken equity stakes in the Chinese companies. For example, Vivo Ventures, a US-based venture-capital firm focusing on healthcare, brokered a collaboration between Consensus Orthopedics, a boutique US-based joint-implant manufacturer with FDA-approved products, and KangHui, a leading Chinese orthopedics company that is part of Vivo's portfolio. By providing an equity investment of $4 million to Consensus, KangHui gained access to valuable technologies in joint-implants that it can market under KangHui's brand in emerging markets such as China. Moreover, Vivo has announced a plan to invest $170 million in a further

1 CE (Conformité Européene, or European Conformity) Mark is a mandatory conformity mark for products placed on the market in the European Economic Area (EEA), and is the manufacturer's declaration that the product complies with the essential requirements of the relevant European health, safety and environmental protection legislation.

15 to 20 healthcare companies, enabling their development through similar 'bridging' strategies and providing Chinese companies with access to US technologies.

Innovation through collaboration with academic institutions. With government support, the industry has led the formation of an organization called the China Strategic Alliance of Medical Device Innovation (CSAMDI) to tap into the innovation that is emerging in academic institutions. Leading players such as Mindray, Shinva Medical Instrument, MicroPort, and Weigao Group are all members of CSAMDI, as are top academic institutions such as Tsinghua University, and leading research hospitals such as Huaxi Hospital in Chengdu and 301 Hospital in Beijing. Since the organization's foundation in 2009, it has already fostered around 30 collaborations between manufacturers and institutions and helped these projects obtain 200 million renminbi in funding from the MoST.

Industry-academia collaboration has already borne fruit in technically challenging areas. Fudan Digital Medical Technology has leveraged R&D capabilities from multiple institutions, including Huashan Hospital, Ruijin Hospital, and Tsinghua University. The company has won MoST's '863 grant'[2] for developing complex medical imaging systems such as its neurosurgery navigation system. PINS, a company with a long-term collaboration relationship with Tsinghua University, provides another good example of effectiveness: it developed one of China's first neuromodulation products, and is currently conducting Phase 3 clinical trials for this product. Yet another example is Chongqing Haifu, a leading local manufacturer of noninvasive ultrasound therapeutic systems for malignant and benign tumors, whose work was made possible through a collaboration with Chongqing Medical University.

Acquisitions will strengthen the portfolio in both existing and new categories

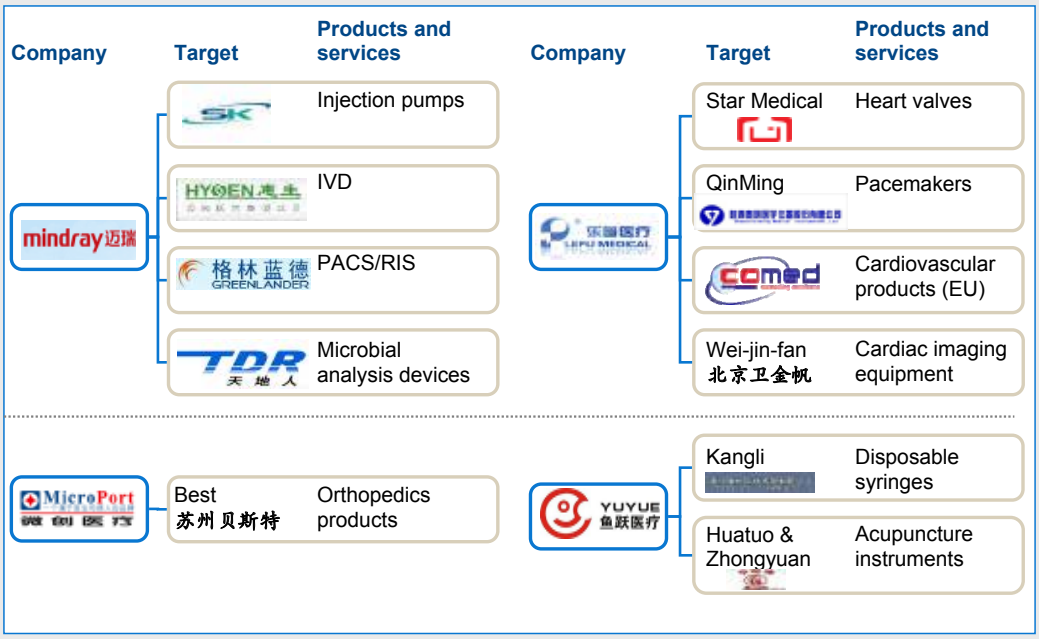
In the past few years, leading Chinese medical products manufacturers have made acquisitions a high priority. In 2011, at least 15 M&A deals expanded product portfolios, strengthened leadership positions in specialty areas, or developed overseas distribution channels. In 2011, Mindray acquired shares of four local companies with a presence in in-vitro diagnostics, infusion pumps, medical imaging software, and microbiological analyzers. MicroPort spent 110 million renminbi to acquire local player Suzhou Best Orthopedics and thereby enter that market. Within the past three years, Lepu has expanded its cardiovascular portfolio by either acquiring or obtaining shares in four companies that are involved in cardiac treatments: Beijing Weijinfan Medical Technology Development (angiography), Beijing Star Medical Devices (heart valves), Shanghai XingZhuang (occluders) and Shaanxi Qinming Medical Equipment (pacemakers, a 30 percent share). YuYue Medical, a leader in personal medical equipment, brought into its portfolio Kangli Medical Instruments, a manufacturer of single-use syringes, and Huatuo, an acupuncture instrument manufacturer (Exhibit 5).

Local market leaders will aspire to build a global presence

Chinese companies have started to expand their footprints overseas. Mindray, an early pioneer in going global, generated about 57% of its sales in 2011 from outside China. Mindray works with over 1,000 third-party distributors and is also selectively building up its own direct sales force to support its globalization efforts. KangHui, the first Chinese company to enter the global orthopedic implants market, is also looking for opportunities abroad. As of March 2011, KangHui had built a network of 38 distributors that sell the company's products in 28 countries across Asia, Europe, South America, and Africa. International sales have accounted for 15 to 20 percent of KangHui's net revenues and have grown at about 49 percent year-on-year (albeit from a small base), reaching 59 million renminbi in 2011.

2 863 grant is the research grant for 863 program or State High-Tech Development Plan (国家高技术研究发展计划), a program funded and administered by China's government. It is intended to stimulate the development of advanced technologies in a wide range of fields for the purpose of making China independent in technological development.

Exhibit 5: In recent years, there has been considerable merger activity among local medical products companies



Source: Literature search

Although only recently starting to expand its footprint, Lepu is also aggressively pursuing opportunities to capture sales outside China. By the end of 2011, the company had obtained regulatory approval for 16 of its products in 20 countries. It had also acquired CE certification for 21 products, including percutaneous transluminal coronary angioplasty balloons and catheters, and set up distribution networks in 40 countries.

Key questions for multinational companies facing local threats

As China's medical products companies grow ever more competitive and innovative, executives in multinationals who are aiming to build a winning business in China will need to address several questions:

How can we keep winning in the premium medical products market?

Through their differentiated product offerings and services, multinationals need to keep up their aggressive capture of the potential in the premium segment, which for most of them will continue to be the most relevant opportunity. They need to ensure they are bringing their latest product platforms to China, investing sufficiently in therapy development, local clinical trials, and physician education, and expanding their sales force and channel coverage to cover the prominent institutions and physicians. Above all, they need to stay focused on maintaining a sufficient level of perception among physicians and patients of the gap in quality and functionality of their premium products over midrange products from locals.

How do we successfully capture the potential in the midrange segment?

The incremental growth in the midrange segment between now and 2017 is estimated to be comparable with that of the premium segment. Multinationals therefore need to prepare to capture value from this next-tier market; this will call for longer-term investments in product development and potentially in local manufacturing. The first priority is problem-solving for the midrange product: working out how to go from idea to marketable product, with the right cost, technical features, and development timeline for effective competition against local players. Companies will also need to design the right business model for commercializing the midrange

products, possibly setting up independent sales and distribution channels to commercialize these products, and a low-cost service model to reach the more distributed customer base.

How can we capitalize on the capabilities that local companies have to offer?

Leading multinational medical products companies increasingly consider partnering/acquiring local players to strengthen their scope to participate in the midrange segment. Examples include the acquisition by Philips Healthcare of Goldway, the second-largest local player in patient monitors, and Medtronic's joint venture with Weigao for spinal and orthopedic products. These deals aim to gain access to existing products and the innovation capabilities of the local companies, as well as the sales/distribution channels that give access to the broader customer segments. While we are likely to see more deals between multinationals and local players, the real test will be the multinationals' managerial ability to create and capture value from such alliances.

How do we evolve our position in China to ensure a more even playing field against the local competitors?

Government policy and actions play a significant role in shaping the evolution of the medical products industry; multinationals are frequently given grounds to conclude that the tables are clearly tilted in favor of the locals. To counter the inherent advantage that local players have, multinationals need to have a comprehensive government-affairs strategy in place to build and nurture strong government relationships at national and provincial levels. They need to explore investment in initiatives that can clearly convey their commitment to China and their alignment with selected elements of government's agenda for the industry. These demonstrations may take the form of investments in local manufacturing, the setting-up of R&D centers, or investments in support of government programs for the diagnosis and treatment of specific diseases.

□ □ □

As China places increasing emphasis on innovation, its medical products industry will be progressing from mere imitation in the years to come. The enabling environment for the launch of such a transformation is already in place; the way the innovation journey will play out still largely depends on the strategy, technology, and management competence of individual companies, and may vary significantly by product categories as a result. The dynamic nature of the medical products industry will demand close monitoring and thoughtful participation by any multinational with ambitions for winning in the Chinese market.

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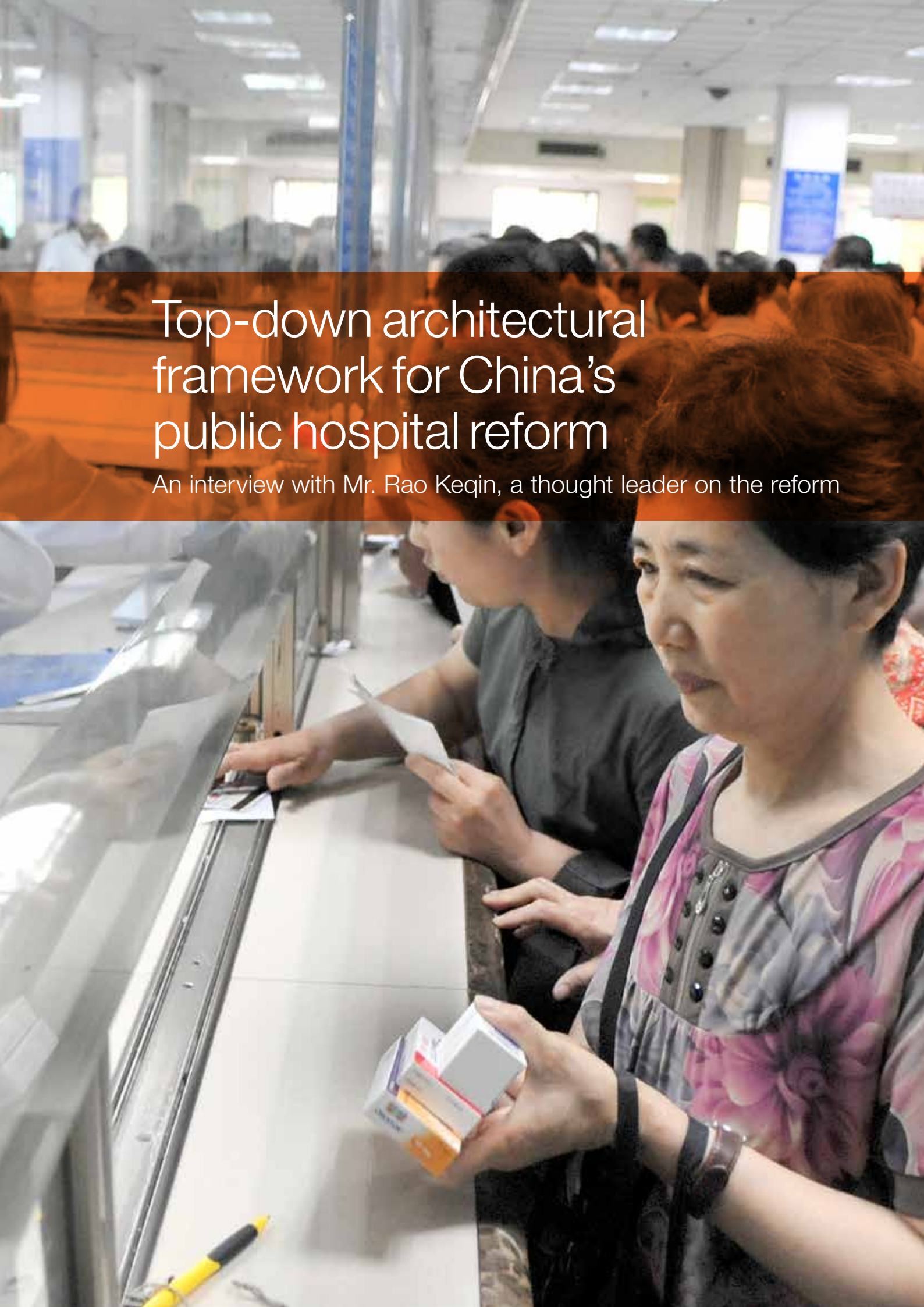
Transformation of the healthcare service system

Top-down architectural framework for China's public hospital reform

An interview with Mr. Rao Keqin, a thought leader on the reform



Top-down architectural framework for China's public hospital reform: An interview with Mr. Rao Keqin, a thought leader on the reform

Yinuo Li and Li Ma

As a thought leader on China's public hospital reform, Mr. Rao Keqin is well qualified to speak about the fundamental issues in China's current public hospital system, and to share his thoughts on how these issues should be addressed, especially at the macro level, by establishing a systematic, top-down architectural reform framework.

China's healthcare reform has made significant progress over the past three years, especially in expanding medical insurance coverage and developing infrastructure in lower-tier cities and rural areas. However, the core issues of healthcare in China, including public hospital reform and payment scheme reform, have yet to be tackled. As vice-premier Li Keqiang, leader of the overall healthcare reform agenda,[1] says, the reform is entering "uncharted waters." No longer will it be possible for the government to "feel the stones while crossing the river."[2]

Pilots have been launched in hospitals in 17 cities since 2009, and rolled out to more than 300 county hospitals in 2012. Experiences gained at the micro level have included the implementation of electronic medical records, a prescription cap, and clinical pathways of select diseases. However, the central government still has not formulated a systematic, top-down architectural framework of guidelines and policies to drive the reform nationwide. McKinsey and the *China Health Human Resources* magazine interviewed Mr. Rao Keqin, a recognized thought leader on China's public hospital reform, to shed light on this topic.

In this interview Mr. Rao first clarified the fundamental concept of a public hospital as a mechanism that the government employs to realize public welfare. With this as his premise, he pointed out four fundamental issues in China's current public hospital system. He shared his thoughts on how these issues should be addressed, especially at the macro level, by establishing a systematic, top-down architectural reform framework. Mr. Rao believes this framework consists of five major components: a financing system, payment schemes, a well setup medical service system, government supervision and regulation, and physician-patient relationship improvement. He also identified the payment scheme reform and the reform at the county hospital level as potential breakthrough areas that could propel overall reform progress.

1 Li Keqiang made this remark during the China national conference on the deepening healthcare reforms as China's vice-premier and leader of overall healthcare reform agenda.

2 A famous saying in China, meaning China should push forward the reform with courage, but carefully review experiences and learnings from the practice. First cited by Mr. Yun Chen (deputy chairman of the central committee of China), during a central government working conference in December 1980. This promotion was later strongly supported by Mr. Deng Xiaoping and became the high-level guidance for China's overall reform.

Meet Mr. Rao Keqin

Mr. Rao Keqin is the Party Secretary of the Chinese Medical Association. He is a member of the State Council Healthcare Reform Expert Consulting Committee, the MoH Healthcare Policy Expert Committee, and the State Council Information Technology Expert Consulting Committee. Mr. Rao is also the vice chairman of the MoH Disease Prevention and Control Expert Committee and of the China Healthcare Informatics Association, as well as the head of the Chinese Hospital Development Research Institute, Shanghai Jiao Tong University. His focus is on public health management and healthcare policy research in biostatistics, epidemiology, health economics, and healthcare information. Mr. Rao has led many major national research projects on the healthcare service system and on healthcare information infrastructure development. He has published 12 books and more than 100 papers in Chinese and international journals.

McKinsey: What do you think are the major hindrances to China's ongoing public hospital reform?

Rao Keqin: To answer this question, we first need to diagnose the problem with the existing public hospital system. Accessibility and affordability (due to the high price of healthcare services and medicine) are frequently mentioned, but neither is a major hindrance.

Beyond accessibility and affordability, is hospital efficiency a critical problem? No, the efficiency of Chinese public hospitals is among the highest in the world. No hospital in any other country serves as many patients as our hospitals do. Do hospitals have too little autonomy or lack a market orientation? Again, no. Our public hospitals are self-financing entities that have fully adapted to the market. In some cases, they have adopted a shareholding structure with employees who own the hospitals.

To discuss public hospital reform, therefore, we first need to identify the issues of the public hospital system. And to do this, we first need to define the term *public hospital* and explain why the government runs public hospitals. With this foundation in place, we can identify the major hindrances to the reform in Chinese public hospitals.

McKinsey: Would you please describe the role of public hospitals and explain why the government runs them?

Rao Keqin: Governments around the globe use nonprofit public hospital systems to ensure the availability and equitability of basic medical services to all citizens. The public hospital system represents the government's approach to improving national health. Here, the keywords are *nonprofit* and *government approach*.

According to some, if the government provides public medical insurance, it does not need to set up public hospitals. I disagree, and will use the analogy of the Chinese government's approach to social housing to explain. The government provides a social housing fund to alleviate the pricing pressure that consumers face. That funding alone, however, is not enough to ensure that housing will be accessible in an equitable way to everyone. That is why the government plans to provide 36 million units, or about 2.2 billion square meters, of social housing from 2011 to 2015.

Governments implement public hospital systems because of the unique characteristics of the healthcare sector, including the provision of public welfare and the lack of a fully functional market mechanism.

Public welfare in this sector is about guaranteeing individual rights to equitable basic medical services. Public transportation in Beijing is an example of public welfare. The cost to serve each bus passenger averages 2 renminbi per ride, but passengers pay 1 renminbi or less, and the Beijing government pays to close the gap. Public welfare allows citizens to enjoy economic benefits. The more benefits are given to citizens, the greater the public welfare that results.

Due to information asymmetry, the government cannot allow the pricing and quality control of healthcare services to be fully adjusted by a market mechanism. Physicians have the capability to make clinical judgments, and they act as the key decision makers or influencers during diagnosis and treatment. Patients do not have the expertise to determine whether they have a disease, the stage or severity of the disease, or what treatment might be warranted. Even in the most market-oriented countries, governments still employ public hospitals to deliver healthcare services to the public.

McKinsey: Some experts suggest that on the one hand, the government should take the responsibility to regulate the market economy; on the other hand, the government is obliged to provide public welfare in sectors where the market mechanism does not fully function, such as education, research, and healthcare. Given this foundation, what do you think are the key issues in China's public hospital system today?

Rao Keqin: There are four fundamental issues in China's current public hospital system.

First, the government has not fully assumed responsibility for delivering public welfare in healthcare. The government is involved in constructing facilities and purchasing equipment for public hospitals, but it plays a limited role thereafter. To maintain daily operations, hospitals must make money, and this creates a conflict with fulfilling their societal responsibility. Currently, there is no clear responsible party for the delivery of public welfare in the Chinese healthcare system.

Second, the incentive system is distorted. Public hospitals use an item-based payment scheme. Hospital revenue and physicians' compensation are linked to the volume of prescriptions they write and the number of exams they order. To increase profits, hospitals overtreat and overexamine, a practice that is in conflict with societal goals and, furthermore, often strains the relationships between physicians and their patients.

Third, there is no well-defined and strictly enforced inspection and supervision system. Physicians have no clearly defined code of conduct, and there is no systematic and standardized supervision of hospitals. For instance, the lack of a clinical pathway allows the increasing abuse of drugs such as antibiotics and hormones.

Fourth, resource allocations are imbalanced. Healthcare resources are overly concentrated in big cities and big hospitals, while grassroots institutions are far less developed. This imbalanced structure and the lack of coordination (for example, a referral system) across different levels of hospital further worsen the accessibility problem owing to the overall shortage of healthcare resources: large hospitals are overly crowded with patients, while grassroots institutions are underutilized.

McKinsey: Globally, healthcare systems have adopted different models (for example, a bigger role for the private sector; the introduction of payment schemes linked to quality and outcome measures). All models have their pluses and minuses. Given the China context, how should reform efforts address these issues?

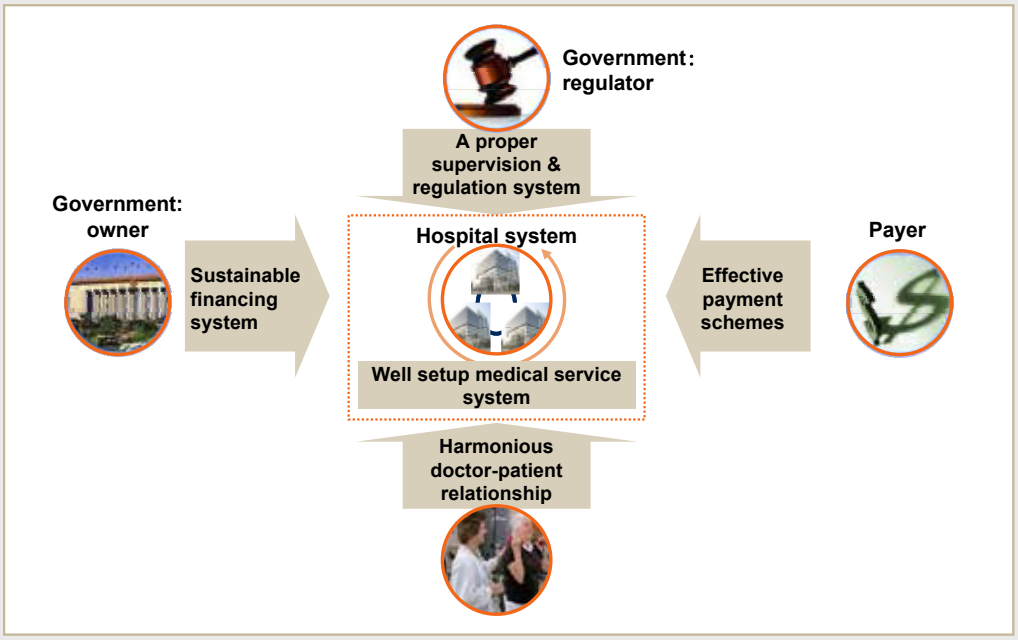
Rao Keqin: The reform should address these issues at both the macro and micro levels. At the macro level, the reform should establish a set of China-specific guidelines and policies by which the government will sponsor and manage public hospitals to deliver public welfare. This is the systematic, top-down architectural framework for the public hospital system. At the micro level, the reform should motivate and improve hospitals' operational efficiency.

Public hospital reform is still at the pilot stage, currently implemented in 17 cities. Visible progress has been achieved at the micro level, such as implementation of the clinical pathway, adoption of an electronic medical record system, and improvement of hospital environments and patient experiences. However, major challenges still exist at the macro level, owing to the lack of a well-designed top-down architectural framework.

McKinsey: What are the major components of this top-down architectural framework?

Rao Keqin: There are five key elements: a financing system, payment schemes, a well setup medical service system, government supervision and regulation, and physician-patient relationship improvement (Exhibit 1).

Exhibit 1: Five key components that make up the top-down architectural reform framework for China's public hospital system



Source: Mr. Rao Keqin interview

First, define the responsible party for public hospital supervision and establish a sustainable financing system. The "responsible party" should be the funding party for public hospitals and the party accountable for delivering public welfare through public hospitals. Some people believe that the "government" is the responsible party, but the reality is that various departments in the government are involved. There is no single entity that is clearly responsible and liable for delivering public welfare. The responsible party must be defined before we can establish clear roles covering hospital supervision and operation. Currently, there is no clear separation between supervision and operation.

Financing mechanisms for public hospitals are also highly fragmented, with no systematic collaboration among various channels. Without sufficient financing, healthcare expenses will fall on the patients.

The Beijing government is moving in the right direction by forming a Hospital Administration Bureau involving the Bureau of Health, the Bureau of Finance, the Bureau of Human Resource and Social Security, the Development and Reform Commission, the Pricing Bureau, the Bureau of Civil Affairs, and the Bureau of Education. This new Hospital Administration Bureau functions as the "responsible party" for public hospitals and the delivery of public welfare.

Second, promote payment system reform and build an effective payment mechanism. The appropriate payment mechanism is critical to ensuring regulatory compliance of medical

services, to control the growth of medical expenses, and to establish an effective incentive system to encourage proper behavior of hospitals and physicians. We should leverage experiences from global best practices, such as payments based on capitation or Diagnosis-Related Groups (DRGs), or total budget control.

There are three approaches to drive the payment system reform. First, increase government subsidies up to the level of approximately one-fourth of hospitals' operating revenues. Because the subsidy goes directly to a hospital's bottom line, it will effectively reduce their dependence on overprescribing and overtreatment to generate revenues. The amount of government subsidy should be carefully calculated based on proper payment approaches, to avoid excessive financial burden for the government. A pilot in Zichang County in Shaanxi Province has adopted this concept.

The second approach to drive the payment system reform is to adjust the pricing standard based on the overall budget level. To do that, we need to increase the prices of medical services and regular exams and, at the same time, lower the pricing for sophisticated tests and eliminate the 15 percent markup on prescriptions. These measures would also allow hospitals to improve their profitability, as demonstrated by early results from the Shanghai pilot.

The third approach to drive the payment system reform is to shift from the current item-based payment system to one based on service unit (for example, each outpatient day, each emergency room service, or daily cost of hospitalization) or DRGs (under the guidance of overall budget allocation). The Beijing pilot shows that this type of payment approach under a total budget cap could effectively encourage hospitals to reduce costs, improve efficiency, stop overprescribing drugs, and cut back on unnecessary exams, especially the more expensive ones.

Third, establish a well setup medical service system with resources properly allocated. Our current medical service system could be described as an upside-down triangle. Larger hospitals have the most comprehensive "primary care" services, with the highest concentration of resources, in terms of both infrastructure and human resources. Therefore, they also have the most patients, even though many have only primary care needs, such as treatment for minor colds or drug refills.

Lower-tier hospitals are unable to fill their role as primary care gatekeepers because the physicians in these hospitals are not as well educated as those in larger hospitals. Lack of a well-balanced public hospital system structure and patient referral process leads to the inefficient usage of already limited medical resources.

The hospital system reform is intended to strengthen the primary care capability of grassroots medical institutions and to establish an appropriate patient referral process. A well-structured system will prompt patients to see primary care physicians in the lower-tier hospitals for initial diagnosis and treatment of minor ailments and rehabilitation. This appropriate behavior will help us achieve the healthy right-side-up triangle structure we aim for.

Shanghai's pilot medical consortium is a good example of this type of reform. The consortium is led by Class 3 hospitals and includes Class 2 hospitals and community health centers in nearby areas. It has established guidelines how the different levels of hospitals will coordinate their activities. The Basic Medical Insurance (BMI) fund defines the total budget for the medical consortium to provide healthcare services to the residents it covers, and that budget is then allocated to member hospitals within the consortium. Patients who register with the consortium are entitled to expedited two-way referral services for faster access to quality medical services with less hassle. This model incentivizes the member hospitals to build a right-side-up triangle system within an area.

Fourth, strengthen the government's function in public hospital supervision and regulation. There are two objectives for the government's supervision and regulation of public hospitals. One is to realize public welfare, the policy goal of ensuring accessibility of healthcare services. The second objective is to ensure the quality, safety, and satisfactory outcome of medical service.

Public hospitals are currently inadequately or improperly regulated. Instead of laying the necessary foundation at the system level, which would then drive the right behavior by hospitals and physicians, the government is overly investing in micro-level issues in clinical practice (for example, per prescription cap and percentage of drug revenue in total revenue), while overlooking the most fundamental issues mentioned above.

Fifth, establish a risk management and insurance mechanism for medical accidents to improve physician-patient relationships. Strengthening the educational levels and professionalism of physicians will help improve physician-patient relationships. Even more important, however, we need a systematic mechanism covering three components: a prevention mechanism to avoid medical negligence and malpractice; a coordination and risk management system to reconcile medical disputes and physician-patient conflicts; and a policy environment to enable harmonious physician-patient relationships.

Medical negligence and malpractice trigger 85 percent of medical disputes in China. In the United States, where the healthcare system is considered well developed, medical malpractice is still common, estimated at 8 percent to 10 percent of inpatient treatments. If such a ratio were applied in China, there would be 15 million cases per year. Even if there were a good prevention mechanism, China still needs a risk-sharing system. There is a good analogy from auto insurance. Before auto insurance became common, drivers involved in collisions fought on the street. Now, they let their insurance companies handle the disputes. Why can't we establish such a risk-sharing system for medical malpractice through joint efforts among the government, insurance companies, hospitals, physicians, and patients?

McKinsey: Implementation of any of the five reform initiatives you have outlined would be complex. What are the breakthrough points that would allow all the initiatives to be systematically implemented at the same time?

Rao Keqin: Good question. County hospitals are the "sweet spots" for reform. Their relatively small size results in lower reform costs and simpler administrative mechanisms. In addition, the payer side and service provider side share the same regulatory party at the county level (the county government), which makes it easier to coordinate policy.

The payment system is another breakthrough point that can effectively trigger many positive changes on both the payer side and the provider side, the two most critical parties in the public hospital system. Instead of "pushing" providers to follow desired behaviors by setting hard rules (for example, per prescription cap and percentage of drug revenue in total revenue), as we currently are doing, a properly designed and implemented payment system will incentivize, or "pull," the hospitals to undertake preferred practices, for example, to establish medical consortia. The key success factor is the alignment between payers and providers.

After all, the goal of public hospital reform is to break the existing interest pattern. Currently, pharmaceutical companies, distributors, physicians, and patients covered by medical insurance share the same interest. They all prefer the best drugs and the most advanced examinations (usually the most expensive ones), and these demands lead to overspending and waste of medical resources. The payers and self-paid patients are outside this interest circle and assume the financial consequences.

To break this interest pattern, it is crucial to build an alliance between hospitals and payers. A well-designed payment mechanism, such as a DRG-based payment system, will induce hospitals to become the real buyers, assume the financial consequences, and naturally become the gatekeeper for the payers. Of course, implementing DRGs is by no means an easy job. This type of payment system requires a huge amount of work on data collection and analysis, systematic design, and a robust regulation and supervision system.

How would hospitals change their behavior under a DRG-based payment scheme? Assume that the standard payment for treating a certain type of appendicitis patient is 10,000 renminbi, and insurance pays the hospital this amount, regardless of the actual treatment

costs. Then the hospital would be incentivized to treat an appendicitis patient efficiently—for example, by prescribing appropriate treatment, quickly performing surgery, and transferring the patient to a community hospital as soon as possible to shorten the average length of stay (ALOS). The hospitals would subsidize the community health centers and help them improve their skills. Other desired mechanisms, such as two-way referral and transferring systems, would also be established.

With hospitals incentivized to treat patients efficiently, hospital supervision can move away from the inspection of micro-level issues in clinical practice and focus on efforts to reinforce clinical standards (for example, clinical pathway) and medical service quality. That said, payment system reform can be the key leverage point to control expenses, improve operational efficiency, encourage the establishment of medical consortia, and enhance regulatory mechanisms.

To get a DRG approach started, we need to propose costs for specific treatments. We could use the average historical expense of a certain disease group in a specific type of hospital as the base for today, and then apply a proper growth rate for the future by considering the economic growth. "Acknowledgment of the history" is a practical and easy measurement, without requiring a huge sophisticated database, which we do not have in China. The key to success is to build a partnership and negotiation mechanism between hospitals and medical insurance schemes, in order to arrive at payment levels that are acceptable to both parties.

McKinsey: Payment schemes can act as the management and incentive mechanism to induce hospitals' proper behavior. We have seen the payment schemes play a critical role in healthcare reforms in developed countries from our experience of supporting payer system reform in the United States and some European countries.

Another topic we would like to discuss is how to efficiently mobilize medical resources in China. Compared with demand, healthcare resources in public hospitals are limited, and this supply-demand gap will grow wider as chronic diseases increase and the population ages. This issue is not likely to be fully resolved by public hospital reform. That said, what do you think of the relationship between public hospital reform and market-oriented private hospital development?

Rao Keqin: Public hospital reform and private hospital development are independent issues. For public hospitals, the role of government is to provide the equitable provision of basic healthcare services based on available resources; while for private hospitals, government should provide the necessary policy support as well as regulation and supervision.

I would argue that China's policy on private hospitals is already quite relaxed, with significant capital investments in recent years. However, during the past five years, the volume of outpatients has increased by 50 percent and of inpatients by 100 percent, while the number of physicians and beds has increased by only 23 percent and 32 percent, respectively. With 17 million new chronic patients every year, adding to the current total of 270 million chronic patients, we expect the demand-supply gap to continue to widen. That said, our policy shall favor the development of private healthcare and licensing physicians to practice at multiple sites.

However, even with the favorable regulatory environment, the growth of private hospitals is still limited, primarily because of a talent shortage. A tiered physician talent pool that allows physicians to function in teams is critical to sizable hospitals. Surgeries, for example, require a full support team, not just a lead surgeon. Some clinical cases require collaborative diagnosis and treatment across multiple departments. Currently, private hospitals may be able to find individual good physicians, but they are struggling to acquire entire medical teams of high quality.

To solve this problem holistically, the government should unleash the capacity of physicians at public hospitals by encouraging them to practice at multiple sites. One hurdle is the work overload for these physicians in public hospitals today. The solution adopted by Brazil's government is to cap working hours at public hospitals at 36 per week. This cap makes experienced physicians more available to grassroots institutions.

Most Chinese physicians prioritize career development over compensation. In our hospital system today, medical research and academic achievements are among the most important determining factors in career progression. Given the lack of an academic platform, private hospitals are therefore less appealing to the majority of physicians.

If those issues are left unresolved, a market-oriented healthcare system and development of private hospitals would only partially compensate for the existing shortage of public hospitals. They would probably not provide the breakthrough required to solve the problems we have identified.

McKinsey: What are your closing thoughts on the top-down architectural framework for public hospital reform?

Rao Keqin: Public hospital reform is, by far, one of the most challenging topics globally. It involves a conflict of interests among multiple stakeholders. Our 17-city pilot has conducted meaningful explorations and has accumulated helpful experiences from different perspectives. These reform efforts, however, remain at the micro level and lack a thorough reform theory and systematic top-down guidance.

To effectively push forward public hospital reform, we need to focus on three things. First, we need to establish an overall architectural framework backed with thorough reform theory and macro-level design. Second, we need to identify and prioritize the critical issues in the current reform. Third, we need to be confident about the clear advantages of our social system and government system, which will drive the success of the reform.

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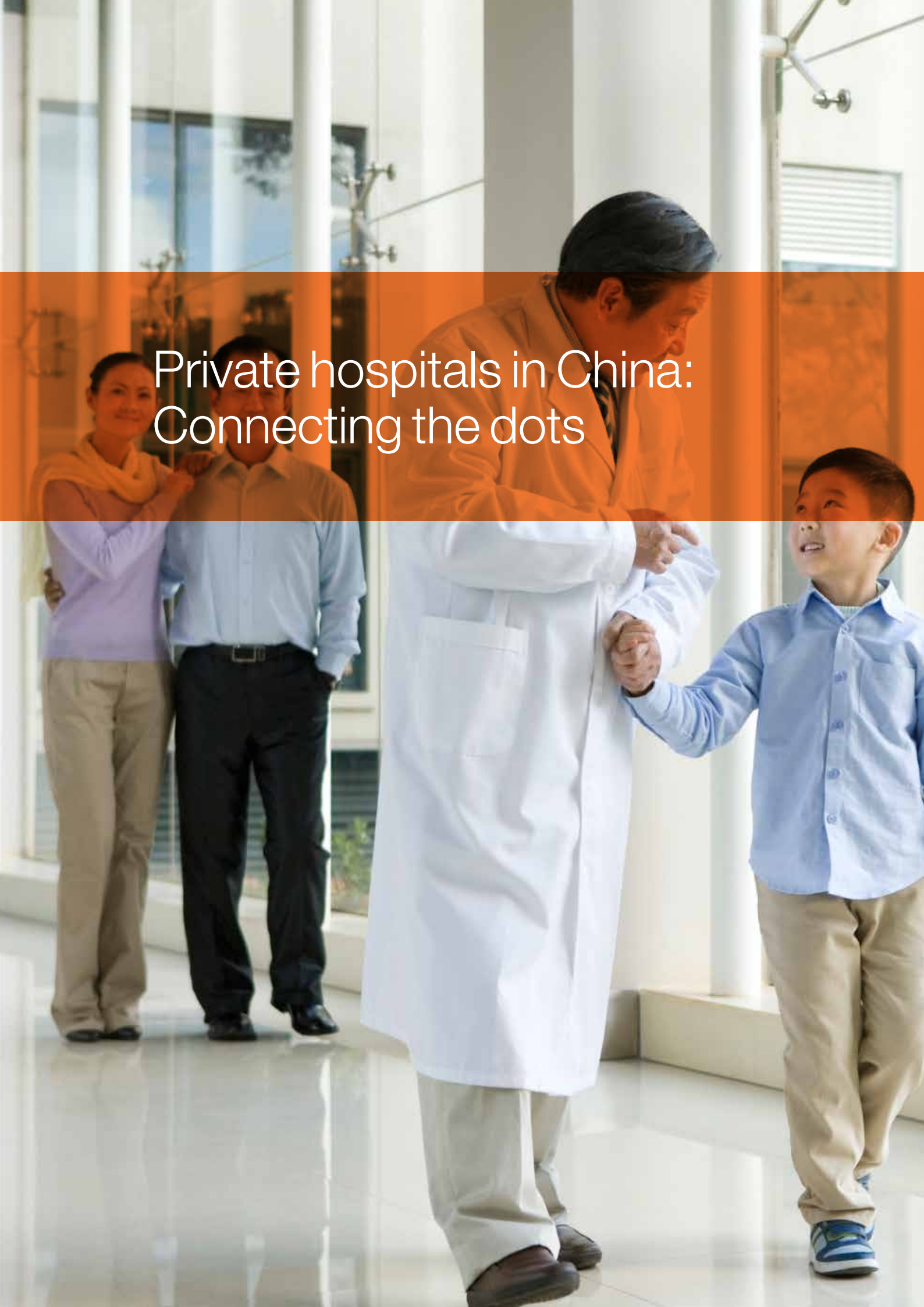


Private hospitals in China: Connecting the dots

Private hospitals in China: Connecting the dots

Alexander Ng, Claudia Süssmuth Dyckerhoff, and Florian Then

To be able to improve private healthcare in China, it is crucial to understand the views of patients and physicians. McKinsey recently surveyed both groups. Placing their perspectives in the context of private healthcare's historical baggage and recent reforms, we identified a set of five success factors that will help investors and healthcare providers to find the competitive edge that will turn high hopes into profitable realities.

What do patients and physicians in China really think about private hospitals? Understanding their perceptions will be critical to improving private healthcare in the current environment of government reform. To help operators and investors to structure approaches that will make the most of this opportunity, McKinsey recently surveyed patients and physicians in China to gain a better understanding of their needs and attitudes regarding private healthcare. The findings point to a set of success factors for winning in the market and turning high hopes into a profitable reality.

Private hospitals in China offer promising opportunities for patients, operators and investors along with benefits to the healthcare system. They give patients the chance to enjoy better care and service, and give operators and investors the opportunity to capture a share of an immense and growing market. They also benefit the overall healthcare system by relieving some of the burden on public facilities. In 2011, there were approximately 100 million inpatient discharges from both public and private hospitals in addition to two billion outpatient visits. The contribution of the private sector is set to double over the next 5 years, with the Ministry of Health (MoH) setting a target: by 2015, private hospitals should be managing 20 percent of China's bed and inpatient/outpatient volume, which is an ambitious increase from 11 percent of beds and approximately 8 percent of inpatient/outpatient activities today.

Despite these opportunities, private hospitals in China have not fared well to date. Here we explain why and discuss how the most recent round of reforms offer a ray of hope. We outline patients' and physicians' perceptions of private hospitals, and conclude by framing the findings from our survey as key success factors for private hospitals.

The historical baggage of private healthcare

The first wave of hospital privatization in the early years of the current century is largely considered to be a failure by both the industry and citizens as it did not have the intended effect of improving both quality and supply of healthcare. The objectives of this wave were certainly worthwhile: they included allowing city governments to off-load underperforming hospitals, enabling state-owned enterprises to focus on their core business which is often non-healthcare related (e.g. public utilities, telecommunications), and creating a high-performance private healthcare service to relieve the burden on the public system. However, there were no adequate policies and incentives to support these good intentions. For example, reputable physicians were reluctant to practice in local or foreign-invested private hospitals and, until this year, the government restricted foreign investors to a 70 percent ownership share in such facilities. Foreign investors aiming to establish

successful joint ventures have struggled because of the staffing problems and investment restrictions, as well as burdensome government approval procedures.

Such obstacles led to the abandonment of the Beijing International Heart Hospital in 2006, an ambitious foreign joint venture that had been established four years earlier. One bright spot has been the United Family Healthcare (UFH) hospital chain: founded in 1993, this foreign joint venture now operates hospitals and clinics in Beijing, Shanghai, Guangzhou, and Tianjin. UFH has successfully formed partnerships with leading local hospitals and associations, establishing good relationships with the central and local governments to ensure that it can move through the extensive regulatory approval process. However, UFH's journey was not all smooth sailing. It is now trying to shift its service focus from Western expatriates to wealthy locals, and from obstetrics to comprehensive medicine. Other joint ventures in China have failed to match or replicate UFH's level of relative success.

Hopes for private healthcare increased in 2009, when the government announced five key healthcare reform objectives that were supported by the commitment of a $125 billion investment over three years. Although this was regarded as a potential boost for the development of private hospitals, the pace of privatization has remained disappointingly slow, and the role of and incentives for private hospitals have remained uncertain. Indeed, most of the activity arising from the 2009 reforms has focused on the public sector, and the activity in support of private hospitals has been limited. Either the private hospitals have not been able to relieve the burden on public facilities or the reforms themselves have not extended to the private hospitals, as shown in the following examples:

- **Insurance.** Although there is room for improvement regarding the depth of coverage, the breadth of coverage of three public insurance schemes has been expanded successfully to 95 percent of the population.[1] However, despite their eligibility to accept this expanded public insurance in certain locations, few private hospitals are doing so because of the additional administrative burden.
- **Public hospital reform.** Fundamental issues associated with access, costs, and payment systems have prevented private hospitals from relieving the capacity burden on the public system. This is a critical need, as little progress has been made in public hospital reform despite a large number of pilot programs initiated across the country to tackle issues such as hospital governance, payment systems and physician incentives.
- **Other initiatives.** Three other government-driven healthcare reform initiatives—implementing the Essential Drug System, improving the delivery of medical services at the grassroots level, and expanding access to basic public-health services—have minimal implications for the private hospitals.

Recent reforms offer a ray of hope

Although three years have passed since the announcement of the five healthcare reform objectives and an incremental $125 billion investment from the government, the need for additional investments has not diminished. China currently spends approximately 5 percent of GDP on healthcare. The government pays 28 percent of healthcare costs, individuals pay 35 percent out-of-pocket, and employers pay the remaining 37 percent. The goal for 2015 is to shift the balance so that the government will pay 33 percent and individuals will pay 30 percent, according to Health Minister Chen Zhu.[2] However, what these system-level figures do not convey is the actual financial burden on each household, for example, the cost of one

1 According to official government statistics, public health insurance had achieved a 95 percent coverage of the population by the end of 2011; the actual figure is likely to be lower because people with multiple types of public health insurance would sometimes have been counted more than once.

2 The spending split refers to total healthcare spending in China from the system's perspective. See "China Hospitals Seen Defying Reforms," March 9, 2012, available at http://online.wsj.com/article/SB10001424052970203961204577267393585854830.html

complex inpatient stay can be several times the average household income, not least if chronic or catastrophic illness are involved.

Early healthcare reform initiatives have focused on improving and expanding the public healthcare system and infrastructure. However, eventual constraints on capital lead the government to foresee an increasing need for private hospitals to expand their role in managing the country's healthcare burden. Various policy changes and pilot projects that have been announced and implemented since 2009 give reason to hope that private hospitals can overcome the challenges and assume this larger role:

- **Foreign investment.** Foreign investors are no longer restricted to operating through 70-30 joint ventures with local partners. Foreign investments in healthcare services were removed from the 'restricted' category in the 2011 revision of the Catalogue of Industries for Foreign Investment that took effect on January 30, 2012.
- **Physician recruitment.** Pilot projects under way in specific provinces (for example, Guangdong, Yunnan, Sichuan, Henan, and Hainan) allow physicians to practice in multiple locations, including private hospitals. These projects aim to make it easier for private hospitals to recruit reputable physicians, whose highest priority is to maintain their professional ranking in the public system. Under previous regulations, physicians lose their professional title and ranking in the public hospital system if they work even part-time at a private hospital.
- **Tax exemptions.** Favorable tax policies have been implemented, such as a business-tax exemption for the first three years of a private hospital's existence and an income-tax exemption on the pretax profits that companies invest in medical services.

However, it is still not clear how much impact these policy changes and pilot projects can have, given that the bureaucracy and approval processes required to set up a hospital still create significant barriers that private operators must overcome.

Recognizing these challenges, the MoH recently announced goals and measures specifically targeted toward promoting transparency in private hospitals and the growth of private services. Published as part of the China Healthcare Reform Working Plan for the 12th Five-Year Plan, these include the following:

- Encouraging the development of private health insurance and the acceptance of public health insurance by private hospitals
- Including qualified private hospitals and retail pharmacies within the scope of public-insurance coverage
- Encouraging the development of private hospitals to a level where they would be managing 20 percent of China's bed and inpatient/outpatient volume by 2015 (a significant increase over the current 11 percent)

These most recently adopted policies are a good basis for promoting the private market, but more needs to be done to encourage public hospitals to partner with private facilities and to align physicians' incentives with the need for service in private hospitals.

For their part, hospital investors and operators have an opportunity to build competitive and sustainable businesses aimed at capturing the next wave of growth that will be stimulated by the reforms. To make successful interventions, investors and operators need to achieve a better understanding of what patients and physicians really think and feel about private hospitals.

Understanding the perceptions of patients and physicians

There are many commonly accepted beliefs among investors and operators about patients' and physicians' perceptions of private hospitals. These beliefs need to be tested, to check whether investors and operators truly understand the market. In response to the pressure for the private system to 'get it right' this time round, McKinsey undertook a survey of patients and physicians to uncover their views. During March 2012, we surveyed more than 1,000 upper middle class Chinese in eight cities, whose annual household disposable income was at least 80,000

renminbi ($13,000, approximate median household income). This research was complemented by a survey of more than a hundred Chinese physicians currently working in public hospitals.

The results aim to provide potential private hospital investors or operators with some perspectives on what actually constitute the most important features when it comes to positioning and promoting their hospitals. We group our findings under four main headings: the significance of a patient's overall experience; the private hospitals' perceived shortcomings in achieving their intended role; the things consumers are willing to pay for; and how physicians' views of private hospitals influence their referral practices.

A patient's overall experience matters

The medical reputation of the hospital and physician is a primary consideration for patients. However, our survey found that various aspects of the patient experience (the quality of the rooms, the staff's service orientation, and the location) are collectively as important as medical reputation and even more important than the price of treatment (Exhibit 1). Physicians' understandings do not match patients' views of the importance of medical reputation relative to other considerations in the choice of hospital (Exhibit 2).

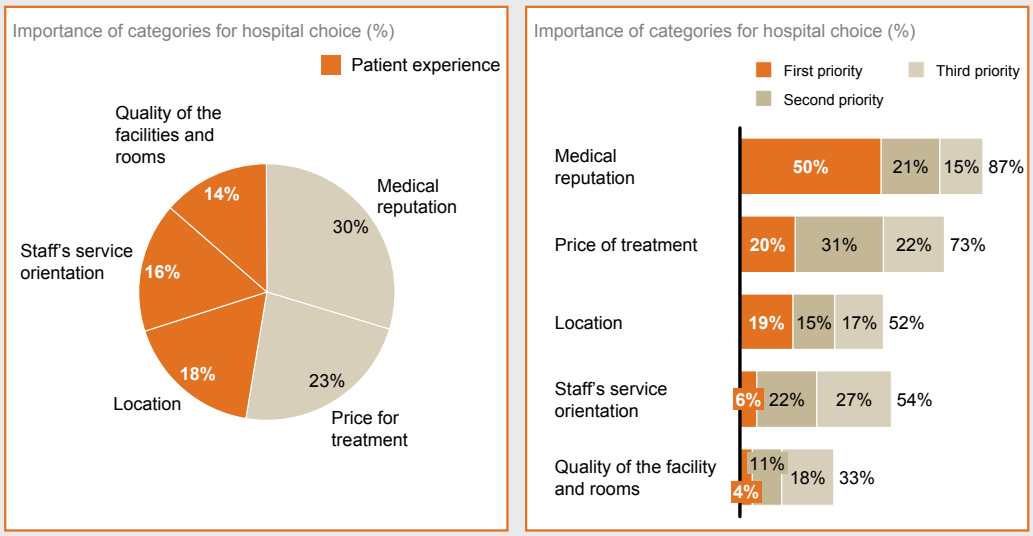
Public hospitals fare poorly in the dimensions of access to care and the staff's service orientation

Our survey found that patients' most negative perceptions of public hospitals were related to unpleasant staff and the delays in access to medical care (Exhibit 3). Although one might think that private hospitals have a natural competitive advantage over the widely-acknowledged shortcomings of public hospitals, both private and public hospitals fared about the same in each of these dimensions in our survey (Exhibit 4). Despite their negative perceptions of public hospitals, patients continue to flock to them in hopes of benefiting from the physicians' clinical skills.

Nonetheless, the findings suggest that private hospitals have an opportunity to capture patient volumes by promoting potential benefits that private services can offer, such as predictable access, higher ethical and quality standards, the commitment to patient safety, and transparent pricing.

Exhibit 1: The quality of the patient experience is just as important as medical reputation and price of treatment

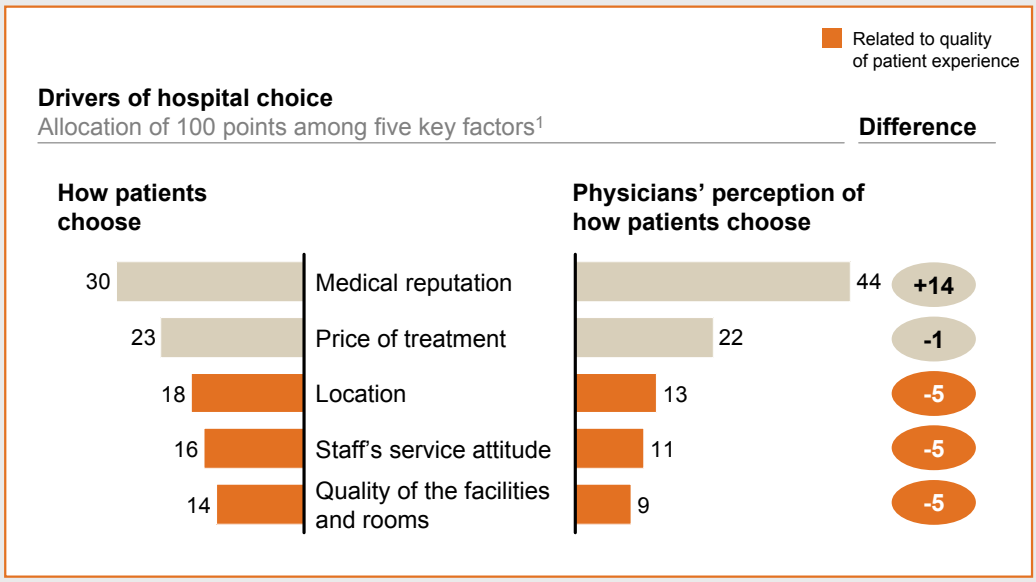
What is most important to affluent Chinese consumers when they select hospitals?



Note: Numbers reflect rounding

Source: McKinsey Patient & Physician Survey 2012

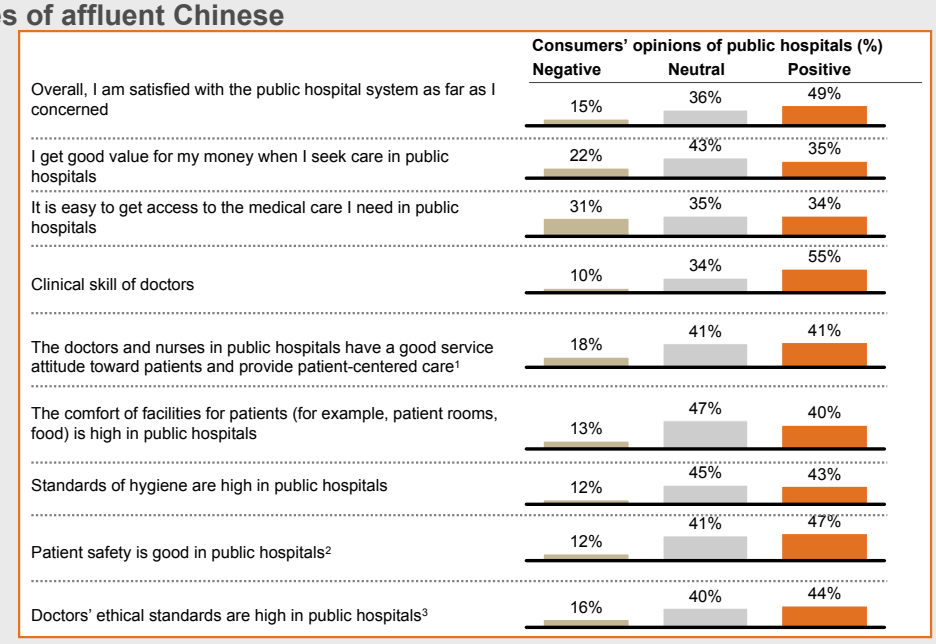
Exhibit 2: Physicians' understandings do not match patients' views of the importance of medical reputation in the choice of hospital



1 Does not add up to 100 due to rounding

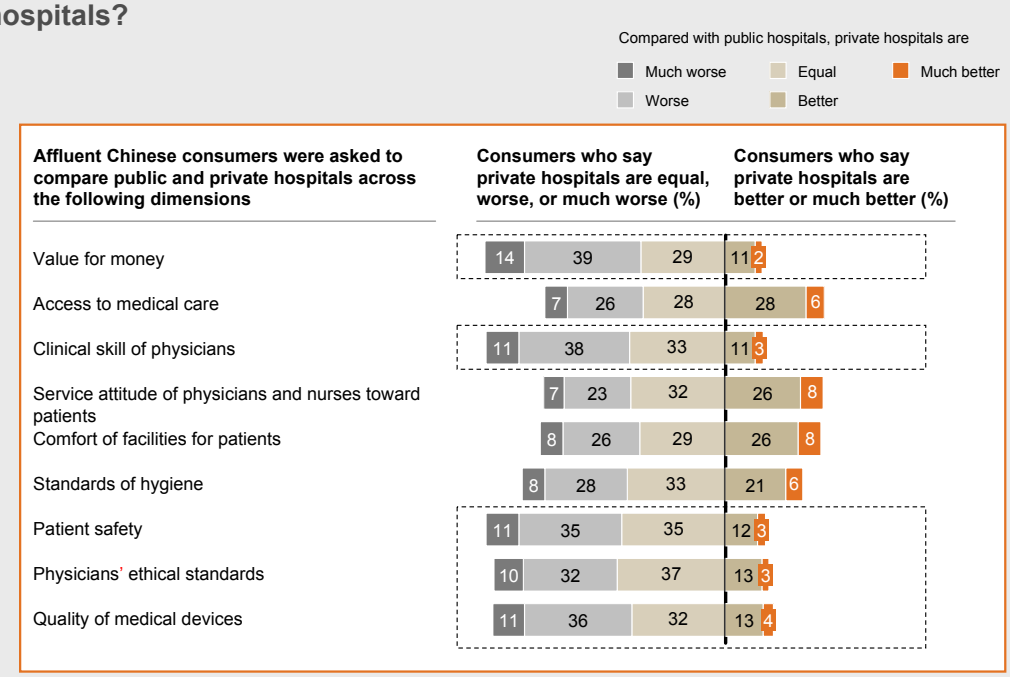
Source: McKinsey Patient & Physician Survey 2012

Exhibit 3: Access to public hospitals remains the biggest problem in the eyes of affluent Chinese



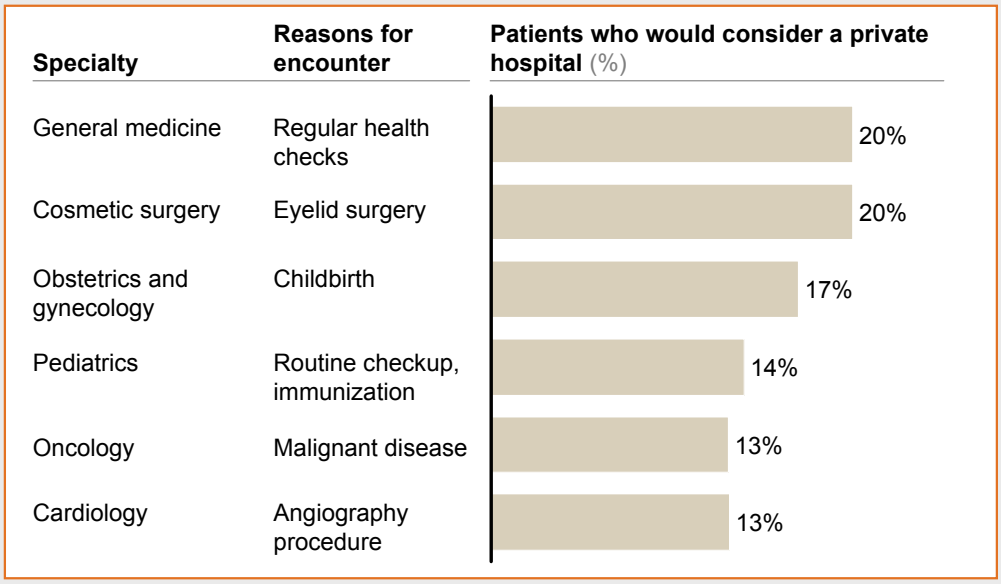
1 For example, taking enough time to explain, involving patient and family in decisions, minimizing waiting time for patients
2 It is unlikely that there will be any dangerous medical errors such as administration of the wrong drug
3 Physicians do only what is good for the patients and do not keep their own or the hospital's financial interests in mind
Source: McKinsey Patient & Physician Survey 2012

Exhibit 4: Private versus public – how to reshape the perception of private hospitals?



Source: McKinsey Patient & Physician Survey 2012

Exhibit 5: General medicine, cosmetic surgery, and obstetrics and gynecology are the top three specialties that affluent Chinese consumers seek in private hospitals



Source: McKinsey Patient & Physician Survey 2012

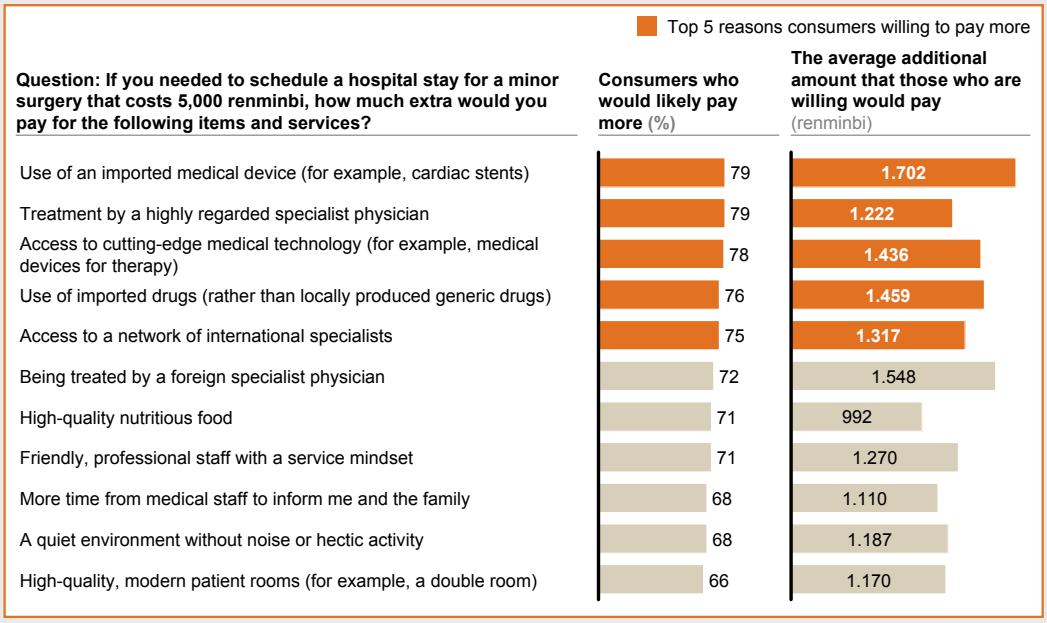
Consumers are willing to pay more for certain services

In the context of a generally negative perception of private hospitals, private operators might wonder where to find the 'low-hanging fruit', those straightforward opportunities to improve their performance and reputation. The upper middle class participants of our survey had a somewhat higher preference for private services for treatments that are less urgent or life-threatening, such as general medicine and cosmetic surgery (Exhibit 5). This is likely to be a reflection of underlying concerns about the quality of medical personnel in private hospitals, which has hitherto been

impeded by the policy that limits physicians to a single practice location and thereby limits the pool of willing practitioners. Though this restriction is now being lifted in certain provinces, many physicians continue to practice at only one location, and that is a public hospital.

More than two-thirds of our respondents were also willing to pay extra for some treatments, drugs, and services, specifically for treatment by highly-regarded or foreign specialists, and also for imported drugs, imported medical devices, and cutting-edge technology (Exhibit 6). These features may be seen to be more important in critical-care specialties such as cardiology and oncology. Patients' willingness to pay for superior treatments, drugs, and services presents an opportunity for private hospitals, especially those jointly-owned by foreign investors, because these facilities are better positioned to provide these options than are the public hospitals.

Exhibit 6: Affluent Chinese consumers are very willing to pay for imported drugs, medical devices and treatment by highly-regarded specialists



Note: Only showed items for which >2/3 (>66%) consumers would pay more

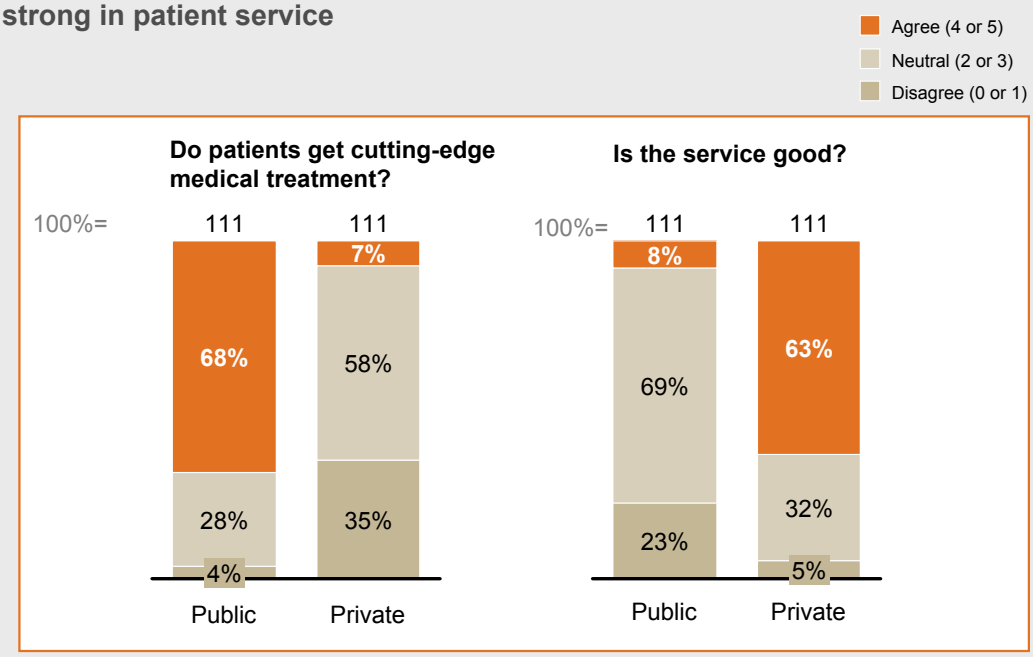
Source: McKinsey Patient & Physician Survey 2012

Physicians believe that private hospitals are strong on service but weak on advanced treatment

Besides convincing patients of their superiority, private hospitals must also focus their persuasion efforts on physicians, whose perceptions will determine whether this sector will thrive in the future. The willingness of skilled physicians to work in private hospitals will be a key success factor for these facilities. Those physicians who work in the public system, in particular, are very significant stakeholders because of their role in channeling patients to private hospitals through referrals.

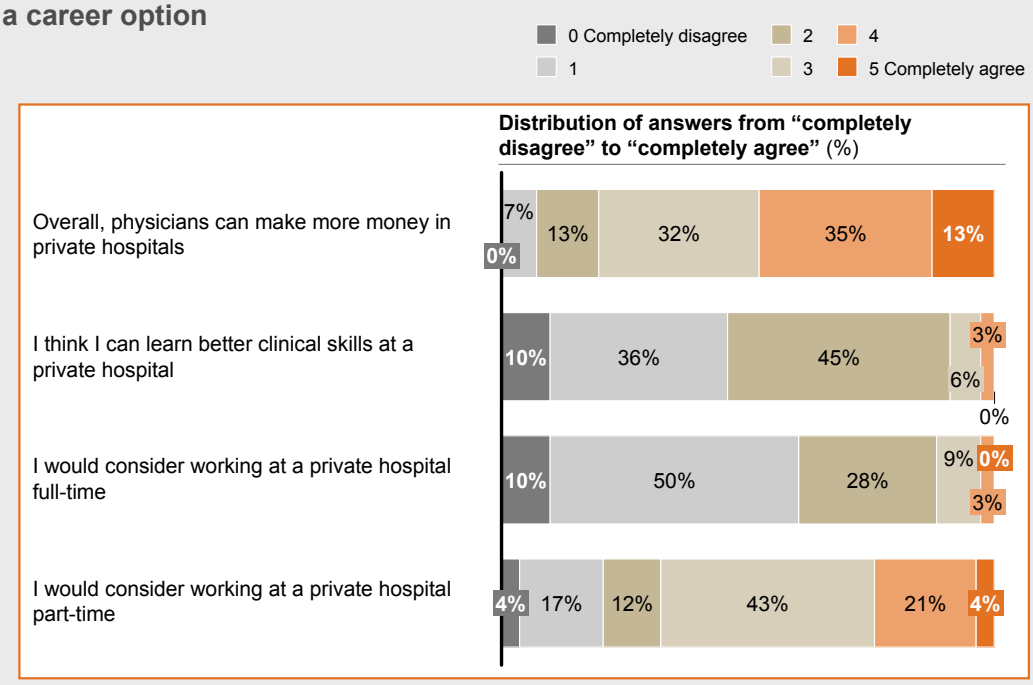
Echoing the patients' perceptions, physicians draw a striking distinction between private and public hospitals and their relative capacity to provide cutting-edge treatment and patient service. Physicians think that private hospitals are weak on the former, but strong on the latter. More than two-thirds of physicians think that patients get cutting-edge medical treatment at public hospitals, and only 7 percent think this applies in private ones. However, a quarter of the physicians we surveyed think patients do not receive good service at public hospitals, whereas more than 60 percent think that patients receive good service at private hospitals (Exhibit 7). This perception regarding cutting-edge treatment is reflected in physicians' referral behaviors: referrals to private hospitals are not common among physicians working in the public hospital system. Seventy-eight percent of these physicians have never referred a patient to a private hospital, 16 percent recalled referring patients once or twice, and only 6 percent have referred patients on a more regular basis.

Exhibit 7: Physicians' views of private hospitals - weak in medical care, strong in patient service



Source: McKinsey Patient & Physician Survey 2012

Exhibit 8: Public hospital physicians' views of private hospitals as a career option



Source: McKinsey Patient & Physician Survey 2012

Physicians' negative perceptions about private hospitals is likely based on their lack of experience of working in these facilities. However, they are open to gaining such experience, at least on a part-time basis. Close to 70 percent of the physicians we surveyed said that they are somewhat or certainly open to working part-time at private hospitals (Exhibit 8). Such part-time postings would likely go a long way towards improving physicians' perceptions of private facilities.

Connecting the dots: Key success factors in the private hospital market

Various provinces and cities are beginning to create favorable environments for private hospitals. Beijing, for example, is designating land for hospital use in its annual planning process, and is making funds available for financing. The continuing healthcare reforms and the reputational issues reflected in our survey together offer a complex set of opportunities and challenges for existing private hospitals, as well as for potential investors in this sector. Taking all of these things into consideration, we believe that China's private hospital market will be an attractive investment opportunity, and that patients will increasingly seek private healthcare services during the coming five years. The favorable environment will be enhanced by such macro-development factors as the rise of the middle class and the government's goal that the private sector should be the source of 20 percent of healthcare provision. Investors and operators will need to do their part to overcome patients' and physicians' negative perceptions so as to capture the opportunity.

We have identified five imperatives for success in this market:

Over-deliver on patient experience

It is clear that the current value-proposition and perceived competitive edge of private hospitals lie in the provision of patient-centered service. It will be crucial for private hospitals to continue to deliver better patient services in order to draw patients from the public system and also compete against each other.

Proactively address quality perceptions

Clinical quality and patient safety need to be at the top of any hospital CEO's agenda, with clear metrics and reporting mechanisms put into place. This will require a cultural change in most hospitals, including a commitment to talk about and learn from mistakes, as well as a willingness to be transparent about the quality of care, including more public disclosure about medical incidents and outcomes rather than simple activity-based reporting. The crucially important matter of reputation must be managed not only by hiring excellent medical practitioners but also by making parallel changes in the organization's communication strategy and culture.

Secure the right physician talent

Our research clearly shows that physicians are willing to work part-time at private hospitals, where compensation is higher, if they can secure the time and approval from their public hospital employers. Those private hospitals that can sign up physicians who are opinion leaders will enjoy both reputational benefits and additional referrals from these physicians' patient bases at public hospitals.

Be specific about what you do and where you do it

Patients seeking medical care at private hospitals make clear distinctions among different specialties, and select their hospitals accordingly. In addition, what may be an attractive specialty to patients in one city may not be attractive or a significant need for patients in another city. Our experience suggests that it is critical to identify the most specific and promising opportunities at a city level so that the private facility can find its 'sweet spots' in the market, rather than applying a generalized approach that does not make use of market research.

Leverage highly-valued attributes

Our research suggests that international collaboration as well as high-end imported drugs, devices, and technology are highly attractive to upper middle class consumers. Foreign investors and joint ventures should place these highly-valued attributes at the core of their value proposition.

□ □ □

Many of the skills and capabilities required to be successful in operating private hospitals in China, such as business-minded physicians, are not readily available. As a result, investors and operators interested in capturing the opportunity to develop private hospitals will need to take an open approach to building partnerships with the public hospitals to develop and access the necessary skills and capabilities. Private hospital operators must also take a longer-term perspective by investing in building their reputation, as this is critical to promote growth in a market where patients still choose and decide mainly on the basis of reputation. In a developing market, the well-managed intangibles that define 'reputation' will be based on the quality of treatment and, as consumers become wealthier and more demanding, the quality of service.

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Private health insurance in China: Finding the winning formula

Private health insurance in China: Finding the winning formula

Alexander Ng, Claudia Süssmuth Dyckerhoff, and Florian Then

As China is moving towards full enrollment of the population into basic medical insurance schemes, limitations of the public system become apparent. What roles can private insurers play to address unmet needs in China's evolving market?

China's health insurance market is characterized by two conflicting attributes: nearly universal coverage by public insurance yet widespread concern about the burden of medical expenses to individual patients. Acknowledging the challenges, the government is increasingly looking beyond public insurance for ways to improve the provision of medical insurance. As private insurers step into this market, what role can they play?

Expanding the coverage of public health insurance has been among the most striking achievements of China's healthcare reform. Within less than ten years, approximately 900 million people were enrolled in various public health insurance schemes, extending coverage to more than 95 percent of Chinese citizens.[1]

Universal insurance coverage is a key component of the government's effort to address the increasing burden of healthcare costs for individuals and families. But has nearly universal coverage achieved this goal?

Unfortunately, problems remain as China's rapidly aging population is experiencing the dual burdens of a rising rate in chronic diseases and climbing costs for healthcare. Although healthcare is increasingly accessible and sophisticated, its high cost has incited public debate and criticism. China's citizens still feel compelled to hoard cash in their savings accounts in order to protect themselves and their families against health-related emergencies. A close look at the exclusions and co-pay requirements of public insurance policies reveals why: in reality, the coverage for health-related expenses remains patchy for most people.

The existing gaps in public insurance coverage would seem to open up attractive opportunities for private insurers in the world's most populous market. But private companies have yet to make much headway in navigating through China's complex landscape.

To get to the bottom of what is really happening with health insurance in China, we start by taking a close look at why individuals are not adequately protected from high healthcare costs despite nearly universal public insurance coverage. Then we turn our attention to the private insurance market, examining the market landscape and exploring why private insurers face challenges in the market despite having an opportunity to fill the gaps in public insurance. We conclude by

1 According to official government statistics, public health insurance had achieved a 95 percent coverage of the population by the end of 2011; the actual figure is likely to be lower because people with multiple types of public health insurance would sometimes have been counted more than once.

discussing some key issues and emerging success factors that private health insurers should be thinking about as they consider their China strategy.

Mind the gaps

An examination of public health insurance schemes readily explains why individuals believe they are inadequately protected from healthcare costs despite nearly universal coverage. High co-pay requirements, drug exclusions, and inflexible plans together undermine the value of protection.

Significant out-of-pocket payments

Undoubtedly, there has been much progress regarding the scope of insurance coverage and government funding of insurance under the three public insurance schemes.

However, patients still need to contribute significant out-of-pocket sums. Inpatient costs can easily add up to several times the average annual income levels, especially if they involve complex procedures, expensive devices, or patented drugs. These costs also require 10 percent to 20 percent out-of-pocket co-payments even under the more generous urban plans: Urban Employee Basic Medical Insurance (UEBMI) and Urban Resident Basic Medical Insurance (URBMI). In the New Rural Cooperative Medical Scheme (NRCMS), co-payments for inpatient care are as high as 25 percent to 35 percent.

For chronic diseases that are primarily treated in an outpatient setting, such as diabetes, reimbursement rates still tend to be quite low. Although considerable variability exists across different cities and regions, out-of-pocket co-payments are substantial under the two more generous urban plans. They can exceed 90 percent of the bill for NRCMS, leaving those conditions essentially uncovered. This coverage gap exists for other outpatient treatments as well, and leaves the insured population vulnerable to under-diagnosing, inappropriate treatment, and secondary complications from chronic diseases.

Relatively low caps for total reimbursement likewise increase the risk that patients with serious acute or chronic conditions will end up paying a large portion of their healthcare bills out-of-pocket.

Lastly, although insurance plans have established lists of reimbursable drugs, cutting-edge innovative drugs and novel treatments might be excluded from reimbursement, or the reimbursed portion may cover only a small part of the high costs. Typical examples include areas such as autoimmune disease or malignancies with novel biologics as the latest treatment options.

Inflexible plans

Insurance plans are inflexible and do not provide room for premium healthcare. Beneficiaries cannot tailor their insurance coverage according to their needs and willingness to pay. Moreover, special needs, such as single-room inpatient care, are excluded from coverage.

While these public insurance schemes reduce the possibility that healthcare costs will wipe out savings or even lead to a family's financial ruin, they do not eliminate that possibility, especially for those most vulnerable to large-ticket medical expenses. Not surprisingly, wealthier cities provide more generous coverage; however, the current system cannot provide truly comprehensive healthcare coverage. In fact, it is the wealthy cities that already feel pressure on their medical insurance funds driven by high reimbursement rates and demographic changes – substantial expansion of coverage depth is unlikely to be an option.

Chinese citizens are well aware of the gaps in public insurance coverage, and these shortcomings have prevented them from feeling protected against soaring healthcare costs. McKinsey research shows that fear of health-related expenses is still the single most important reason why Chinese people keep their money in savings accounts.[2] These fears are justified, as out-of-pocket spending remains high at an estimated 35 percent of the country's total medical

2 *Insights China*, 2011.

spending, according to public sources.[3] This number may understate the real problem, as many patients still have to forgo necessary prevention and treatment altogether because they lack adequate insurance coverage.

In regard to public insurance, this situation is not likely to change significantly in the near to mid-term. The inadequacies of public insurance coverage reflect the government's concern about its ability to sustain the social benefits system. For example, the UEBMI, which enjoys the highest level of funding from employers and individuals, has a sizable surplus at present. However, driven by an aging population and a relatively early retirement age, this favorable situation may turn into a deficit as soon as 2017 if the scheme continues to run under the current policies. In fact, URBMI is already running current deficits in Beijing and Shanghai, and Shanghai is running a negative balance on the much more sizable UEBMI plan.[4]

Private insurance is expected to play a major role in addressing the implications of this looming funding deficit. Indeed, the government intends for public insurance to cover only basic healthcare, while endorsing the idea that a thriving private insurance sector can address the diverse additional needs in the market. The government has specifically set the goal of actively developing private health insurance to meet diverse healthcare needs and has encouraged enterprises and individuals to join private health insurance plans. This policy thrust was reinforced in the State Council's announcement of the 12th Five-Year Plan's healthcare reform goals in March 2012.

What is the market landscape for private insurance?

This environment provides a unique opportunity for private health insurers to step in and fill the coverage gaps in public insurance. McKinsey research confirms that approximately 30 percent of China's urban population currently possess some kind of private health insurance, while another approximately 20 percent are planning to buy some form of health insurance in the near future.[5] Not surprisingly, health insurance penetration increases with economic status: while the mass segment (monthly household income up to 4,500 renminbi) shows 27 percent penetration of private health insurance, this rises to close to 40 percent in the upper middle class segment (monthly household income between 4,500 and 11,000 renminbi) and to more than 50 percent for the mass affluent segment (monthly household income more than 11,000 renminbi).

While these penetration numbers look impressive at first glance, they are somewhat misleading. In reality, the health insurance market is still immature and the level of sophistication is low for the majority of both insurers and consumers. In fact, much of the private healthcare coverage that individuals obtain is acquired as an "add-on", that is, it is purchased as part of a product bundle or as a rider on savings products or life and accident insurance products.

Our research further suggests that the majority of consumers do not understand the details of their private coverage and its exclusions: in a recent survey of more than 1,000 consumers on healthcare topics, half of those who had private health insurance stated that they were unclear about the scope of conditions covered.[6] Less than 20 percent stated that they fully understood their insurance policy. It is difficult to fault consumers, as there is little evidence that insurers apply customer-focused business models that provide customers with value-adding solutions described in terms that they can understand. Insurers might respond that they have found it challenging to sell more sophisticated and comprehensive health insurance plans at accordingly higher premiums. Many Chinese consumers have yet to fully understand the concept of a long-term, ongoing investment in health insurance. The complexity of explaining the value of such products to consumers has impeded their widespread uptake.

3 Announcement in a recent speech of China's Minister of Health regarding 2011 out-of-pocket spending.
4 MoHRSS 2010 statistics; McKinsey analysis.
5 *Insights China*, 2009; McKinsey Patient & Physician Survey 2012.
6 McKinsey Patient & Physician Survey 2012

Private health insurance may become increasingly relevant to providers as well. As many hospitals tighten their budgets for spending within the publicly reimbursable categories, physicians increasingly notice the difference between providing care to patients who have private insurance and to those who do not. In a recent McKinsey survey of more than 100 physicians in public hospitals, roughly two-thirds agreed that private health insurance made it easier for them to provide optimal care to patients.

Finally, employers and employees alike increasingly regard private health benefits as an important element of a job's value proposition. Many employers have improved their health benefits to attract much-sought-after talent in China.

Why are private insurers struggling?

With four key stakeholder groups (the government, consumers, providers, and employers), all lined up to endorse private health insurance, one would expect to see a thriving market for such products in China. However, while the market is growing rapidly, it is still surprisingly small. It accounts for only 56 billion renminbi in annual gross written premiums (GWP) for China's insurance companies, compared with one trillion renminbi in the life insurance market, and 79 billion renminbi in the accident insurance market.[7] To make matters worse, profitability has been challenging, as the leading health insurers have struggled to make money in the market.

Several factors combined make the China health insurance market a challenging one for most private insurers:

Poor understanding of customer needs

Most health insurance products in China provide a certain degree of financial protection for a limited number of diseases or health-related circumstances. Classic examples are one-off payments when a critical illness is diagnosed. In reality, such products fall short because they do not address two customer needs:

- **Access to high-quality healthcare.** Results from the 2012 McKinsey Patient & Physician Survey, among more than 1,000 upper middle class consumers (yearly income greater than 80,000 renminbi) suggest that especially for more affluent people (who are most likely to purchase health insurance), financial protection is not the only concern and may not be the most important one.[8] When asked about their satisfaction with health provision in the public system, the same proportion of respondents (two-thirds) expressed dissatisfaction with access to quality care as with price. Yet, most health insurance products currently do not address access to care.
- **Complete, worry-free coverage.** Capped payments for a defined group of diseases fail to provide customers with "peace of mind" regarding possible catastrophic health events. As described above, a large proportion of those who have private insurance do not fully grasp the nature of their coverage. This creates an additional barrier to customers developing a sense of being properly secured and protected.

The existence of these unmet needs suggests that significant changes are required before private health insurance can provide the desired value, both actual and perceived, to Chinese customers. But it also shows that there are real opportunities for product solutions that address customer needs.

Lack of standardized data and medical insurance expertise

In mature healthcare markets, a comprehensive and standardized data environment, as well as coherent medical records, enable insurers to offer tailored insurance, manage risk in underwriting, conduct an informed claim and reimbursement process, and even manage

7 *China Insurance Yearbook*, 2010.
8 McKinsey Patient & Physician Survey 2012

the health of the insured population. In the relatively young Chinese healthcare system, these standardized data systems are not currently available. And even if data transparency improves going forward, insurers will have to do some catching up to build the skills and knowledge required for applying that data to become smarter in their operations.

Undifferentiated products

In the absence of high-quality data, insurers have been unable to differentiate their offerings and are largely competing in the same space. For example, the large local health insurers (PICC Health, Ping An Health, Kunlun Health, and Hexie Health) all offer a similar portfolio that includes protection for "dreaded diseases" (such as malignant diseases), allowance or reimbursement for hospitalization, accident insurance, and premium insurance that covers "VIP standard" amenities in hospitals. Products are bundled into multiple arrays of different diseases and services, and coverage is subject to different caps, all of which leads to a confusing landscape of plans that collectively lack true differentiation. This in turn has led to competition based on price and brokerage commissions, which eats into the profit margins of insurance providers.

High-cost distribution models

The majority of health insurance companies rely on large in-house sales forces or brokers as key distribution channels. For insurers with in-house sales forces, it is challenging to find the right talent and bear the cost of quickly rising wages. Those relying on brokers must pay a significant amount for commissions, as brokers are in a good position relative to insurers competing for market access and share.

Few incentives for providers to cooperate

China's Class 3 hospitals, the key pillars of high-quality healthcare, have had plenty of business. Indeed, they have been overrun with patients, and their revenues are mostly generated in a fee-for-service model and from margins on prescribed drugs and procedures. As a result, these providers have little incentive to collaborate with insurance companies to optimize patient streams by applying approaches common in many Western countries. These include increasing patient volumes, achieving a favorable case mix, or reducing length of stay. The government is currently exploring novel reimbursement policies to lead hospitals towards more cost-efficient operating models. Although the effects of these reforms have unfolded slowly so far, they may provide a starting point for more collaborative models between insurers and hospitals.

Lack of tax incentives

Unlike many mature health insurance markets, China does not offer tax incentives that would encourage employers to buy health insurance for their employees. This in turn has prevented group health insurance from taking off at a large scale outside of multinational companies.

For these reasons, the Chinese healthcare market has yet to become as thriving, innovative, and diverse as one might expect.

Even some multinational companies have struggled to deploy their core competencies on the ground in China. Of the many foreign companies that entered China boasting of sophisticated health insurance expertise in mature markets, only some have filled attractive but limited niches. Cigna, Aetna, and MSH have introduced high-end health insurance that caters mainly to expatriates. These products rely on an established network of high-end providers as well as the option of flying insured individuals to other countries for top-notch healthcare. While to date none of the foreign companies have achieved large scale with comprehensive health insurance products, some are exploring broader offerings in order to expand their reach in China.

Tapping into the opportunity

Although China poses several significant challenges to health insurers, a closer look at China's market trends, in healthcare and beyond, suggests that there are several options health insurers could explore to tap into the opportunity.

Shape the rules of the game

In its most recent announcement on medical reform plans, released on March 14, 2012, the National Development and Reform Commission (NDRC) clearly states the intention to increase the role of private health insurance—this may open the door to more proactive collaboration with regulators. On national, provincial, and city levels, insurers should try to proactively shape the future of the insurance market on several topics. These range from establishing tax incentives to removing operational barriers that restrict insurers' business models (for example, allowing the paperless closing of policies with electronic signatures). These topics are clearly "on the radar" at the regulatory level. In the State Council's recent announcement of healthcare reform goals, "implementation of preferential tax policies" and "simplified claims settlement" are explicitly mentioned. It is now up to insurers to work with regulators to translate these stated goals into tangible improvements in the regulatory landscape. We expect that companies that have built a good rapport and relationship with regulators will find a receptive partner in this effort and may be able to significantly influence the "ground rules" of the market.

Build provider networks to enable quality and access

To provide truly comprehensive health insurance plans (as opposed to products that simply supplement public-insurance protection), insurers must build a high-quality provider network. This will enable insurers to provide the key ingredient that is currently missing for most health insurance propositions: fast, reliable access to high-quality healthcare. It will also likely be a sustainable source of competitive advantage, because enrolling hospitals at a large scale and setting up the needed systems and processes (such as for direct reimbursement) require skills and relationships that are relatively difficult to replicate.

Because hospital reform measures have created pressure on hospitals to operate efficiently and manage medical expenses, it is more likely that providers will be open to collaborate with insurers. Hospitals will be especially receptive to collaborative efforts that offer added value by increasing patient streams or improving expertise in hospital management. Many multinational companies apply these capabilities in their home markets. Bringing them to China could make these companies an attractive partner not only for private hospitals, but increasingly for public providers as well. Indeed, several multinational companies have started to build provider networks, most notably MSH with roughly 180 providers in its network. Cigna & CMC Life Insurance Company, the joint venture of Cigna and China Merchants Bank, has built a network of approximately 150 providers during the past two years. BUPA offers quality accreditation to eight top hospitals in Shanghai and Beijing, thereby gaining insights into hospital operations that will ease any selection of hospitals in light of network building.

Get smart about medical data

Although it is still early, the rollout of public insurance and reimbursement schemes is producing a trove of health-related data that could offer valuable insights into healthcare needs and risks. That said, insurers should not raise their hopes too high just yet, as these data sets are not up to the standards of those available in developed markets, which provide a granular, population-wide view on morbidity and health risks. Nonetheless, insurers should start interacting with the Ministry of Human Resources and Social Security (MoHRSS) to explore ways to leverage these data in order to better understand the market and to shape the future of the data environment in China.

Explore new channels

One of the most striking trends in China's consumer landscape is the digital boom, with approximately 500 million people online,[9] 180 million Internet shoppers, and 300 million consumers using social media.[10] Indeed, in many ways China has leapfrogged the development stages of mature markets. This provides a unique opportunity for insurance companies to

9 Internet World Stats data, as of December 2011.

10 2012 McKinsey iConsumer survey on Chinese consumers

develop new digital distribution channels. By applying telemarketing, Internet, and mobile solutions, companies can overcome the disadvantages of using large in-house sales forces or brokers, as discussed earlier. Judging from experiences in Europe and some Asian markets, where direct insurance sales models have become an established business model, it seems plausible that the digital channel could soon play an important role in health insurance distribution in China. However, whether it can evolve into a channel that also sells higher-end, comprehensive health insurance products remains to be seen.

Consider adjacencies

It may be worthwhile for insurance companies to get creative in looking for new opportunities in China's healthcare ecosystem. Such opportunities could lie in government-level partnerships on data and claims management; in participation in the development, piloting, and implementation of electronic medical records and electronic health cards; or in vertical integration as a healthcare provider, regional health systems manager, or population-based disease manager. Such adjacent opportunities are now more plausible because the government has lifted restrictions on foreign investment in health providers.

Finally, insurance companies should step back and think about additional stakeholders that may have an interest in insurance coverage as well as the economic muscle and entrepreneurial skills to make a move into this market. As examples, consider pharmaceutical and device companies. Many of these companies regard the need to make their patented products affordable as a key obstacle to unlocking the full potential in China, and therefore should have a keen interest in rolling out targeted insurance companies. This could open doors for game-changing partnerships or for the entry of new companies into this market.

□ □ □

The healthcare system in China is going through a transformational process that is opening up novel opportunities for health insurers. To capitalize on these opportunities, insurers need to take a granular approach to the market, build a deeper understanding of key stakeholder needs, and invest in building the knowledge and capabilities to take health insurance in China to the next level of sophistication. With the potentially huge opportunity represented by the world's most populous country, we expect further dynamic development and activity by local and international health insurance companies, all in a quest to provide comprehensive health insurance solutions to China's more than 1.3 billion people.

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Seeing healthcare reform through physicians' eyes

Highlights from McKinsey's 2012 physician survey

Seeing healthcare reform through physicians' eyes: Highlights from McKinsey's 2012 physician survey

Yinuo Li, Li Ma, and Claudia Süssmuth Dyckerhoff

China's two million physicians are at the heart of the efforts toward the healthcare reform. McKinsey's survey of physicians nationwide shows how physicians gauge the progress of the reform and the "health" of the physician community itself in the midst of healthcare reform. The outcome of this survey reflects the visible progress of the reform as well as the complexity of the issues the reform needs to address.

In April 2009, China's State Council published *Deepening Healthcare Reform Guidelines*, officially kicking off the new round of the healthcare reform effort.[1] In March 2012, the People's Congress formally summarized progress in the first phase, defined as the three years from 2009 to 2012. Significant progress was made on several fronts, notably in improvement in medical insurance coverage, investment in grassroots medical institutions in both urban and rural areas, and the establishment of the Essential Drug System (EDS).

However, the government report acknowledged that the healthcare reform was far from complete and that the hardest challenges had yet to be tackled. These challenges, at the core of China's healthcare system, include the reform of public hospitals and payment schemes. The government plans to address these reforms in the coming years during the *Gong Jian* (攻坚, or "addressing core issues") phase of the reform.

Much has been written from the government's perspective and from the patients' point of view on the current multi-year healthcare reform effort under way in China, as well as the implications for both industry and patients. Until now, less attention has been paid to what this means for China's physicians, and what they think of the reforms. For the reform efforts to succeed, it is important to solicit and act on physicians' opinions on the progress of the various reform initiatives, since they have firsthand knowledge. Furthermore, the low job satisfaction and frustrations widely experienced by physicians in China exacerbate the issues that the reform efforts are intended to solve.

To assess the reform progress from the viewpoint of the physicians, McKinsey launched an online survey in February 2012 with DingXiangYuan, the leading online physician community in China.[2] The community has approximately 2.8 million members, and about 880,000 of those (close to half of the country's two million physicians) are registered physicians.

1 China started its urban and rural healthcare reform in 1998, with arguably limited progress and with basic problems in the healthcare system unsolved, for example, issues in healthcare accessibility and equality, and fast growth of healthcare expenditures. In 2009, the China State Council announced a "new" round of healthcare reform, known as "new healthcare reform."

2 www.dxy.cn

The survey reached approximately 5,900 physicians from 3,300 hospitals in 304 cities[3] and 85 counties or districts. Of the hospitals surveyed, 35 percent were at the provincial level, 50 percent were at the city level, and 15 percent were county-level and private hospitals. In terms of city coverage, 45 percent of the respondents came from Tier 1 and Tier 2 cities, 45 percent from Tier 3 and Tier 4 cities, and 10 percent from counties and towns.[4]

The research focused on two dimensions:

- Physician assessment of healthcare reform progress—what has and has not changed.
- Understanding the Chinese physician community in the midst of healthcare reform—how they work, what drives their behavior, and what issues concern them.

This article highlights the survey findings associated with these dimensions. Although the survey reflects several critical issues facing the physician community, there are no simple solutions to these problems. Because the complexity of the reform lies in the fact that there are multiple stakeholders and issues at work, a systematic approach will be needed to address them.

Physician assessment of healthcare reform progress

Since the official kick-off of the new healthcare reform, the government first announced plans to invest 850 billion renminbi in the healthcare reform initiative and later increased that commitment to 1.13 trillion renminbi.

Reform guidelines identified five major goals: to improve basic medical insurance coverage, to establish a national EDS, to improve the grassroots healthcare infrastructure, to provide equal access to basic healthcare, especially public health services, and to achieve breakthroughs in public hospital reform pilots.

During the past three years, visible progress has been made to improve basic medical insurance coverage in China. In the hospitals we surveyed, more than 80 percent of patients now have insurance coverage. Urban Employee Basic Medical Insurance (UEBMI) covers most patients in Class 3 hospitals (33 percent), and the New Rural Cooperative Medical Scheme (NRCMS) covers most patients in Class 1 hospitals (approximately 50 percent) (Exhibit 1).

Notably, even in Class 3 hospitals, NRCMS covers an average of 26 percent of patients. In terms of city tiers, UEBMI covers approximately 30 to 35 percent of patients in Tier 1 and Tier 2 cities, but only about 15 to 20 percent in Tier 4 cities and in counties and towns. In contrast, NRCMS covers roughly 50 to 60 percent of patients seeking treatment in Tier 4 cities and in counties and towns (Exhibit 1).

In terms of pilots for public hospital reform, physicians from about 54 percent of the surveyed hospitals claimed that their hospitals had participated in some form of official pilot program, indicating that multiple reform initiatives have already achieved relatively large-scale piloting. Another example: 74 percent of surveyed hospitals have implemented clinical pathways, 67 percent have installed electronic medical record systems, and 66 percent have started outpatient reimbursement pilots. Also, many have implemented price control measures such as caps per prescription or monthly caps on overall prescriptions (Exhibit 2).

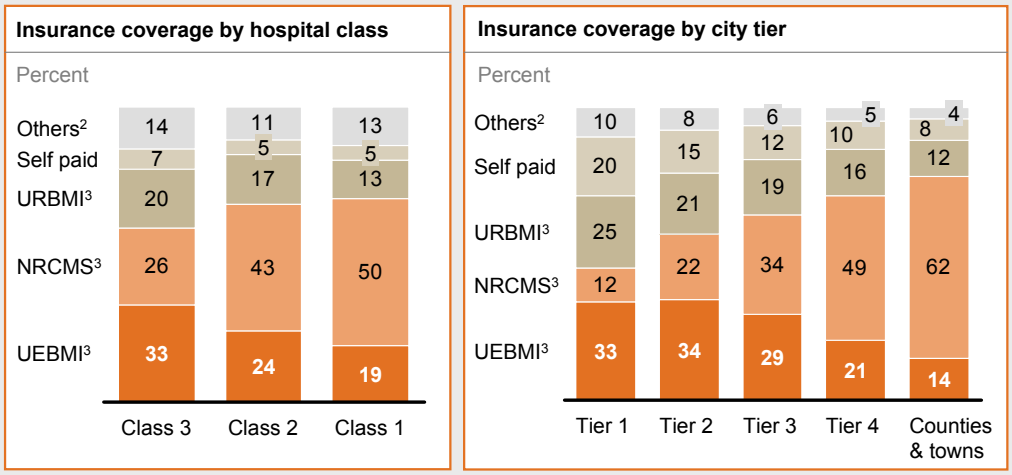
Yet, limited progress has been made in some other areas, for example, establishing a balanced tertiary hospital system, implementing multiple-site practices, and reducing tension between physicians and patients. Each area deserves a closer look.

3 Including 281 cities and 23 autonomous prefectures.

4 City tier definition by McKinsey Global Institute. Four tiers of cities are classified by GDP. Among 815 China cities and city-level counties, four cities are classified as Tier 1, 39 cities as Tier 2, 175 cities as Tier 3, and 597 cities as Tier 4.

Exhibit 1: Wide public health insurance coverage across hospital classes and city tiers

80% of Chinese patients are covered by public health insurance[1]

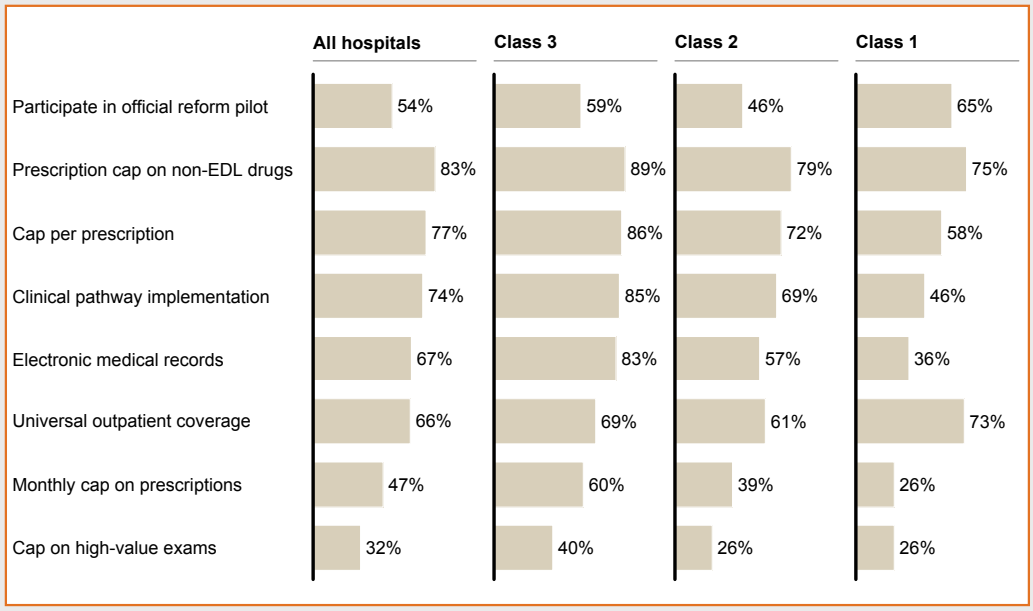


1 The differences in reported levels of public health insurance coverage (80% amongst survey respondents versus the official government's figure of 95%) arise for two reasons: the survey sample may not be representative of the overall population, and government figures may not allow for the double-counting of people who have multiple types of insurance.
2 Others include various forms of public payment mechanism, such as senior government officials and people from the army.
3 UEBMI: Urban Employee Basic Medical Insurance; URBMI: Urban Residents Basic Medical Insurance; NRCMS: New Rural Cooperative Medical Scheme

Source: McKinsey/DXY (www.dxy.cn) 2012 Physician Survey

Exhibit 2: Many hospitals have participated in public hospital reform pilots

Percentage of hospitals which have participated in reform initiatives



Source: McKinsey/DXY (www.dxy.cn) 2012 Physician Survey

Establishing a balanced tertiary hospital system

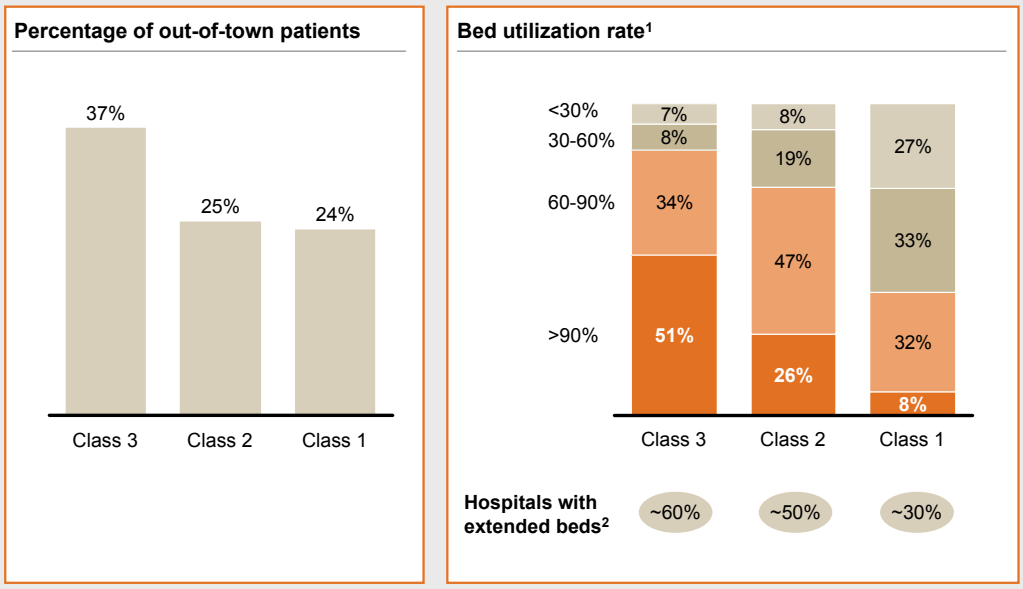
The Chinese government has clearly stated its aspiration to establish a balanced tertiary hospital system. Currently, the larger hospitals have the highest concentration of medical resources, in terms of both infrastructure and medical human resources. As a result, they are overcrowded, often with patients who are in need of basic primary care. At the same time, lower-tier hospitals are unable to function as primary care gatekeepers, because the physicians in these hospitals are less educated and lack the trust of patients.

The medical consortium is being pushed by the government as a means to establish a balanced tertiary hospital system. Led by Class 3 hospitals, the medical consortium consists of Class 2 hospitals and Community Healthcare Centers in the nearby area. All member hospitals share the same budget pool of Basic Medical Insurance (BMI) to provide healthcare services to the residents they cover. Therefore, effective coordination mechanisms such as referral processes must be in place to ensure that the consortium functions effectively.

Our survey showed that the medical consortium is beginning to take shape. Of the Class 2 and Class 3 hospitals surveyed, 44 percent are currently affiliated with a medical consortium, while 38 percent of physicians either spent time practicing or helped to train other physicians in grassroots hospitals during the previous year.

In general, however, Class 3 hospitals still serve a disproportionately large number of patients today. Even with medical consortia being formed, China's overall referral system remains primitive and of limited influence. For example, only 19 percent of patients in Class 3 hospitals are referred to these institutions. Class 3 hospitals serve large numbers of out-of-town patients and patients with minor diseases, which results in much higher hospital bed utilization rates and higher percentages of extended beds[5] to address patients' needs that otherwise cannot be fulfilled (Exhibit 3).

Exhibit 3: Class 3 hospitals serve a larger number of out-of-town patients and have higher utilization rates



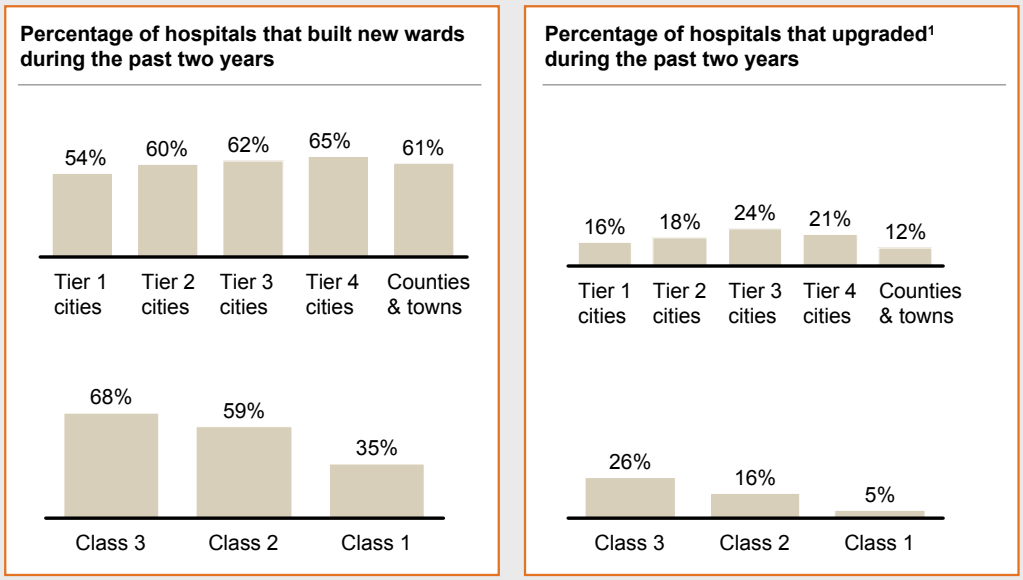
1 Only applies to those hospitals that do not add beds
2 When originally designed beds are not enough to support demand, extended beds are added, sometimes even in hospital hallways

Source: McKinsey/DXY (www.dxy.cn) 2012 Physician Survey

Ineffective development of lower-tier provider infrastructure partially explains why little progress has been made in changing the patient mix and the over-concentration of patients in larger hospitals. Despite several rounds of government investment, our survey indicates that more construction and expansion projects have been undertaken in larger hospitals than in smaller ones over the past two years (since 2010). About 60 to 70 percent of Class 2 and Class 3 hospitals built new wards, while only 35 percent of Class 1 hospitals had new construction. There also are more upgrades of larger hospitals, for example, Class 2 hospitals upgraded to Class 3 (Exhibit 4).

5 Facing high patient demand, hospitals usually add more beds than originally designed. It is not uncommon for some extended beds to be located in hospital hallways.

Exhibit 4: Hospital infrastructure upgrade is under way across hospital classes and city tiers, but is more aggressive in larger hospitals



1 Hospital class upgrade. Hospital classification criteria are defined by Ministry of Health along several dimensions, including scale, advancement of clinical skills, technology, facility, and management competency

Source: McKinsey/DXY (www.dxy.cn) 2012 Physician Survey

Implementing multiple-site practices

A policy framework does allow physicians to practice at multiple hospitals to mitigate the pressure from a current physician shortage and to foster the effective development of lower-tier provider infrastructure. Currently, however, only 2 to 4 percent of physicians surveyed are practicing beyond the hospitals to which they "belong." The hurdles that physicians face in developing multiple-site practices include a lack of time, given their heavy workloads (the most commonly cited reason), as well as a failure to get permission from the hospital in which they currently serve (Exhibit 5).

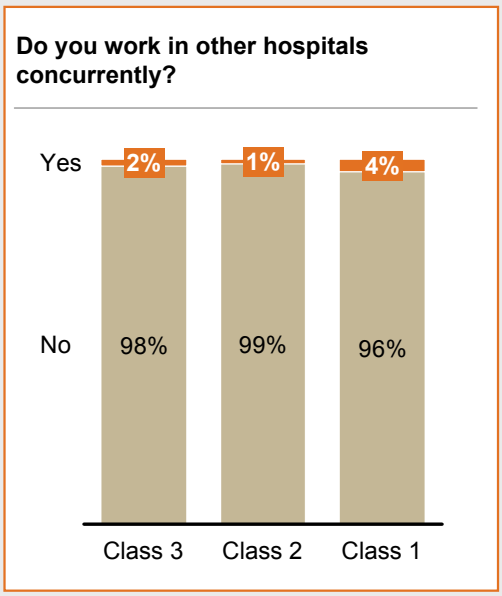
Reducing tension between physicians and patients

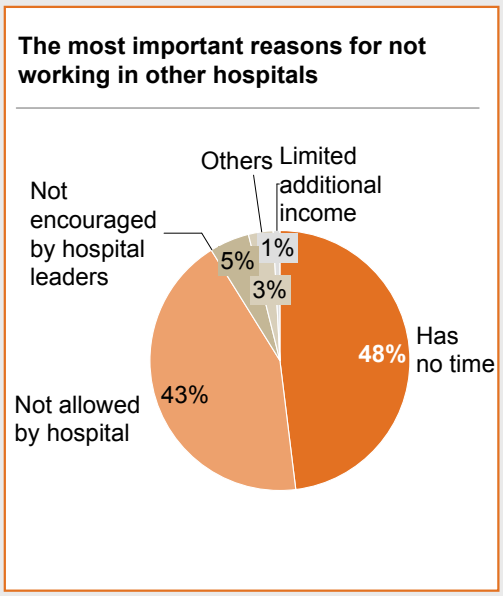
Ongoing tension between physicians and patients in China has resulted in several well-publicized cases of violence in hospitals. From the survey, it seems that limited progress has been made on reducing tension between physicians and patients. Of surveyed physicians, 59 percent said that they had been assaulted verbally by a patient or by a patient's family, while 6 percent indicated that these assaults had become physical.

When asked whether the tension had changed in the last year compared with before, 51 percent of physicians claimed there was no change, 44 percent said the situation had worsened, and only 5 percent indicated an improvement.

The tension between physicians and patients is a manifestation of the deep-rooted issues in the healthcare system in China. These issues lead to distrust and grievances in day-to-day interactions between physicians and patients. Progress in this area will be limited until the core issues of public hospital reform are addressed.

Exhibit 5: Relatively few physicians practice at multiple hospitals owing to lack of time and permission from the hospitals they serve





Source: McKinsey/DXY (www.dxy.cn) 2012 Physician Survey 4

Understanding the Chinese physician community in the midst of the healthcare reform

The majority of current practicing physicians are well educated. Of the physicians we surveyed, 95 percent have bachelor or higher degrees; in Class 3 hospitals, 72 percent have master's or doctorate degrees. Total compensation is still low, however. The majority of physicians in Class 3 hospitals receive monthly salaries of between 3,000 renminbi (approximately $470) and 8,000 renminbi (approximately $1,250), while the majority of physicians in Class 1 hospitals earn a monthly salary of less than 3,000 renminbi (approximately $470).

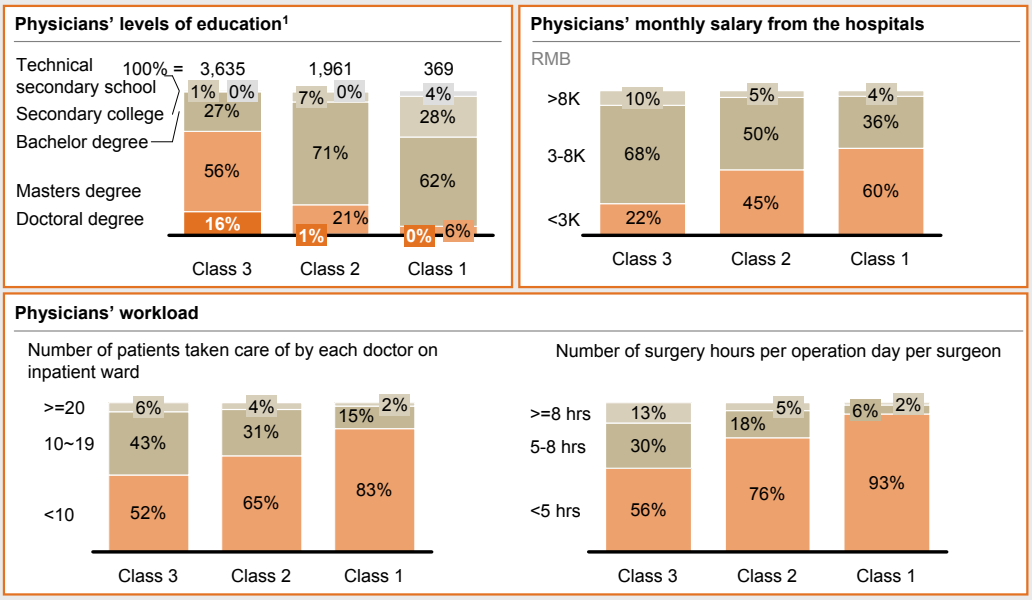
The workload for physicians is heavy: on average, 31 percent of physicians see more than 30 patients on an outpatient shift, 42 percent look after more than ten patients on inpatient wards, and 10 percent perform surgery for more than eight hours on days when they operate. The workload is much higher for physicians in larger hospitals compared with those in smaller hospitals (Exhibit 6).

Physicians' time is more fragmented in larger hospitals. On average, physicians working in Class 3 hospitals spend 10 to 20 percent of their time seeing outpatients, in contrast to physicians in Class 1 hospitals, who spend 30 to 40 percent of their time on the same task. Physicians in Class 3 hospitals spend more time on administration and medical records (about 20 to 25 percent) compared with physicians in smaller hospitals (about 15 percent). In addition, physicians in bigger hospitals see more patients on average than those in smaller hospitals. These findings suggest that physicians in larger hospitals devote less time to each outpatient they see, and physicians in lower-tier hospitals are underutilized. Another interesting result is that physicians at all levels allocate little time to research, less than 5 percent of their time on average.

One finding of concern is that physicians report that their job satisfaction is quite low, averaging 4.3 out of 10, and only about 20 percent of physicians say they are "satisfied" with their job (Exhibit 7).

In terms of career motivation, 34 percent of physicians ranked "winning respect from patients" as the primary driver, while 20 percent selected "self-esteem from curing complex diseases." Regarding what factors cause their career frustration and dissatisfaction, the top reasons

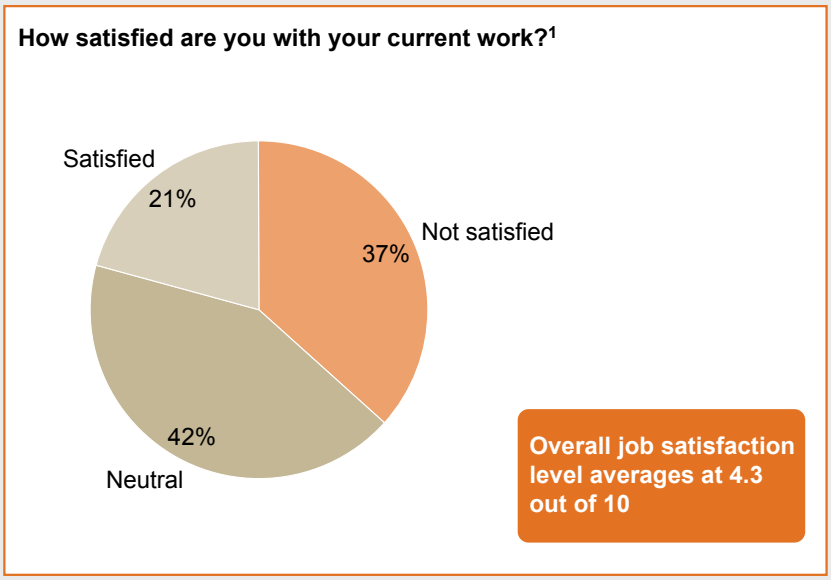
Exhibit 6: Physicians in China are highly educated and carry a heavy workload, but are poorly compensated



1 Physicians in China have different levels of medical education and training. Technical secondary training is a three-year high school equivalent program, Secondary college trainings last 2-3 years after high school. The more advanced programs in medical schools (after high school) are: Doctoral degree, 9-10 years; Masters degree, 7-8 years; Bachelors degree, 5 years.

Source: McKinsey/DXY (www.dxy.cn) 2012 Physician Survey

Exhibit 7: Only about 20% of physicians are satisfied with their current work



1 Satisfaction levels are rated from 0–10. Least satisfied = 0, most satisfied = 10. Not satisfied = 0–3; Neutral = 4–6; Satisfied = 7–10.

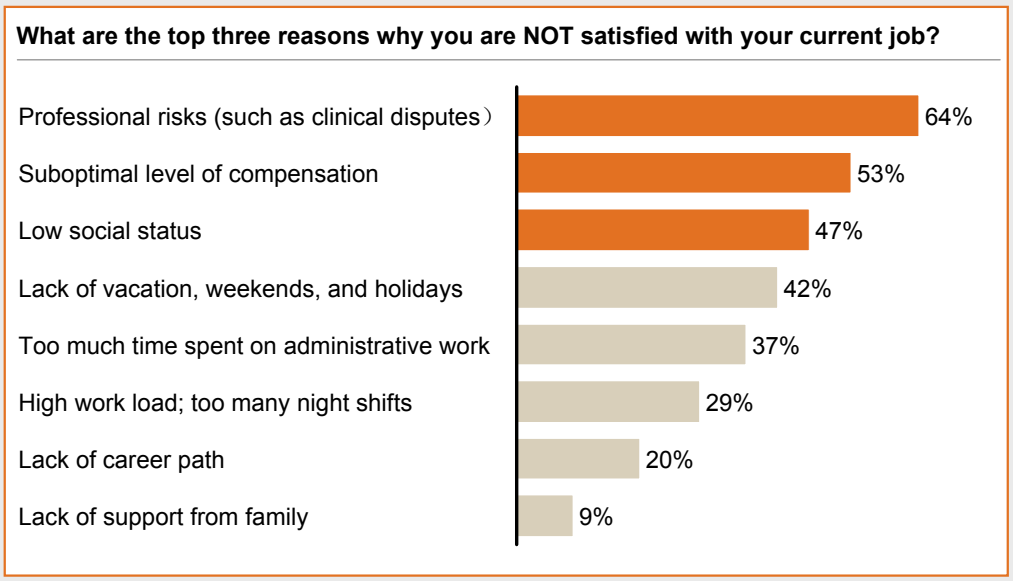
Source: McKinsey/DXY (www.dxy.cn) 2012 Physician Survey

6

include professional risks such as clinical disputes, suboptimal compensation, and lack of social respect (Exhibit 8).

Only 45 percent of physicians surveyed indicated that they expected to stay in the same hospital for five years, and approximately 5 percent said they were considering a career switch. Even more telling is the large number of physicians (approximately 35-40 percent) who indicated they did not know where they would be working in five years. This response suggests a lack of confidence in the physician's career path—a problem that is most salient in smaller hospitals.

Exhibit 8: High professional risk, suboptimal compensation, and low social status are the top three frustrations for physicians

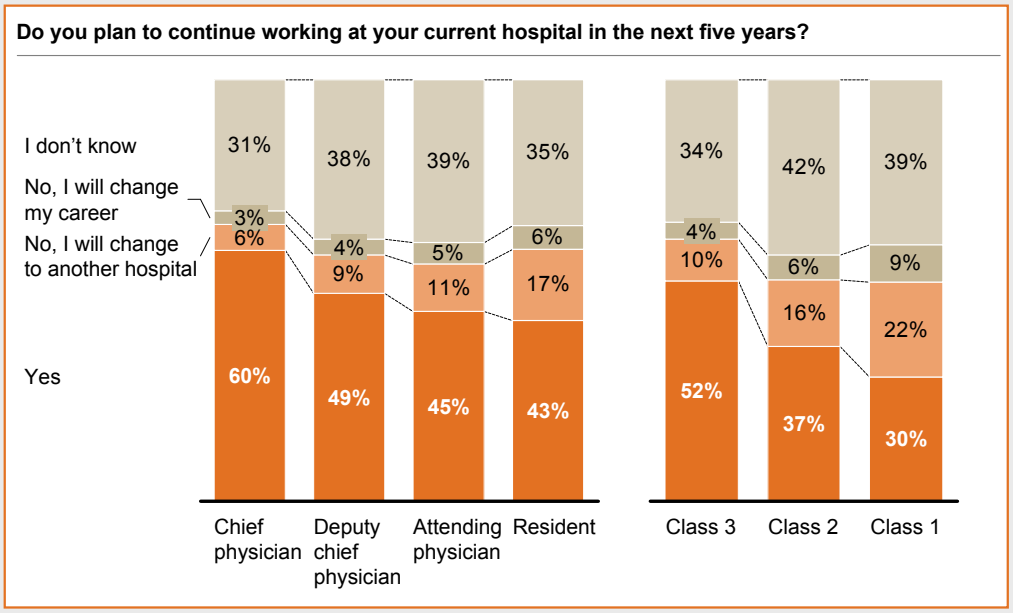


Source: McKinsey/DXY (www.dxy.cn) 2012 Physician Survey 7

Physicians in those hospitals are typically less educated, more poorly paid, and less satisfied with their jobs (Exhibit 9).

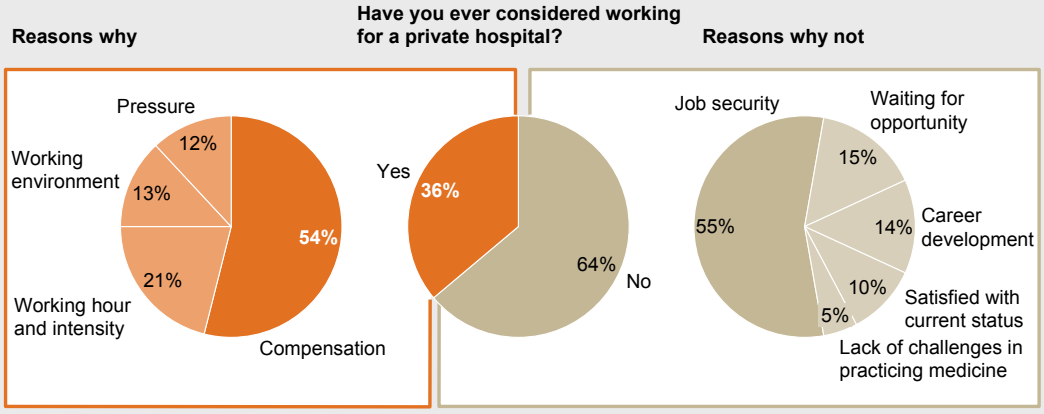
In our survey, 36 percent of the physicians indicated that they would be willing to serve in private hospitals for better compensation. However, concerns over job security have held them back from making the switch (Exhibit 10).

Exhibit 9: Only less than 60% of physicians surveyed are certain that they will continue working in their current hospitals over the next five years



Source: McKinsey/DXY (www.dxy.cn) 2012 Physician Survey

Exhibit 10: Compensation is the main driver attracting physicians to work at private hospitals, while lack of job security is the main barrier



Source: McKinsey/DXY (www.dxy.cn) 2012 Physician Survey

Progress has been made, but "uncharted waters" lie ahead

The two million physicians in China are front and center in the efforts to reform public hospitals, which represent the core of China's healthcare system.

In the past three years, visible progress has been made relatively quickly in areas prioritized by the government, such as improved healthcare access and affordability. Given the scale and complexity of the healthcare system, these achievements are impressive. Still, the challenges that have yet to be tackled are arguably more significant. As Vice-Premier Li Keqiang, leader for the overall healthcare reform agenda,[6] says, the reform is about to enter "uncharted waters " in the years ahead.

While we are confident about advancing healthcare reform in the future, our survey shows that it is important to monitor and care for the health of the physician community. Physicians play critical roles in quality healthcare provision, and the health of the physician community itself will be vital to the success and sustainability of the reform.

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6 Li Keqiang made this remark during the China national conference on the deepening healthcare reforms as China's vice-premier and leader of overall healthcare reform agenda.

Building up capabilities

Pharmaceutical R&D in China: Placing the winning bets on innovation

Pharmaceutical R&D in China: Placing the winning bets on innovation

Laura Nelson Carney, Jeremy Teo, and Fangning Zhang

Multinational companies are ramping up their investments in pharmaceutical R&D facilities in China, despite challenges that include acquisition and retention of local talent and a relatively onerous regulatory environment. Success requires aligning the objectives of the Chinese site with global R&D priorities, choosing the right operating model and governance mechanisms, deciding on therapeutic and regional focus, and formulating a clear time-table so as to ensure full organizational support for the endeavor.

Is your company prepared to capture the opportunities in pharmaceutical R&D in China? Despite important challenges that arise from the sector's early stage of evolution and the regulatory environment, many companies perceive a significant opportunity and are ramping-up their investments. An air of uncertainty hangs over these efforts, however; companies are unsure about the ideal operating model to deploy and the success factors they should consider.

Because ethical pharmaceutical R&D is in its early stages in China, this is still essentially a grand experiment. Concerns continue to be raised about the quality versus the quantity of output (truly innovative versus 'me too') and the integrity of the data. Companies will need to be careful to avoid a repeat of the boom-and-bust cycle that occurred in Japan in the 1980s and 1990s when, in a rush of excitement about R&D capabilities, major pharmaceutical companies set up facilities in Japan. But by the second half of the last decade, many companies, including Pfizer, GlaxoSmithKline (GSK), and Novartis, had shut down those sites because of limited success.

To help clarify the picture, we describe the salient issues for pharmaceutical R&D in China and explain the three primary operating models that we have identified. We conclude by identifying the decisions that companies need to make for their investments to succeed.

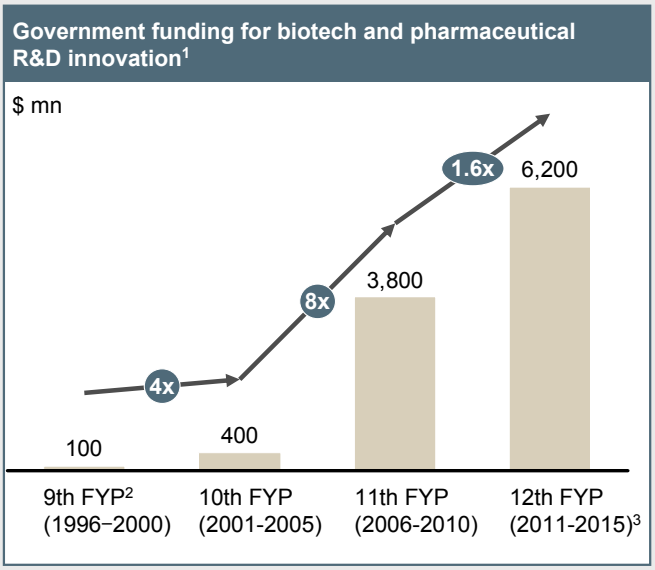
Biomedical R&D as an emerging national priority

The Chinese government has made clear that it wants to accelerate the development of pharmaceutical R&D. The 12th Five-Year Plan (FYP), which covers 2011 through 2015, includes the biomedical industry among the country's seven emerging 'pillar' industries and allocates more than $6 billion to funding biomedical R&D innovation (Exhibit 1). Wan Gang, the minister of science and technology, has set a goal for China to achieve Tier 1 status in pharmaceutical R&D and industrialization by 2020; at least four other government bodies have made policy statements that support this initiative.[1]

1 In addition to the Ministry of Science and Technology, statements have been issued by the National Development and Reform Commission, Ministry of Industry and Information Technology, State Intellectual Property Office, and Ministry of Human Resources and Social Security.

Exhibit 1: The Chinese government is increasing funding for the biomedical industry, one of the seven emerging 'pillar' industries

FIGURES ROUNDED



In the 12th FYP,[2] China's government aims to achieve the following:

- **Almost double funding for biomedical R&D innovation compared to 11th plan**
- **Launch 20+ innovative drugs fueled by significant investment on top of the previous FYP**
- **Become the second-largest pharmaceutical market globally, eclipsing Japan**

1 At a constant exchange rate of $1 = 6.3 renminbi
2 Five-Year Plan
3 Refers to "Major New Drug Development" initiative

Source: Literature search; McKinsey analysis

In addition to articulating its ambition for pharmaceutical R&D, the government has taken steps to encourage the development of an ethical pharmaceutical R&D industry in China. These include providing infrastructure, investment funding, and tax incentives. The challenge of recruiting talent is being addressed through schemes such as the 'Thousand Talent Program', which aims to attract back to China those top scientists who are currently based overseas by providing attractive salaries and funding. Some large-scale initiatives are already under way, such as the 'Major New Drug Development Program', a key project outlined in the National Mid-to-Long Term Science and Technology Plan (2006 through 2020), which aims to make breakthroughs in pharmaceutical R&D by 2020. City governments throughout the country are also actively encouraging pharmaceutical R&D development. Some are facilitating the set-up of life science parks in National Innovation Zones, in which companies across the value chain are collocated to encourage collaboration and partnerships. Notable examples include Zhongguancun Life Science Park in Beijing, Zhangjiang Hi-tech Park in Shanghai, and Biolake in Wuhan that have attracted both multinationals and local companies to form the critical mass necessary for a viable innovation ecosystem.

Challenges of attracting talent and addressing regulatory requirements

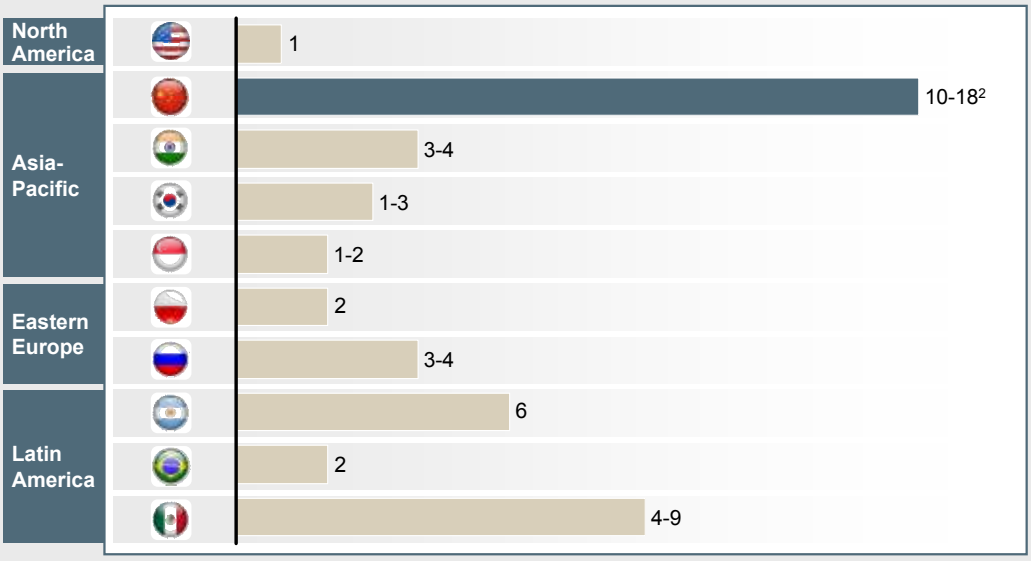
Despite a robust strategic vision for developing pharmaceutical R&D and strong early initiatives, China must overcome some specific challenges to achieve its ambitions. Chief among these are the need to upgrade the skills and expertise of local talent and find the right balance of safety and efficiency in setting internationally-competitive regulatory guidelines.

Our interviews with industry participants revealed that substantial investments in training and mentoring are required to bring locally-trained talent up to international standards. Challenges in hiring are especially acute for companies seeking management-level employees who have sufficient scientific and leadership experience. As both local and multinational companies scale up their R&D operations in China, competition for talent is intense and retention is an issue. It is not uncommon to find employee turnover rates of up to 30 percent.

Regulatory processes can be onerous. Approval of clinical trial applications can take approximately 9 to 18 months, which is longer than in many countries (Exhibit 2). Approvals for first-in-human trials are in practice virtually impossible to obtain. In addition, China requires case-by-case accreditation of clinical trial sites, a complex process that takes approximately six months to complete and entails multiple reviews at both local and national levels (Exhibit 3). This level of complexity exceeds the requirements set by the US Food and Drug Administration.

Exhibit 2: Clinical trial approval in China takes substantially longer than in other markets

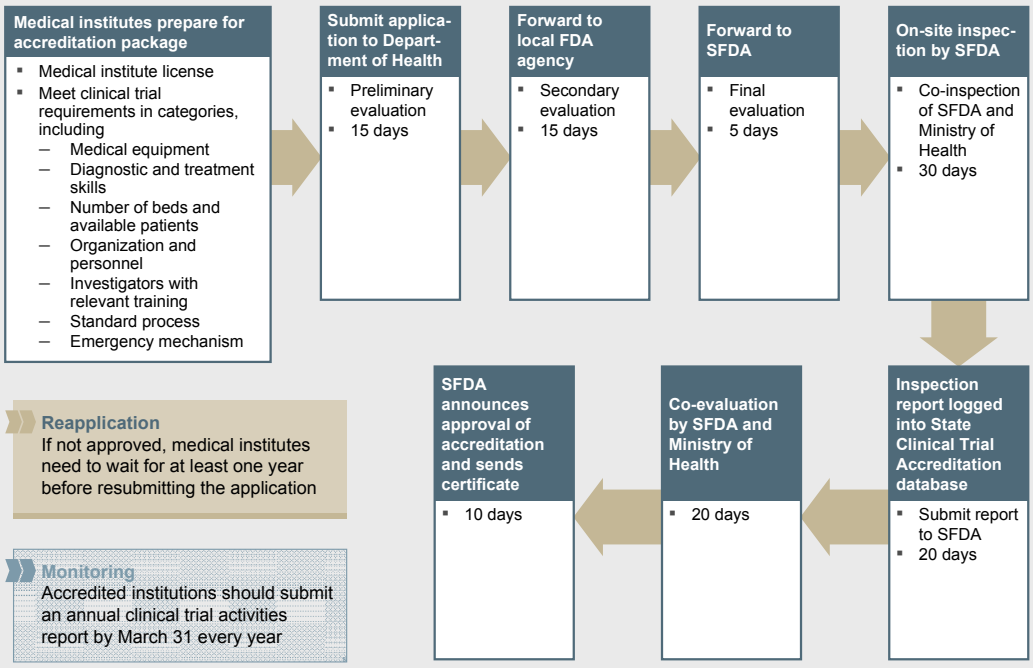
Official time required to obtain approval (months)[1]



1 As indicated on official Web sites, typical timeline for Phase 2, 3, and 4 trials
2 May be even longer; for example, some cases took three years

Source: China Ministry of Health; press search; interviews; McKinsey analysis

Exhibit 3: Accreditation of clinical trial sites in China is complex



Source: State Food and Drug Administration (SFDA) Clinical Trial Institutions Accreditation Regulation

The cautious regulatory mindset can be attributed to the industry's early stage of evolution in China, while the resulting delays are aggravated by the capacity constraints of regulatory reviewers.

An encouraging picture overall

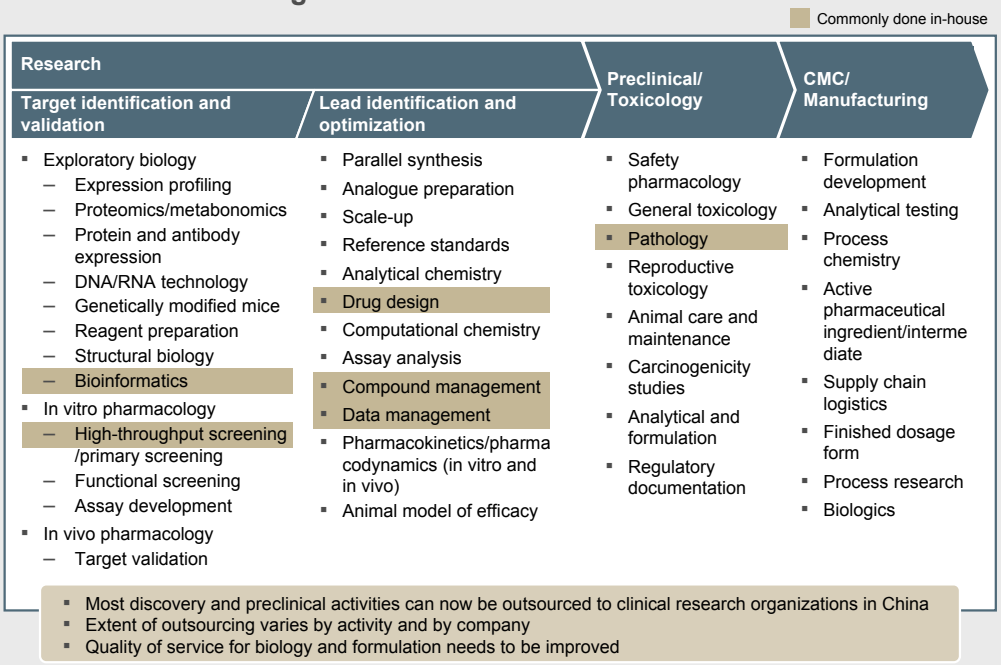
The challenges relating to talent and regulation do not mean that the government's ambitions for the industry are unrealistic. A rapidly maturing ecosystem and the improving quality of output from pharmaceutical R&D paint an encouraging picture for the industry.

Progression of the innovation ecosystem is happening rapidly and broadly

The innovation ecosystem for pharmaceutical R&D in China is maturing rapidly in four respects:

- **Expanded capabilities.** The environment for talent is improving. The number of students returning from overseas is increasing at the rate of approximately 30 percent per year, and more than 6,000 people graduate from local Chinese universities with science Ph.Ds each year. Notable returnees include Shi Yigong, former Warner-Lambert/Parke-Davis Professor at Princeton University, now dean of Tsinghua University's School of Life Sciences, and Wang Xiaodong, a member of the US National Academy of Sciences and a Howard Hughes Medical Institute alumnus investigator who is currently a professor at the National Institute of Biological Sciences in Beijing. As the industry gains critical mass and more opportunities are created, the flow of talent returning from overseas is expected to increase.
- **Improved infrastructure.** The infrastructure supporting pharmaceutical R&D is also improving rapidly. More than 20 regional life-science- or biotech-industry parks have been set up over the last few years. Local contract research organizations (CROs) have also expanded their activities by more than eightfold since 2000. These outsourced activities are increasingly sophisticated and provide support across a wide range of functions (Exhibit 4). The expanded capabilities enable CROs to go beyond support of individual functions to provide end-to-end integrated services to R&D organizations, facilitating the conduct of research.

Exhibit 4 : A broad range of functions can be outsourced in China



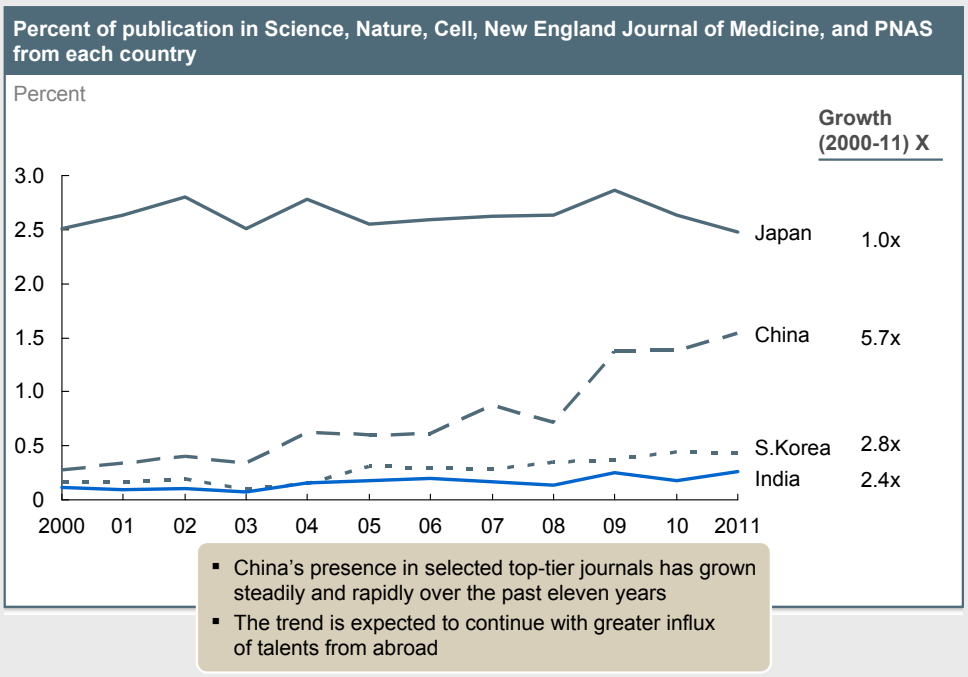
Source: Expert interviews; McKinsey analysis

- **Increased funding.** Funding for pharmaceutical R&D has also increased significantly. Under the 12th FYP government investment increased twentyfold relative to the 10th FYP (2001 through 2005). Investment by companies has also increased substantially (see discussion below).
- **Strengthened intellectual property (IP) regulation.** Despite new uncertainties resulting from the revised version of Measures for the Compulsory Licensing for Patent Implementation (which came into effect from May 1, 2012), the overall IP environment is improving. The government is improving the regulation and enforcement of IP protection under the 12th FYP. The Plan sets the goal of establishing a team of more than 3,000 enforcement officers by 2015.

The quality of R&D output is improving

We also see evidence that China's pharmaceutical R&D is tending to produce higher-quality output. An analysis of the publication of papers in top-tier journals (*Science, Nature, Cell, New England Journal of Medicine, and Proceedings of the National Academy of Sciences*) found that the number of Chinese papers has increased sixfold during the past decade (Exhibit 5). Also, at least 24 China-discovered drugs with compound patents issued in the United States and European Union are in clinical trials (five in Phase 3, seven in Phase 2, and twelve in Phase 1).[2] In another example, the number of patents granted in China has increased by more than three times over the last five years.[3]

Exhibit 5: Publications in top-tier journals have increased dramatically



Source: PubMed; McKinsey analysis

2 Jingzong Qi et al. "Innovative drug R&D in China," *Nature Reviews Drug Discovery,* May 2011, Vol. 10, pp. 333–334.

3 World Intellectual Property Organization.

Corporate investments are on the increase

Seeking opportunities in this challenging but fertile environment, multinational companies have increased their investments in pharmaceutical R&D in China. Over the last five years, at least nine major multinational pharmacos have announced R&D investments of over $100 million in China, with total announced investments topping $3 billion.[4]

R&D activity by local companies is also increasing. For example, pharmaceutical champions such as Jiangsu Hengrui, which have traditionally focused on generics, are making investments in innovative R&D. Start-ups, including BeiGene, Hua Medicine, and Hutchison MediPharma, are increasingly able to attract top talent and form alliances with multinational players such as MSD, Eli Lilly, and Johnson & Johnson. These local pharmacos typically take a focused approach, concentrating their research on one or two therapeutic areas (TAs), such as oncology.

Discussions with industry leaders suggest three main reasons why multinational companies are increasing their focus on R&D in China. First, given the importance of China as a driver of commercial growth, companies want to ensure that they are researching products that meet local needs and maximize opportunities in the region. Second, there is an increasing belief that Chinese talent has the potential to contribute to global product pipelines and even that the different mind-set offered by Chinese talent may eventually result in new experimental approaches that differ from the traditional Western model. Third, they want to reduce the lag time of new products relative to launches in Western markets.

While the lower input costs characteristic of China were mentioned as a factor in our research, they are somewhat surprisingly not a primary driver of investments. Industry participants believe that the current cost differentials between China and Western markets will narrow quite rapidly. Given that trend and the industry's long cycle-times, lower costs should not be a principal basis for investment decisions.

The three main operating models

How are multinational companies approaching their investments in pharmaceutical R&D in China? Our research suggests that while most sites in China have a mix of activities and almost all provide functional support for global programs, there are three broad operating models (Exhibit 6).

- **Global ownership of disease or TA.** Companies following this model have delegated primary or major responsibility for global drug discovery and development for specific diseases or TAs to their China organizations. GSK has done so with neuroscience; Eli Lilly with diabetes. This model facilitates coordination between global and local organizations by providing a clear division of responsibilities. It improves the value-proposition for talent recruitment because it offers a more ambitious vision, and helps build in-house expertise and capabilities. It also implies that companies have an appetite for risk and a strong belief in China's ability to drive innovation.
- **Platform provider.** Although they conduct limited *de novo* local research activity, companies using this model focus primarily on developing platforms and facilitating the execution of global programs that are initiated and run from other global sites. This model also facilitates coordination between global and local functions. The scale of these sites can vary considerably among companies. It is a lower-risk approach than the global disease or TA 'ownership' model, in that it leverages China's current lower cost-base effectively while providing opportunities for platform innovation. However, it may not fully capture the innovation opportunity in China and could be less likely to attract talent in an increasingly competitive environment.
- **Hybrid.** In this model, sites in China have dual roles, combining the responsibilities of disease or TA 'ownership' and platform provision. These sites are committed to end-to-end discovery

4 Company announcements.

Exhibit 6: Multinational companies follow three main models for pharmaceutical R&D

	Program Global	Ownership Local	Platform support
1 Disease/ TA ownership	++	++	+
2 Platform provider	–	+	++
3 Hybrid	–	++	+

Source: Expert interviews; McKinsey analysis

and early development, having *de novo* programs originating at and managed from their locations. They also support the execution of programs that originate at other sites. This model carves an intermediate path between the models of global disease/TA 'ownership' and platform-provision both conceptually and in terms of the balance of risks and benefits. A complication is the potential to create significant governance challenges between the local and global organizations relating to portfolio ownership and prioritization.

Choosing the model that is right for a particular company depends on various factors, including the company's global R&D strategy, its organization structure, its corporate reputation in Asia, its beliefs about the potential for innovation in China, and overall appetite for risk. Customization to the company's needs will also be critical.

Key considerations for success

Beyond choosing the right operating model, companies also need to make decisions relating to a core set of issues that include the diseases and regions on which to focus, the degree of autonomy to give sites, and the time allowed to sites for the achievement of results.

- **TA focus.** To be successful, companies must clearly define the TAs on which Chinese sites should focus. This focus should be aligned with the companies' global TA and R&D strategies. Increasingly, R&D sites in China are focusing on diseases with a high prevalence in Asia, such as liver cancer and gastric cancer, though the decision to concentrate on these diseases should be carefully considered, given the competitive intensity in such areas. Further, companies should put in place clear governance and decision-making processes to avoid conflicts between global and local organizations relating to ownership of research programs, a problem we quite often observe.
- **'In Asia for Asia' versus 'In Asia for global'.** Companies should consider whether a site will develop drugs for sale only in Asia (developing local solutions for local needs based on local standards), or develop products for the global market and be held to approval requirements in the United States and Europe as well as those in Asia. While developing ethical pharmaceutical products specifically for a region would be a relatively unusual model,

there are clear trade-offs in terms of risk, required investment, and potential payoffs. A company would need to examine these carefully given its individual portfolio opportunities.

- **Autonomy and culture.** The level of autonomy to give a Chinese site and the culture to foster at that site should be carefully considered. Given the relatively early stage of evolution of many Chinese sites, there is opportunity to use a site as a test-bed for granting greater autonomy for experimenting with different models of drug discovery and development. Establishing a site in China that simply mirrors its counterparts in the United States and Europe could result in the same productivity challenges that the industry has faced in recent years.
- **Time frame for success.** Major multinational companies have only recently started making investments in end-to-end R&D in China, and these efforts will need time to bear fruit. Even so, a company should clearly define metrics for progress and specify the time-frame within which a site must prove itself. Given that investments in a Chinese site are essentially a grand experiment, a company should define the key decision-points for increasing their investments or withdrawing. This will allow for more productive use of resources while at the same time ensuring that the site and the decision makers focus on achieving results.

□ □ □

Because the key decisions regarding investments in pharmaceutical R&D are neither obvious nor easily resolved, many companies may continue to delay making these tough choices indefinitely. However, to succeed in pharmaceutical R&D in China, companies must take decisive actions and provide strategic clarity to align the organization around a common purpose and vision. The earlier they are able to do this, the better their chances of success in an increasingly competitive environment.

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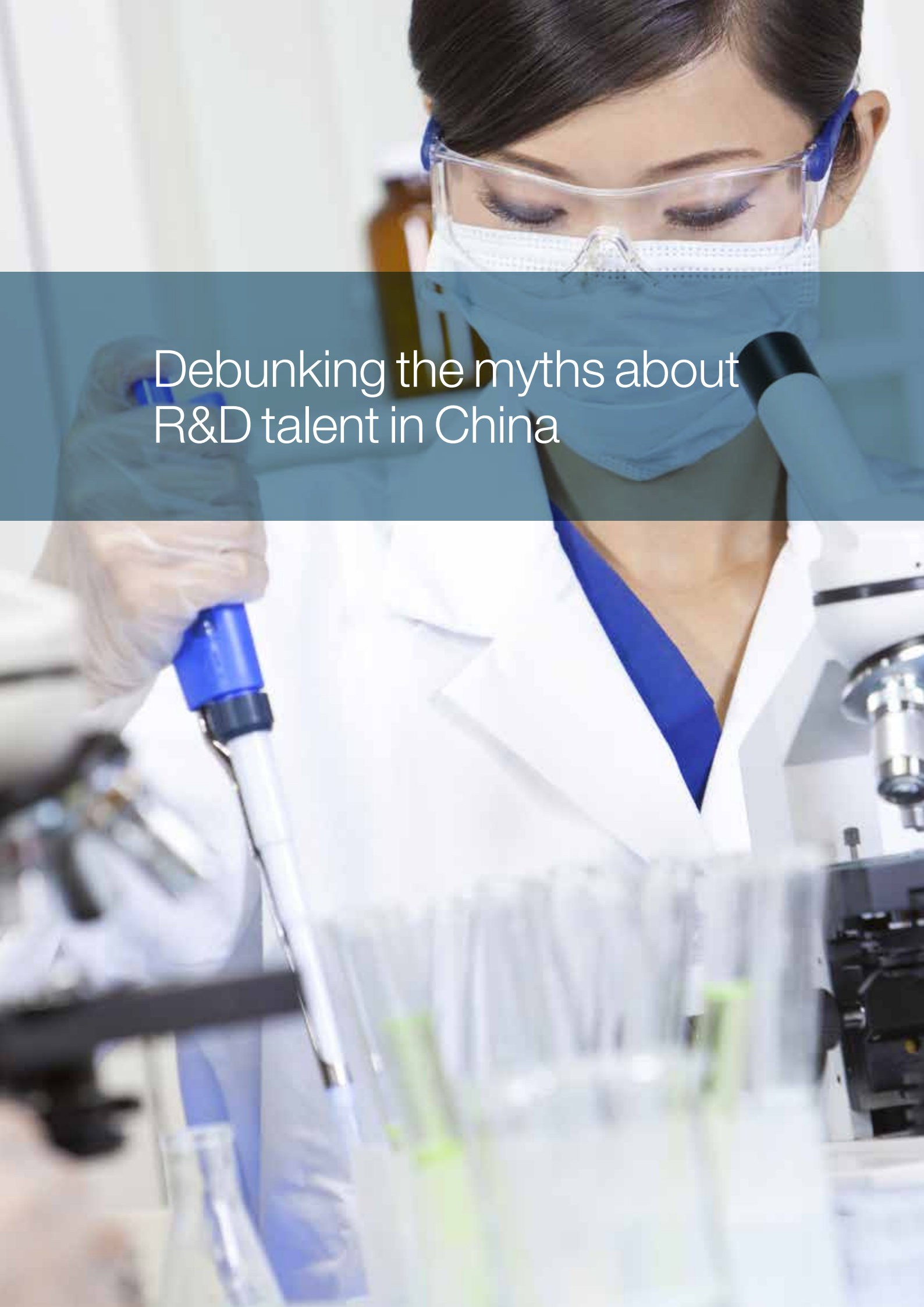


Debunking the myths about R&D talent in China

Debunking the myths about R&D talent in China

Laura Nelson Carney, Keith Lostaglio, Jeremy Teo, and Fangning Zhang

As major global pharmaceutical companies look east to build new R&D facilities, they should be wary of conventional wisdom about the conditions in China. To get the most out of their investments, it is likely that they will need to strengthen their talent development practices.

Multinational pharmaceutical companies are scaling up their R&D organizations in China like never before, driven by the country's growing strategic importance, the size of its market, and the desire to access its promising talent. By 2016, more than 80 percent of global life science organizations are expected to be conducting R&D activities in China and other emerging markets. Meanwhile, China's scientific and technical capabilities are getting stronger and intellectual property (IP) protection is improving.

Over the past five years at least nine major multinational companies (MNCs) have announced pharmaceutical R&D investments in China in excess of $100 million, taking total investment in the country over the period to more than $2 billion. Earlier investments in R&D sites in China in the 1990s were motivated partly by the desire to access lower-cost labor. More recent investments have been driven by the promise of access to innovation as well as China's increasing importance as a commercial market. The motives and the scale of ambitions vary, but many companies want to progress from "made in China" to "innovated in China" by conducting research into new medicines here and opening up access to local markets.

As a result, Chinese R&D sites are opening or growing almost as quickly as European and US sites are closing or shrinking.[1] Multinationals have announced plans to hire more than 4,000 specialist scientists in the Shanghai area alone in the next few years. Although the opportunity is enormous, seasoned R&D leaders in China have no illusions about how difficult it will be. Finding, managing, and retaining R&D employees has become one of the toughest managerial challenges for pharmaceutical companies in China.

On the one hand, multinationals are rapidly expanding their R&D capacity: notable examples include Novartis, making a $1.25 billion investment in building a new R&D centre and adding 1,000 staff at an existing centre; GlaxoSmithKline, which is expanding its Shanghai research centre to 1,000 staff; and Pfizer, which is building a new research centre in Wuhan and will employ 540 staff between this and its Shanghai site. On the other hand, local players are also embracing innovation as the engine of the next wave of growth and increasing their own R&D spending. The government has identified biomedicine as a pillar industry in its 12th Five-Year Plan, and has announced a $6 billion investment to support breakthroughs in drug development, process improvement, and technological innovation. All this adds up to rapidly

1 Recent announcements include the closure of Pfizer's site at Sandwich (Kent, England); AstraZeneca's Charnwood (Leicestershire, England), Lund (Sweden), and Wilmington (North Carolina (US) sites, and eight Merck sites in Europe and the US.

"A lack of specialists and innovative talent in some key fields has become a bottleneck in China's goal to build an innovative country."

*Yin Weimin, minister of human resources and social security**

*Quote in Chen Xin, "Lack of talent stifle progress," *China Daily,* 23 October 2010.

escalating competition for China's R&D talent, resulting in a shortage of professional expertise that threatens to put the brakes on MNCs' growth ambitions.

However, the realities on the ground are not always visible to pharmaceutical executives at headquarters, and they risk being misled by a number of common misunderstandings about R&D talent in China. Below, we debunk eight of the most widespread myths.

Myth 1. China has a large and growing pool of highly trained scientists, so staffing an R&D site is easy

The reality could hardly be more different. Many multinational companies report that they find it difficult to attract managers in China, and executives frequently cite persistent or rising employee turnover as their top talent challenge. According to one survey carried out among approximately one hundred MBAs currently working for MNCs in China, four-fifths of the respondents did not intend to stay in their current jobs for more than two years.[2]

It is true that China has a huge working population and a relatively large number of graduates, including those with Ph.D.s degrees in life sciences (Exhibit 1). Even so, much of the workforce is relatively raw and poorly suited to working in multinational pharmaceutical companies. A 2005 McKinsey Global Institute survey found that only about 10 percent of scientists and engineers graduating from Chinese universities were ready for the MNC workplace, a proportion that is unlikely to have improved much in the intervening years.[3] Because the Chinese educational system has a theoretical bias, students here spend less time on practical projects and teamwork than those in the west do. Thus Chinese students may graduate with little experience of applying academic knowledge in an industry setting, little or no managerial experience or business knowledge, and little familiarity with the product development process, as well as limited English skills.

The implications for MNC R&D operations are profound. First, competition for the best talent from top universities will still grow more intense. Second, companies will have to invest more heavily in in-house training to ensure that recent graduate hires become productive staff.

Heads of R&D in China report difficulty in hiring management-level employees with sufficient scientific and leadership experience, and find it hard to scale up sites as fast as global HQ would like them to. The most difficult challenge of all is finding the right head of R&D for China: someone who can lead large teams effectively from discovery through late-stage clinical trials, drive great science, constantly recruit more staff, and at the same time negotiate the regulatory and cultural complexities of China as well as its medical affairs and IP challenges.

At an operational level retention is even tougher than hiring, so frantic is the competition among companies for experienced staff, particularly biologists and clinical research associates. Pharmaceutical companies and contract research organizations (CROs) have been settling for hiring clinical research associates with less than a year of experience, and can expect attrition of 30 to 40 percent per year among this group. As MNCs expand

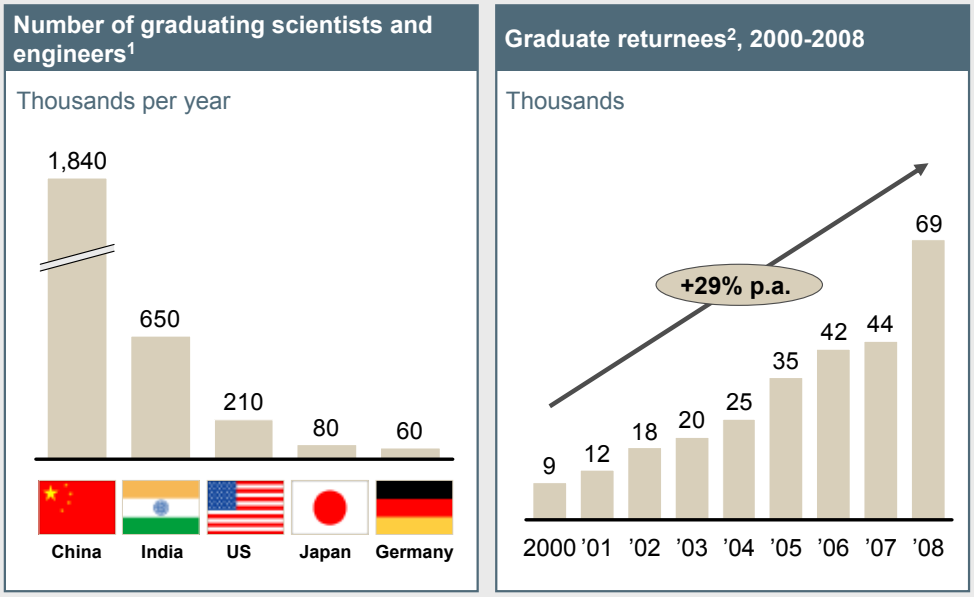
2 "The next management crisis in China: Developing and retaining highly skilled young managers," Booz & Co., 2008.

3 See Diana Farrell and Andrew J Grant, "China's looming talent shortage," *McKinsey Quarterly,* November 2005

> **"Leaders with balanced skills and experience to manage the scientific and business aspects of drug R&D [are hard to find]. In addition, they also need to be comfortable operating in a highly dynamic environment."**
>
> *Steve Yang, VP and head of R&D for Asia and emerging markets, AstraZeneca**

*Quoted in Ling Li, Lan Kang, and Shilpa Gentela, "China versus India"—Reality check for pharma R&D," Korn/Ferry International, 2008.

Exhibit 1: China has a large potential talent pool



1 Including life sciences, mechanical engineering, and IT at bachelor degree level or higher, 2005
2 Chinese nationals returning home after being educated or working abroad

Source: Division of Science Resources Statistics (SRS), NSF; US Institute of Applied Manpower Research; India; Eurostat; Shanghai Academy of Education and Science

their research organizations over the next few years, the talent pinch is expected to shift to pharmacologists, toxicologists, and chemists.

Recruitment and retention are growing ever more difficult and costly, especially for experienced managers and senior scientists. Many top graduates prefer to join state-owned enterprises or Chinese companies, where the pay is comparable and the career opportunities and cultural fit are superior.

Paradoxically, much of the best Chinese drug discovery talent is still found in the US and Europe. MNCs often use overseas Chinese pharmaceutical associations as a channel to access talent: examples include the Sino-American Biomedical and Pharmaceutical Professionals Association (SABPA), the Sino-American Pharmaceutical Professionals Association (SAPA), BayHelix Group, the Chinese Biopharmaceutical Association (CBA), and the Chinese American Biopharmaceutical Society (CABS).

Myth 2. R&D operations are much cheaper to run in China than in Europe or the US

It is true that R&D labor costs used to be far lower in China than in Europe and the US, but the gap is narrowing and R&D leaders no longer consider cost savings as a key reason to invest in China R&D. For management-level staff working at MNC R&D sites in China, packages have reached 75 percent of the western level, and for leaders at VP and site-head level, compensation is as high, or even higher in China than, in Europe and the US. Compensation for junior staff is rising too: for instance, the estimated cost of employing bench chemists is expected to increase

"Why do P&G people make 30 percent less than those at competitors in China, but still work there for several years? The reason is learning. P&G has very good training programs and very specific career development."

*Benjamin Zhai, principal, Egon Zehnder**

*Quoted in "Managing and developing talent in China and India," Development Dimensions International, 2006.

at a compound annual growth rate of 6 to 12 percent over the next five years. At present the average annual cost for these staff is running at 36 percent of the US level, but we calculate it will have risen to between 43 and 58 percent by 2015.

Over the long term companies may shift part of their workforce to Tier 2 and Tier 3 cities where labor costs are lower. Pfizer, for instance, has recently established a clinical center in Wuhan.

Myth 3. Attracting and retaining talent is all about compensation

Attrition rates are relatively high in China. Many staff leave in pursuit of higher pay at competitors, leaving some companies with attrition of 10 to 20 percent a year. Compensation is widely taken to be one of the biggest obstacles to recruitment and retention. In one survey, 55 percent of MNC companies in China reported that their primary recruiting challenge was their inability to meet candidates' salary expectations, and 38 percent said they were unable to meet benefit expectations.[4]

However, pay is only one means to attract and retain talent. Other key elements of an employer's value proposition for staff include an *engaging job* with opportunities for accomplishment, variety, interesting challenges, a degree of autonomy, and flexible work conditions; an *exciting reputation* that makes employees feel proud to work for the company and enables them to balance their work and personal lives, support a good lifestyle, and feel stable and secure; an *energizing culture* with strong managers, great company leadership, and a congenial and creative workplace; and *effective talent management and development* where individuals have opportunities to grow and advance, to work in compatible groups and teams, and to have their individual contributions recognized. When these four elements are strong they may be just as important to staff as salary and benefits, but if they are weak, employees may be tempted to leave for marginal increases in compensation elsewhere.

Where attracting talent is concerned, another survey found that local job applicants in the Asia Pacific region were much more likely to be deterred by perceived weaknesses in a prospective employer's corporate reputation or culture (cited by 39 and 36 percent, respectively) than by the compensation package they were offered (cited by 7 percent).[5] The same survey found that an individual's job profile, the profile of their direct manager, and the development opportunities available to them are the leading factors prompting executives to make a career move.

Myth 4. Other MNCs are the main threat in retaining talent

In the past R&D staff attrition was mostly driven by competing MNCs, since Chinese pharmaceutical companies and CROs were regarded as less prestigious employers. However, R&D leaders have recently seen top staff depart for domestic companies and CROs. With the inclusion of biomedicine as a strategic industry in the 12th Five-Year Plan and the government push for more innovation in Chinese companies, the profile of the domestic pharmaceutical sector is changing. Rapid growth, the promise of a future IPO, and the potential for dramatic increases in compensation and impressive job titles are now luring scientists at all levels to domestic companies.

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4 *Economist Intelligence Unit, People for Growth: The talent challenge in emerging markets,* May 2008.

5 *Managing Global Talent Acquisition, Emerging Markets: SharpStream Life Sciences emerging market talent survey,* 2008.

Notable examples at a senior level include George Chen's move from J&J and Sanofi-Aventis in Shanghai to become chief medical officer at BeiGene, and Weiguo Su's move from Pfizer in the US to the post of executive vice president of drug research at Hutchinson MediPharma in Shanghai. As domestic companies diversify beyond active pharmaceutical ingredients (API) and generics into innovative research, perceptions of the quality of their science and innovation are also changing.

Similarly, Chinese CROs are becoming increasingly successful at hiring top talent from MNCs as perceptions of the quality of their science shift and as they make sustained investments in career development programs.

Myth 5. R&D sites in China should operate like those in Europe or the US

The pharmaceutical industry is still working on the assumption that the way that western R&D sites have been discovering drugs for the past three decades is the right way. This is despite endless discussions in recent years about the ills besetting R&D research: waning productivity, rising costs, and declining numbers of drug approvals.

If the industry adopts the same approach in China it will continue to get the same results. It's clear that established methods of drug discovery and development will not serve it well in the future. Some companies in the US and Europe are experimenting with alternative models but change is difficult, particularly when it requires R&D staff to change their mindsets.

MNCs with R&D sites in China have a rare opportunity to experiment with radically different models. These sites are smaller (typically with fewer than 200 people), more recently established, and unfettered by the red tape and legacy of major sites in the west. Global R&D leaders could allow their China sites more freedom to try out new and better ways of doing drug discovery and development—new ways for project teams to work together, to identify and validate novel targets, to get an early clinical read on efficacy and to kill projects sooner.

Whether Chinese sites should run like their western counterparts is one question; whether they *can* is quite another. Chinese employees interact with each other and with their bosses in quite a different way from what we see in the west. It is important to build local cultural norms into working patterns and performance recognition if Chinese employees are to be comfortable, creative, and productive.

Moreover, the culture of scientific apprenticeship that is so central to successful drug discovery groups is proving harder to build in Chinese R&D sites because there are fewer seasoned drug hunters to go around than in the US and Europe. High levels of technical skill and rules-based decision making are only half of the recipe; learning the art of drug discovery and judgment-based science through experience will also be essential for success. However, some Chinese sites may be close to the tipping point in this respect: it takes only a handful of experienced drug discoverers who are also exceptional leaders to enlighten and inspire a whole site.

Myth 6. A single talent strategy will suffice for expats, returnees, and local hires

This is far from being the case. Building an effective talent management strategy in China involves thinking carefully about how to tailor attraction and retention initiatives to the different needs of expatriates, returnees, and local hires. Because of their contrasting educational and work experiences and cultural backgrounds, each group has its own strengths, weaknesses, and expectations.

Expat staff are often managers brought in from headquarters in the west. They typically maintain a strong connection with the corporate centre and ensure that its philosophy is implemented at the Chinese site. By controlling and improving local skills, they uphold high company standards. On the downside, they may have little understanding of local culture, language, or relationships, and their compensation packages tend to be very expensive. Some expat staff come from other

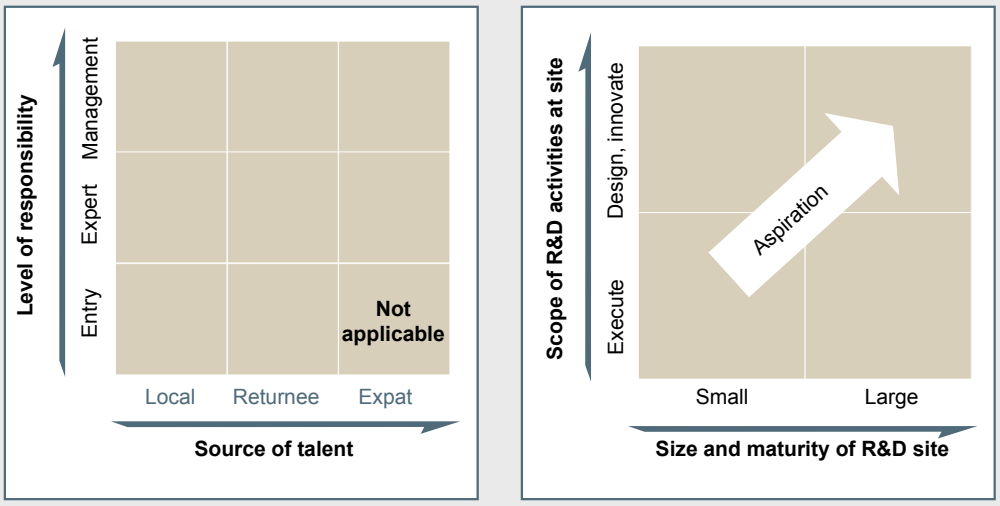
Asian countries and will be slightly more comfortable with Chinese culture than westerners are, but differences still remain and should not be underestimated, particularly since local staff are likely to be less tolerant of shortcomings in communication or leadership on the part of Asian managers than they would be with Americans or Europeans. Asian expats tend to be less embedded in the corporate culture and a little less expensive than their western peers.

Returnees (China-born individuals who have studied or worked in the west) have the advantage of familiarity with both Chinese and western languages and cultures. They are less involved in the corporate culture, but also less expensive than expats.

Locals who were born and educated in China have strong local connections, and are likely to be of a high calibre if hired from the top universities. Most lack strong English skills and international exposure and have little involvement in the company culture, but they are the least costly of the three groups.

The best approaches to attract talent from these three groups will also depend on the size and strategy of the site concerned. Various factors multinationals need to consider when devising tailored talent strategies are illustrated in Exhibit 2.

Exhibit 2: Multinational companies should tailor talent strategies to target groups



Source: McKinsey analysis

The right balance between expatriates, returnees, and local hires will vary by company depending on its corporate culture, local leadership style, ambitions, the degree of autonomy the site has from global control, and many other factors. There is a growing trend to replace expats with local and returnee employees, especially among companies with a long-established China presence and even at the most senior level (Exhibit 3).

Myth 7. Pharmaceutical R&D in China presents such a unique set of talent challenges that it can learn nothing from other industries

It is true that many aspects of drug discovery and development mark pharmaceutical R&D out from that in other industries. For one thing, the R&D productivity crisis is putting a great deal of pressure on China to become a new frontier for innovation. In addition, the innovation cycle is far longer and more expensive in pharmaceutical companies than in consumer packaged goods, high tech, telecommunications, software, automotive, and other R&D-intensive industries, and individual projects have a much lower probability of success. Biological rather than consumer insights drive drug discovery and call for specialists with deep experience. Compared with other industries, the pharmaceutical sector also needs a wider range of highly developed technical

Exhibit 3: Local staff are replacing expats

Expats are employed when…	Locals are employed at an early stage to provide...	Local management capacity starts to build up…
▪ Corporate perspective remains more important than local expertise in certain functional areas[1] ▪ Technology transfer from headquarter to newly established facility in China is not complete ▪ Quality management is not ensured ▪ Authority of CEO is jeopardized	▪ Deep knowledge of local market structure ▪ Good networking and relations	▪ Once company has consolidated its presence, then well-trained locals can gradually replace expatriate staff

1 For example, 63 percent of US and European multinationals have appointed local Chinese as heads of sales and 54 percent as heads of HR, but only 32 percent as heads of finance

Source: Egon Zehnder; Korn/Ferry International; EIU; McKinsey analysis

disciplines to make its R&D engine run, and relationships with leading academics matter more down the entire value chain, from R&D to marketing.

That said, pharmaceutical R&D does have opportunities to learn from other industries. In particular, two companies stand out as having best-in-class R&D talent management approaches in China: GE and GM.

GE offers R&D talent a prestigious career development path with two tracks. The scientific track offers a path to become a senior principal scientist with deep technical knowledge who has significant decision rights in projects. The management track offers graduates roles as scientists with scope to advance to laboratory or global technology manager for a particular field. Employees at each level have a clear set of evaluation criteria and a reward system to recognize their individual contributions, and some graduates who start in the scientific track have the option to switch to management if they decide they want to gain more exposure to the business. These attractive and flexible career paths, coupled with GE's reputation, enable the company to attract top talent from leading Chinese universities year after year.

Hiring and talent development are also great strengths at GM. It builds Chinese graduates' skills and knowledge through a suite of development programs that include coaching, stringent technical and leadership training, and mentoring. The company also sponsors professors and departments at leading universities to research topics of interest to GM as part of applied engineering programs. This enables the company to train students as R&D interns and to develop good recruiting relationships with their institutions. Many of the interns are hired after graduating. Managers also benefit from the chance to evaluate and train the interns.

Pharmaceutical R&D leaders can learn from these and other companies. Recognizing R&D staff for their strengths, setting clear expectations for the skills required at each level, crafting flexible career paths, establishing extensive development programs, providing strong mentorship, and using internship programs to try out new staff are the best practices across industries, but strikingly absent in many pharmaceutical R&D organizations in China.

Myth 8. All we need to do is hire the best scientists

Despite the recent rapid growth and heavy investment in R&D sites in China, many MNCs are woefully under-investing in talent management. Global leaders and boards are keen to see rapid scale-up at their sites, but in the scramble to hire talent and get operations under way many companies are failing to pay enough attention to their people. Staff often lack clarity over roles, career paths, and development opportunities, and dissatisfaction and attrition are high. Employees complain that they feel frustrated, are treated as second class—deprived of access to the training, development, and international opportunities enjoyed by their colleagues in the US and Europe—and feel as though they are in limbo, lacking clarity on personal objectives, organization structure, reporting lines, and company strategy.

Improving people development programs will be critical. At the most basic level, this is about applying the same best practices in Chinese sites as in the rest of the world. Obvious though this may seem, it is not common practice. MNCs must keep investing to develop a compelling employee value proposition that provides strong reasons for top R&D talent to join them and stay with them. This must include the four elements discussed earlier: an engaging job, an exciting company reputation, an energizing culture, and effective talent management and development.

Beyond this, MNCs sorely need more programs to mould and develop new hires fresh from leading Chinese universities. Such programs should introduce them to the corporate culture, teach them the drug discovery process, provide whatever English training they need, and develop their management and leadership skills. Strong scientists become project leaders sooner in China than they would at a larger European or US site, yet they seldom have training on how to perform their role or mentors to learn from.

□ □ □

Most observers agree that pharmaceutical companies will take major steps to the east in the next ten years, not just for reasons of cost but increasingly for talent too. The challenge for the industry is to make this transition at a time when its R&D operating model is coming under mounting pressure. The most successful companies will manage to globalize toward Asia and reinvent their innovation engine at the same time, harnessing all the potential that China holds as part of new ways of working in R&D.

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Regionalization: Lessons from pharmacos that have ‘tasted the crab’

Regionalization: Lessons from pharmacos that have 'tasted the crab'

Tian-Cho Chu, Ari Silverman, and Gaobo Zhou

The classic business unit based structure isn't perfectly suited to addressing the complexities of serving China's diverse regions. Learnings from leading pharmacos that have regionalized their organizations will help to inform whether regionalization is the right move for your company.

Over the past decade, multinational companies in the pharmaceutical industry have been well served in China by an organizational model based on business units. Each business unit is responsible for selling products in particular therapeutic areas (TAs) throughout the country. Although members of the sales force may serve a specific region, the decision making and commercial support functions are centralized. This model has allowed multinational companies to consolidate resources, build capabilities, and align commercial activities with their overall China strategy, contributing to impressive results in China.

However, the classic business unit based structure is not perfectly suited to addressing the complexities of serving China's diverse regions. This is particularly the case for large multinational companies, to which markets outside the top cities are increasingly relevant. In planning for further growth in China, some leading multinational companies have begun to infuse regional elements into their organizational structure. These elements range from having dedicated sales and marketing capabilities in select regions to employing a fully regionalized model that includes decentralized profit and loss (P&L) responsibility.

Is shifting to a regionalized model the right move for your company? As is the case for any question about organization, there is no single answer that will apply to every company. To frame discussions about whether to make this shift, we examine the challenges of regional complexity and the trade-offs of the business unit based model. Based on the experiences of industry leaders, we address four specific questions relating to the value and necessity of a regionalized model, including the design options for multinational companies that choose to make the transition.

According to one traditional Chinese saying, the first person to taste a crab sets an example for his apprehensive friends. Likewise, the lessons in regionalization from these leading multinational companies will be valuable to other pharmaceutical companies (pharmacos) considering a "taste" of this organizational model.

One country, many markets

China's healthcare market has enjoyed tremendous growth over the past two decades. The market has benefited from the country's overall economic growth and favorable demographic shifts (for example, an aging population, urbanization, and the rise of the middle class). But it is a mistake to assume that there is a single market for healthcare in China. In reality, China's healthcare market is characterized by significant regional differences with regard to healthcare infrastructure and services, market access, and competitive dynamics.

Healthcare infrastructure and services

China's provinces have experienced different rates of economic development. For example, the average GDP per capita of the top five provinces and municipalities (Shanghai, Beijing, Tianjin, Jiangsu, and Zhejiang) is approximately four times that of the bottom five (Guangxi, Tibet, Yunnan, Gansu, and Guizhou). The differences in economic development have led to variations in the distribution and growth rates of healthcare infrastructure and services. For example, close to half of China's more than 1,350 Class 3 hospitals (the largest facilities) are located in the richer eastern region,[1] which accounts for approximately 30 percent of the country's population. In contrast, the less developed central and western regions,[2] home to 40 and 30 percent of the country's population, account for only 28 and 25 percent of the Class 3 hospitals, respectively. Correspondingly, outpatient hospital visits in the eastern region averaged 2.5 per person in 2009, while the central region and western region[3] averaged only 0.8 and 1.1, respectively.

Recognizing that the central and western provinces are underserved, the government has sought to help them "catch up." This has resulted in higher growth rates for healthcare infrastructure and services in these regions. For example, from 2008 to 2009, the number of Class 3 hospitals in the central and western regions increased by 7.5 percent and 4.1 percent, respectively, compared with 0.9 percent in the eastern region. We expect this trend to continue in the near term.

Healthcare market access

Further regional complexity arises from the multiple levels of decision makers and market access stakeholders at the central, provincial, and city levels. Local governments take different approaches to implementing the central government's healthcare reform policies, with variations in policy interpretation, priority setting, and the scope and pace of implementation. This is evident in the pace at which cities have implemented universal outpatient reimbursement for patients covered by Urban Employee Basic Medical Insurance (UEBMI). Well developed cities (such as Shanghai and Beijing) introduced the program as early as 2000, but less developed cities (such as Taizhou and Jinhua) lagged more than ten years behind (Exhibit 1).

Similarly, adoption of the Essential Drug List (EDL) has varied at the provincial and city levels. Shandong Province, for example, expanded the National EDL (NEDL, 307 molecules) to 523 molecules and allowed Township Health Centers (THCs) and Community Health Centers (CHCs) to have access to an additional 60 and 30 non-EDL drugs, respectively. Anhui Province took a different approach. It required THCs to purchase more than 70 percent of their total drugs from the EDL, while at the same time allowing these centers to purchase up to 15 percent of total drugs from the Reimbursement Drug List (RDL) (Exhibit 2).

Healthcare competitive dynamics

The competitive dynamics of the pharmaceuticals market also differ among regions and provinces, especially with respect to local companies. Local champions, which are often supported by local governments and are influential on physicians, tend to emerge as market leaders in the province where they are headquartered. For example, in China's northeast, Hayao (哈药集团) and Medisan Pharma Harbin (哈尔滨三联药业), both headquartered in Heilongjiang Province, rank first and second, respectively, in the local market. In the west, Kelun (科伦药业集团) and Chengdu Tiantaishan (天台山制药), both headquartered in Sichuan

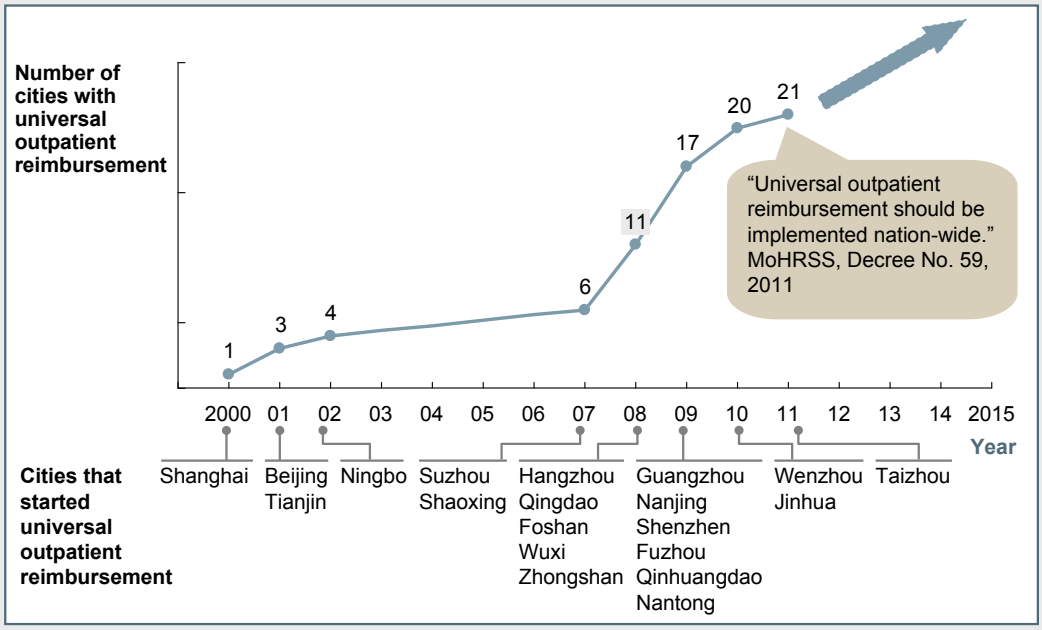
1 The eastern region (as defined by the Ministry of Health [MoH]) includes Beijing, Tianjin, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, and Guangdong.

2 The central region (as defined by the MoH) includes Hebei, Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, Hunan, and Hainan.

3 The western region (as defined by the MoH) includes Inner Mongolia, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, and Xinjiang.

Exhibit 1: Cities have implemented universal outpatient reimbursement at different paces

UEBMI EXAMPLE

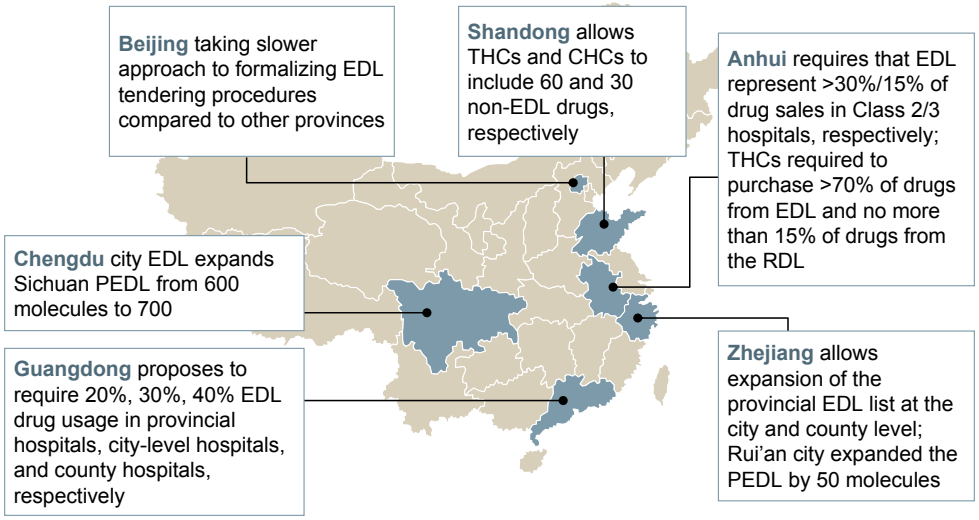


Source: Literature search; McKinsey analysis

Exhibit 2: EDL adoption varies at the provincial and city level

NOT EXHAUSTIVE

Examples of variations in local EDL implementation



Source: Literature search; McKinsey analysis

Province, rank first and second, respectively, among local companies.[4] Given these regional competitive dynamics, multinational pharmacos need to remain nimble and customize their strategies with local market insights.

Is the business unit based structure still effective?

For large multinational pharmacos that have expanded beyond the top hospitals and cities, addressing regional variations has become increasingly relevant to achieving their growth ambitions. These multinational pharmacos have begun to consider the effectiveness of their current business unit based organizational structure, which emphasizes expertise in TAs rather than agility in regional decision making.

In the business unit based structure, organizational elements are designed around specific TAs. While its sales force is regionalized and supported by some local marketing capabilities, the business unit relies on centralized functions (for example, marketing, HR, market access and finance) to operate. The structure enables focused attention on TAs and high levels of resource consolidation. This, in turn, has provided critical benefits: business units have expanded their field force in the most important markets (large hospitals in economically developed regions, for instance), promoted the development of knowledge and expertise in their respective TAs, allocated education resources (for example, academic detailing, department meetings, conferences, clinical trials and publication support) to hospitals with the greatest need, developed strong relationships with key opinion leaders (KOLs), and deepened access to physicians in the most important markets.

As multinational pharmacos have expanded their businesses beyond developed regions, they have recognized the need for regionally focused knowledge and processes to complement TA based expertise. These regional capabilities include a detailed understanding of local insights, fast decision making and cross-functional collaboration at the regional level, and the ability to improve resource allocations among China's developed and developing regions.

Therefore, many companies have added regionalized capabilities into the existing business unit based structure (for functions such as market access, medical function, and HR). These modifications have allowed organizations to improve their understanding and support of regional markets. However, because business processes, decision making, resource allocation, and P&L remain centralized, business units often prioritize the regions they serve based on relative sales contribution. As a result, they may under-invest in emerging regions that have smaller sales volume today but greater potential to drive growth in the future.

Regionalization: key questions to consider

Several multinational pharmacos in China have recently explored ways to overcome such limitations by bringing resources and decision making closer to regional markets, creating "mini Chinas" within the country. Bayer, for example, established regional offices in Beijing, Shanghai, and Chengdu, each with P&L ownership. The Chengdu office reflects Bayer's desire to capture opportunities in China's fast growing western region and become a leader in lower tier markets. As another example, MSD has organized its business in China into ten regions, based on a city cluster view of the market, to address the uneven pace of development among regions.

The experiences of these multinational companies offer valuable insights into several key questions related to regionalization. Multinational companies that are either considering regionalization or already beginning the transition to a regional model should consider the following five questions:

- Would the company benefit from a regionalized structure?
- What is the appropriate regionalization model?

4 Chinese Pharmaceutical Association (CPA).

- Which, if any, TAs should be excluded from the regionalized organization?
- Which functions should be regionalized?
- What are the potential pitfalls of a regionalized organization?

Would the company benefit from a regionalized structure?

The decision to transition to a regionalized organization should not be taken lightly, because this is a complex process that will inevitably cause disruptions to the business. To understand whether regionalization is a necessary and logical next step, executives should review the current organizational structure in the context of business needs. Some of the factors to assess include the following:

- the potential for developing regions to become significant sources of growth (Bayer, for example, with a large primary care portfolio, would likely see greater growth potential from developing regions)
- the current organization's ability to develop a detailed understanding of regional markets and appropriately address regional differences based on those insights (for example, many multinational pharmacos have established regional marketing roles to provide dedicated support to local markets while ensuring a connection to central marketing)
- the need for alternative commercial models or talent management strategies to capture market opportunities in different regions
- the challenges of balancing the organization's attention and resource allocation among developed and developing regions
- the extent to which the existing organizational structure will enable the company to retain key talent by offering sufficiently attractive career opportunities

In many cases, companies can address these issues by taking the less radical steps of instituting a more agile and informed decision making process, supported by appropriate incentives, data, and capabilities. However, challenges affecting business priorities, cross-functional coordination, and culture may be more deeply rooted in the company's organizational design. In such cases, adopting a regionalized organizational structure may be appropriate.

What is the appropriate regionalization model?

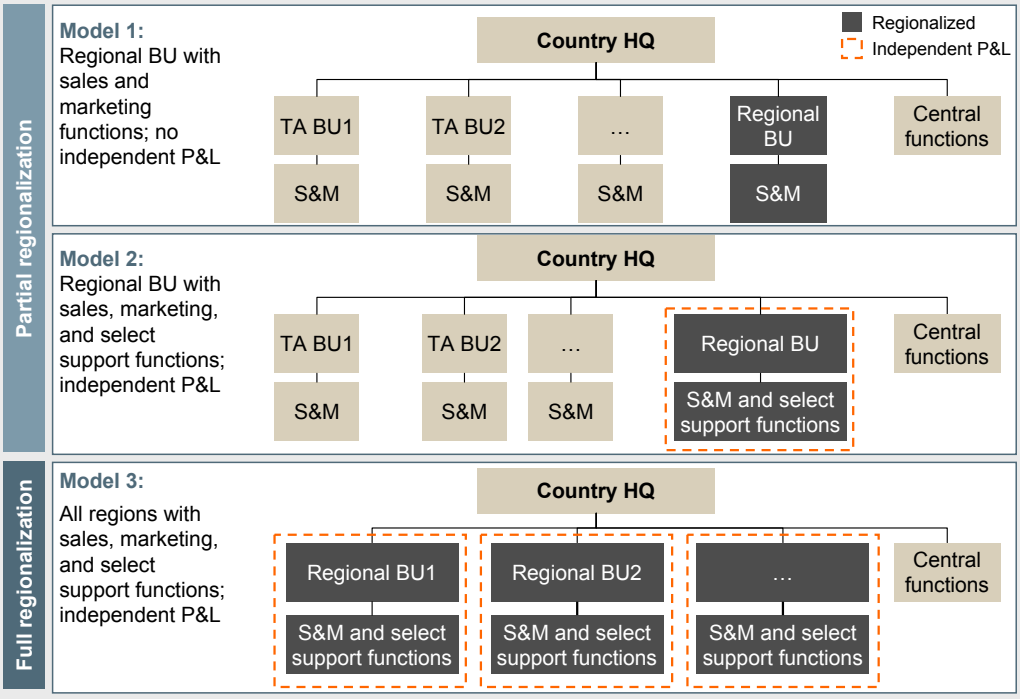
Multinational companies can consider three models for a regionalized organization. Two models entail varying degrees of partial regionalization. The third entails full regionalization, with each region managing its own P&L and resources (Exhibit 3).

- **Model 1: Regional BU with sales and marketing functions, but no independent P&L.** To give more attention to developing regions such as China's western provinces, the organization can establish a separate, regionally focused business unit at the same organizational level as the typical TA focused business units. The regionally focused business unit has responsibility for most, if not all, products and has sales and marketing teams with capabilities to address the specific needs of stakeholders in developing markets. Other centralized functions are shared across business units. Although this model helps to focus on developing regions, it limits local decision making; for example, the regional business unit does not have P&L ownership.
- **Model 2: Regional BU with sales, marketing, and select support functions and independent P&L.** To take regionalization a step further, companies can give independent P&L responsibility and dedicated sales, marketing, and support functions to regional business units for select developing markets. This model supports expansion into developing markets by ensuring higher levels of regional control over resources and decision making. In addition, regional business units can be asked to focus on region specific investment criteria and key performance indicators (KPIs; for example, giving priority to top-line growth over margins). Because the rest of the organization still has a TA based business

unit structure, it is less likely that these special considerations would produce a negative reaction from the rest of the organization than would be the case in the fully regionalized model discussed next. As one executive at a multinational pharmaco put it, "If the organization is fully regionalized, then giving special consideration to one developing region is like giving special treatment to a child—the brothers and sisters will not be happy. But if the rest of the organization is not regionalized, it would be like parents providing specialized care to an only child, which is more acceptable."

- **Model 3: All regions with sales, marketing, and select support functions and independent P&L.** The most comprehensive approach is to become fully regionalized. In this model, the role of general manager (GM) usually exists for each region and has responsibility for the region's P&L. The structure is similar to an Asia Pacific organization, with country GMs overseeing country level P&L. TA based sales, marketing functions and support functions are established within each region, while some functions (for example, central marketing, strategy, BD, legal and IT) remain at country headquarters and are leveraged across regions.

Exhibit 3: Companies can choose from a range of regionalization models



The number of regions in this model can vary (from three to as many as ten) and can be defined based on geography, city and province clusters, or economic development. Regions based on geography can be easier to manage than other types of regions and are relatively stable. Regions based on the clustering of cities and provinces benefit from consistency in market characteristics, but may lead to a larger number of regions. Companies can also group developing cities and provinces together in a single business unit (characterized perhaps as "emerging markets") so that those provinces receive similar attention and resources.

Overall, companies may benefit from a fully regionalized structure if developing markets are dispersed in many provinces and if market dynamics vary significantly across regions. However, increased regional autonomy creates challenges in coordinating across functions and with country headquarters. The increased overhead resulting from duplicate roles also affects profitability until the company is able to offset the impact through higher top-line growth.

Which, if any, TAs should be excluded from the regionalized organization?

While regionalization can be applied to all products in a company's portfolio, companies may choose to exclude certain products or TAs from a regionalized organization and manage them centrally. Several factors come into play here:

- the benefits of centrally managing a concentrated market, such as the market for specialty TAs (for example, the top 400 to 500 hospitals account for 80 percent of the market potential for a typical lung cancer drug, compared with 2,500 to 3,000 hospitals for an anti-hypertension drug.)
- the need to consolidate resources to develop highly professional and knowledgeable commercial teams
- the level of cross region coordination required to manage key stakeholders (such as KOLs)
- the extent to which new products in the portfolio require high levels of central coordination for market development and brand building efforts

The specifics of the company's portfolio and strategy should guide the assessment of these factors. In general, if the company excludes too many TAs from a regionalized organization, it will lose the benefits of consolidating resources across TAs and staying closer to the local market. Recognizing this, some existing companies with a fully regionalized model have chosen to include most TAs, while centrally managing only one or two TAs.

Which functions should be regionalized?

While it is common that regional business units and offices have dedicated sales and marketing teams, decisions about regionalizing other functions depend on the company's specific needs.

Functions implicated in local market activities and involved in decisions about allocating local resources—such as market access, commercial, and HR—may be regionalized. For functions that provide capabilities and support across the organization (such as strategy, BD, legal and IT), a centralized organization is preferable. Functions that require both strong regional capabilities and central oversight (such as central marketing and finance) should be centralized but have dedicated regional personnel.

Companies should also allow regionalization decisions to evolve as businesses mature. For example, they can gradually expand the scope of functions regionalized or move the reporting lines of functions from the center to regions, thus enhancing local decision making. One multinational pharmaco initially regionalized its sales, marketing, and HR functions. As regional offices matured and deepened their engagement with local stakeholders, the company also regionalized its market access function.

What are the potential pitfalls of a regionalized organization?

Regionalized organizations could face challenges in communication and coordination among regions and between regions and country headquarters. Such challenges could lead to a misalignment of strategies, poorly coordinated efforts in stakeholder engagement, and the creation of information "silos." These issues often surface when the company gives P&L responsibility to the regions. As one executive at a multinational pharmaco noted: "There is a real risk that each region will go off and execute its own strategy, resulting in a lack of coordination not only across regions but also with country headquarters."

Some multinational pharmacos have addressed coordination issues by keeping some resources, such as a part of the marketing budget, at the central level. Such resources are allocated to regions with specific guidance on how they can be used. This allows headquarters to provide some input on regional strategies and ensure a basic strategic alignment on product positioning, messaging, and other activities. However, in this scenario, regions will have less resources to allocate freely, a limitation that often becomes a point of contention. Company headquarters can also ask for greater operational transparency from regions (for example, in the form of more frequent updates or the establishment of joint committees on select topics), which

enables headquarters to give better guidance to regions without diminishing the regions' ability to direct business.

It is also important to have clear responsibilities in place for both regional and central functions and to establish working models to facilitate appropriate cross-regional and cross-functional interactions. In some cases, pharmaceutical companies have established leadership committees focusing on topics that require a high degree of coordination—such as innovation, product launch, or talent—so that executives give sufficient attention for effectiveness.

Regionalized organizations must also have the right talent in place. In fact, they face greater challenges in attracting, developing, and retaining talent than centralized organizations, because a larger number of functional managers and differentiated skill sets are needed. Talent management is further complicated by the complexity of a regionalized operating model and the need for GMs with capabilities to manage relatively standalone regional commercial organizations. Companies with plans to adopt a regionalized organization should start to develop talent management plans 12 to 18 months before initiating the reorganization process. Best practice multinational pharmacos aim to identify and develop most of the required talent before initiating reorganization or to design a transition phase during which critical capabilities are assessed and developed.

□ □ □

Although several pharmacos have adopted regional organizational structures in China, it is too soon to judge the impact of those models given the time needed to overcome business disruptions and offset additional overhead costs. Before embarking on their own transition, companies should recognize that there is no single "right" model to follow. They should first consider the emerging market opportunities that exist in China and what the market's increasing complexity means for their particular business. They should then look at ways to adapt their current organizational structure to address these opportunities and complexities, such as by building capabilities or adopting alternative commercial models. If shifting to one of the regionalized models is the right approach, the company will need a carefully crafted transition plan as well as the required capabilities and the talent base.

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China's digital healing

China's digital healing

Cindy Chiu, Chris Ip, Ari Silverman, and Florian Then

In the world's largest social media market, physicians and patients blog about healthcare, but are healthcare companies really listening effectively?

China's voracious appetite for all things social has spawned a dizzying array of local social media platforms—that excludes Facebook, Twitter, and YouTube—many with tools more advanced than those in the West (Exhibit 1). Chinese users, for example, were able to embed multimedia content in social media 18 months before US Twitter users could do so.

This appetite has helped turn the world's biggest Internet user base—513 million people, more than double the 245 million users in the United States[1]—into the world's most active environment for social media. More than 300 million people in China use blogs, social networking sites, and other online communities.[2] And these users are quite active and engaged on social media: 91 percent of China's online users visited a social media website during the last six months of 2011, compared with 67 percent in the United States and 30 percent in Japan. Moreover, three-quarters of users are creators of content—active posters rather than mere spectators—compared to just a quarter in the US. Also, Chinese users spend over 20 percent more time on social media than do US users and six times the amount of time spent by users in Japan.[3]

Chinese users get quite personal, offering details about their health, disease treatments, standards of care, and even naming specific products and brands in their treatment regimes. This wealth of healthcare insights, along with the ability to reach the broad population of key stakeholders in China's healthcare system, is among the largest untapped opportunities available to healthcare companies in the Chinese market.

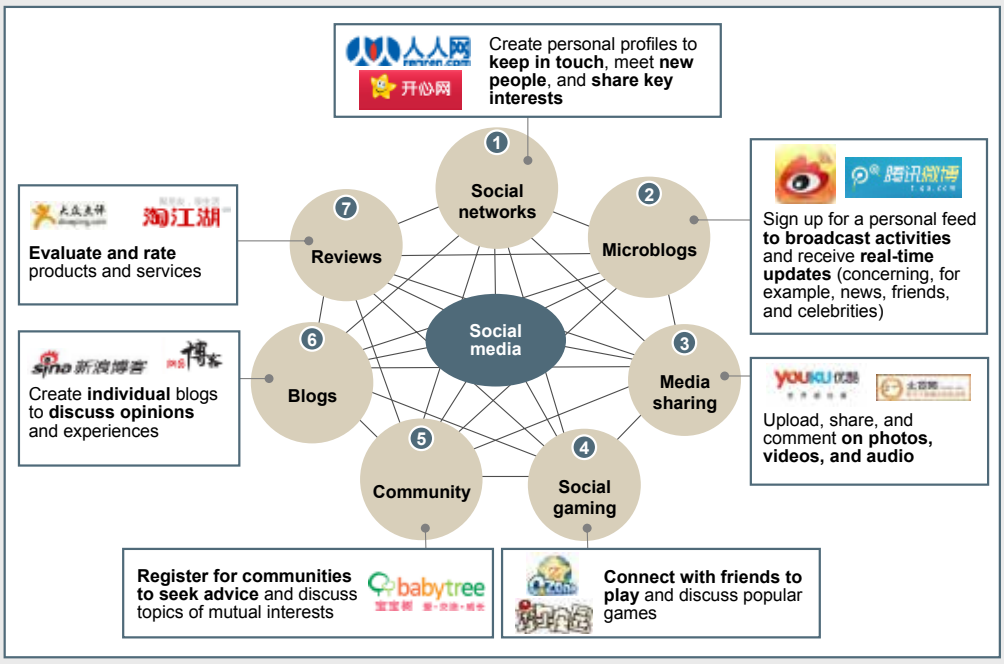
A matter of trust

Social media, in the form of online forums and communities, first came to China in 1994, and instant messaging was embraced in 1999. User review sites such as Dianping emerged around 2003. Blogging took off in 2004, followed a year later by social networking sites such as Tencent's QZone. Sina Weibo launched in 2009, offering microblogging with multimedia. Location-based-services player Jiepang appeared in 2010 (Exhibit 2).

This explosive growth shows few signs of abating, given the increasing affordability of broadband, the proliferation of mobile devices with access to the Internet, and the inability of

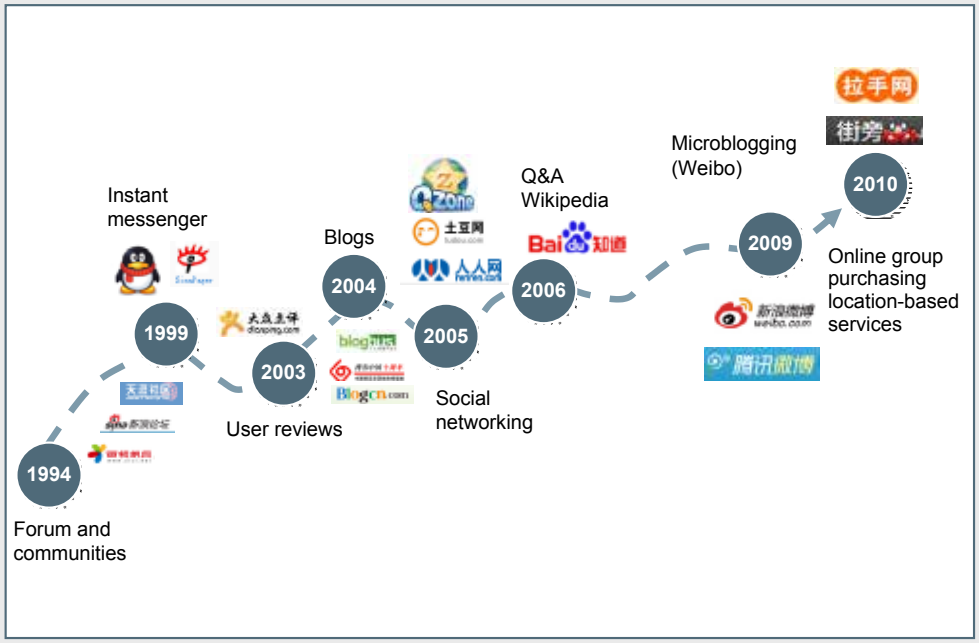
1 Internet World Stats data, as of December 2011 (US figures are from March 2011).
2 The 2012 McKinsey iConsumer survey on Chinese consumers also finds that 91 percent of Internet users in Tier 1, Tier 2, and Tier 3 cities use social media conducted in 2011. Tier 1 cities include Beijing, Guangzhou, Shanghai, and Shenzhen. Tier 2 comprises about 40 cities, Tier 3 about 170. The Tiers are defined by urban population and economic factors, such as GDP and GDP per capita.
3 2012 McKinsey iConsumer survey.

Exhibit 1: China's social media environment is complex and local



Source: CR Net; NMIncite

Exhibit 2: Evolution of China's social media platforms over the past decade



Source: Web research

government to censor social media as easily as other information channels—a fact that leads Chinese users to put their trust in social media content.

Yet untrustworthy sources exist nonetheless. Notably, "artificial writers" seed positive and negative content in the hope that it will "go viral." In several instances, negative publicity, such as allegations of product contamination, has prompted waves of microblog posts from competitors and disguised users. When they are mining for social media insights, companies must, therefore, be on guard: they risk drawing the wrong conclusions about user behaviors and preferences.

To better understand China's unique social media landscape for healthcare, consider the key stakeholders—patients as well as healthcare professionals, providers and manufacturers.

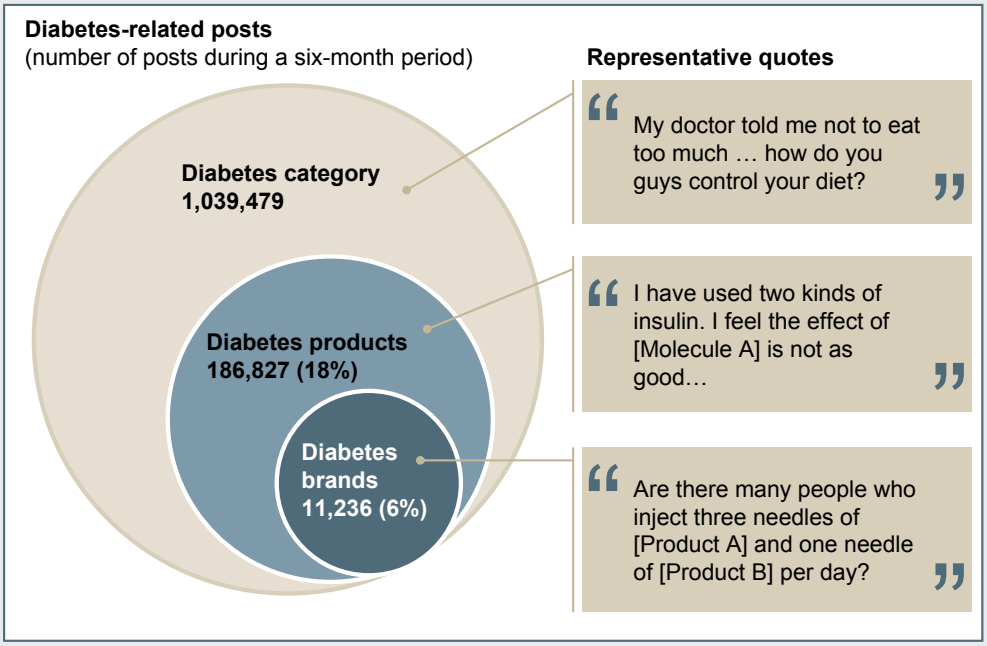
Patients extend their definition of 'friends and family' to the digital sphere

Not only are China's social media users more active than those in other countries but also, in more than 80 percent of all cases, Chinese users have multiple social media accounts, primarily with local players. Compare this with just 39 percent in Japan.[4] Mobile technologies are on the rise as well: there were more than 100 million mobile social media users in 2010, a number forecast to grow by about 30 percent annually.[5]

Users disproportionately value the advice of opinion leaders in social networks, in part because of skepticism about the credibility of formal institutions. An independent survey of skin moisturizer purchasers, for example, found that 66 percent of Chinese consumers relied on recommendations from friends and family, compared with 38 percent of their US counterparts.

Social media serves as a digital extension of "friends and family." For example, recently NMIncite reported that, within a six-month period, there were more than one million diabetes-related consumer posts on Sina Weibo and other platforms.[6] The digital conversations include very detailed information about medical issues. Some 18 percent of the diabetes-related discussions refer to specific products. Here is a typical posting: "I am using [Product A], 2U each time. As a result, my blood sugar has been controlled well, but I prefer to control it through sports and diet instead of injection" (Exhibit 3).

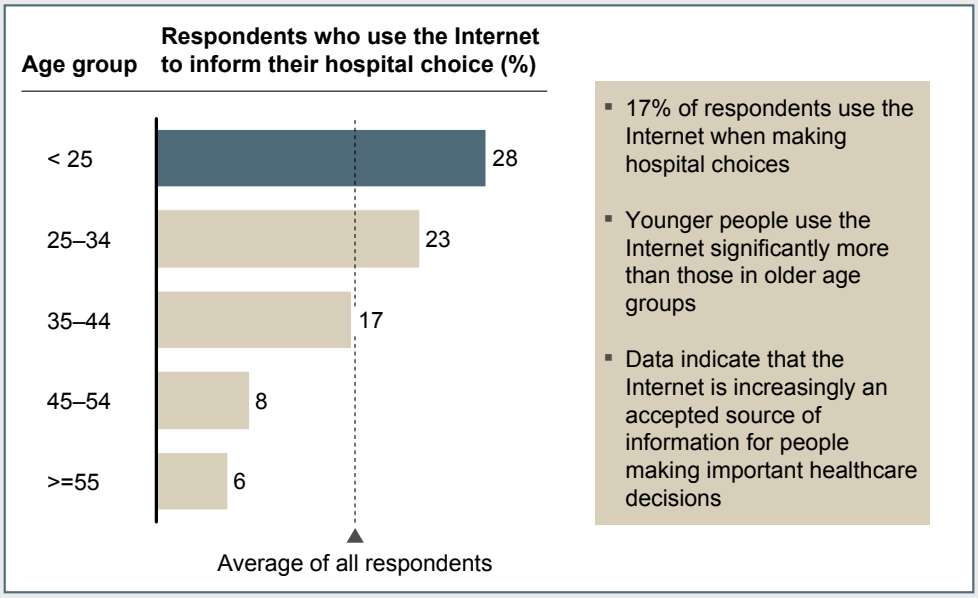
Exhibit 3: About 18 percent of diabetes chatter is related to products



Source: NMIncite

4 2012 McKinsey iConsumer survey.
5 IDC and iResearch.
6 NMIncite is a joint venture of Nielsen and McKinsey & Company to provide social media intelligence and to co-develop unique social media software, metrics, and analytic services.

Exhibit 4: The Internet is becoming an important informational channel for healthcare decisions, especially among the younger generation



Source: McKinsey Chinese patient survey 2012; n = 1,098 respondents

Patients also use online information to make healthcare decisions. A recent McKinsey patient survey about China's hospitals revealed that 17 percent of Chinese patients use the Internet as a source of information to select a hospital, and in the group of consumers under the age of 25, this share reaches 28 percent, compared with 8 percent of patients older than 45 (Exhibit 4). Similarly, 12 percent of younger consumers use social media to get information about treatments and medications. The Internet has already replaced other more traditional sources of information such as print media, which are used by less than 10 percent of patients considering a particular decision.

Healthcare professionals connect through microblogs

Medical practitioners have widely adopted social media as a platform for professional interaction. Ding Xiang Yuan (www.dxy.com), a prominent site for healthcare workers, is now used by roughly three million professionals, including approximately 880,000 licensed physicians, and adds another 30,000 users every month. Its offerings include information on drugs, conferences, and other topics; blogging services; career services; and an online store for laboratory reagents and equipment.

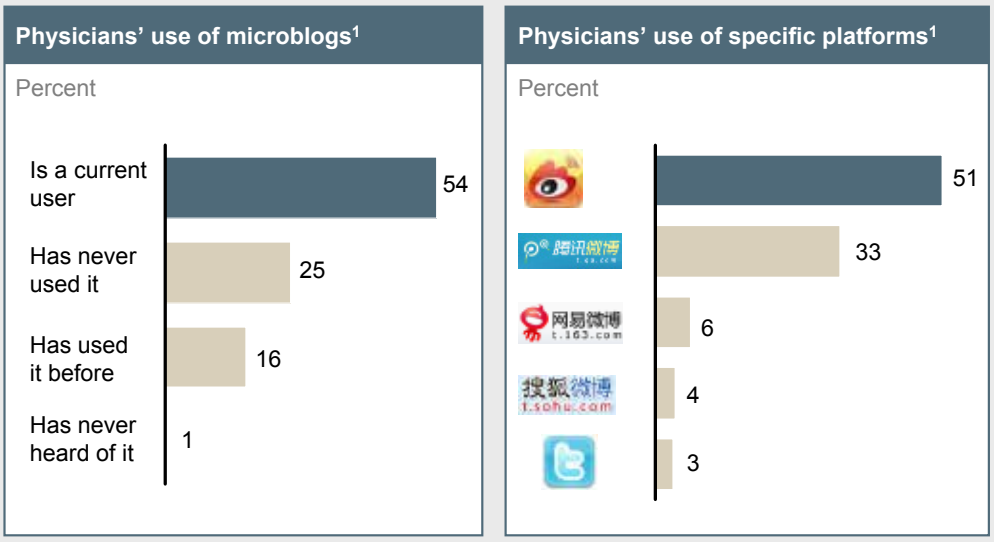
Most physicians are aware of microblogging and more than 50 percent of physicians are Weibo users themselves, according to a survey conducted by Ding Xiang Yuan (DXY) in June 2011 (Exhibit 5). Some leading physicians have hundreds of thousands of Weibo followers, and oncologists and physicians who treat chronic diseases are among the most popular.

Providers are required to connect

Healthcare providers are migrating online in response to healthcare reform and a desire to recruit and retain high-value patients. Hospitals have discovered that the Internet provides an effective way to connect with patients and expand the influence of their key opinion leaders (KOLs).

Hospitals, such as Peking Union Medical College Hospital, have implemented social media accounts for their medical staff, sometimes mandating that physicians use social media for patient communication. The hospitals help maintain the microblogs of their most popular physicians so that they can continue to attract patients and improve the patient-physician relationship.

Exhibit 5: A recent survey shows that more than 50 percent of physicians use microblogs (Weibo), and Sina is the most popular choice by physicians



1 Percentages don't add up to 100 because some physicians did not answer the question

Source: McKinsey/DXY (www.dxy.cn) 2012 Physician Survey

Different levels of government support this trend. For example, the Beijing Municipal Health Department (itself boasting 40,000 followers on its Weibo account) announced in February 2012 that it would integrate the microblog accounts of hospitals, hospital departments, and physicians into a single account. The department mandated that more than 50 Class 3 hospitals, the local bureaus of health, the Beijing Medical Authority, the Beijing Traditional Chinese Medicine Bureau, and other health agencies also open accounts.

Manufacturers are testing the waters

Many multinational pharmaceutical manufacturers have been building an integrated digital presence in their home markets, but the picture in China is mixed. Like companies outside China with a Facebook or Twitter presence, some Chinese companies have established their own Weibo accounts to expand their reach. Examples include the site for Mercilon, a contraceptive, and Johnson & Johnson's site for Acuvue contact lenses (Exhibit 6).

But manufacturers' use of social media to bring content to educate physicians and patients remains limited. Here, we see a large, untapped opportunity for listening to physicians and patients to gain a better understanding of their preferences and to identify their unmet needs.

Listening for social media insights to create value

As each company shapes its own social media strategy, it needs to proceed with full understanding of the nuances of the Chinese market. Although the unique characteristics of the market can create challenges for businesses, the characteristics do not detract from the opportunity. Some regulatory questions do remain unanswered globally. Still, listening to patient and healthcare professional conversations is the most valuable way for companies to generate real customer insights that they can translate into winning strategies.

Monitoring patient, caregiver, and healthcare professional conversations will help companies understand who is talking about different treatments, product categories, and brands; what they are saying about disease management and treatment; and what their unmet needs are. In March 2012, GlaxoSmithKline signed a multi-year multimillion-dollar global deal with Infosys, a software

Exhibit 6: Healthcare providers and manufacturers have begun to build their microblog (Weibo) presence

Provider example: Beijing Municipal Health Department

Followers[1]: 136,132

Manufacturer example: Johnson & Johnson's Weibo for Acuvue lenses

Followers[1]: 61,751

1 As of April 25, 2012

Source: Web search

services provider, and Fabric Worldwide, a digital marketing technology provider, to monitor and analyze social media discussions as a way to inform its marketing and promotion strategy.

Companies should strive to identify all the needs and priorities of their target patients, determining also where these patients get information and what information they find valuable. The results of this exercise can inform product design, brand campaigns, and rapid response to customer concerns. Companies, however, need to also be careful in how they leverage patient-specific information from social media as patient privacy rules are still evolving.

Manufacturers are also starting to explore the use of social media to provide medical content and disease information as a means of reaching KOLs and a broader base of physicians. Such approaches should be crafted carefully—with an eye to potential regulatory issues. For example, some multinational pharmaceutical companies have closed their Facebook pages over concerns that they may be seen as spreading false information posted by patients. Some manufacturers may choose only to listen and monitor trends. But even that limited use of social media can be a critical input to shaping strategies and making business decisions. More broadly, social media can and should serve to improve the quality of patient care in China.

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The sheer numbers of social media users in China cannot be ignored. Executives looking to generate real insights and value from this opportunity should address several key questions:

- Where are our relevant stakeholders having discussions?
- What are they talking about? What are they saying about therapeutic areas in which we participate? Treatment paradigms? Products and brands? What are their unmet medical needs?
- How do they feel about specific products and brands? What are the underlying causes of these sentiments?
- How can the company extract actionable insights from the wealth of information available from social media? What will we now do differently when we engage our physicians?

- How much do we really know about the rules of the social media "game"? Do we know how to listen to and potentially engage our stakeholders? How far will we go to engage customers in the digital space? How can we best mitigate potential regulatory risks?
- How does social media fit into our planning processes? Who in our organization should have responsibility for social media? What capabilities do we need to win?

Some regulatory questions remain unanswered, but that should not deter companies from moving ahead in social media. Learning from successes in other markets makes it easier—and well worth the effort—to invest in China's digital conversation.

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Since 2008, the McKinsey's Healthcare Practice in Greater China has conducted over 200 client projects, supporting a mix of multinationals and Chinese healthcare clients as well as government agencies on sub-sectors including pharmaceuticals, biologics, vaccines, medical products, consumer health/OTC, service providers, payers, and healthcare systems. We help clients on strategy, sales & marketing, market access, Research & Development, organization, corporate finance and operational topics. Our dedicated team comprises over 30 partners, associated partners, consultants and research analysts, all with significant healthcare experience that ranges from clinical practice to advanced degrees in biochemical engineering, neurobiology, and other life sciences or advanced degrees in public health and related fields.

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