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## Medicine for the Masses – China's Healthcare Reform: Progress and Future Steps

Although China is approaching the end of its three-year reform initiative to improve access to affordable healthcare, the government's commitment to invest heavily in healthcare will remain in place during the 12<sup>th</sup> Five-year plan and beyond. The five major goals of reform in the RMB850 billion plan for 2009-2011 (which according to a March statement by the vice minister of finance, was to be augmented to RMB1.13 trillion) included: i) expanding basic medical insurance coverage, ii) establishing a national essential drug list (EDL) system, iii) improving grassroots medical infrastructure, iv) providing more equitable access to basic healthcare services, and v) carrying out public hospital pilot reforms.

The comprehensive approach to reform is driven by a need to redress three major faults with the Chinese healthcare system: i) a severe gap between rural and urban healthcare quality, ii) inadequate preparedness for an aging demographic profile and the rising prevalence of chronic diseases, and iii) profit incentives that have distorted priorities for Chinese hospitals and medical practitioners. In a broader sense, the reform can be considered a mechanism to boost consumption and expand domestic demand, since the increasing cost of healthcare has been one of the main factors motivating a high level of precautionary savings in China. As Figure 1 shows, approximately 45% of the government's RMB850 billion spending package was directed towards expanding the public medical insurance system (especially towards the previously uncovered rural population), while about a quarter of the amount was directed towards upgrading and constructing medical institutions – especially county-level hospitals and rural clinics. Thus, it can be said that the RMB850 billion headline spending figure was heavily skewed towards initiatives that would result in a more equitable health care system. In most respects, the pace of implementation on the user-side of the reform plan appears to have progressed in accordance with the government's goals, as seen in the following metrics:

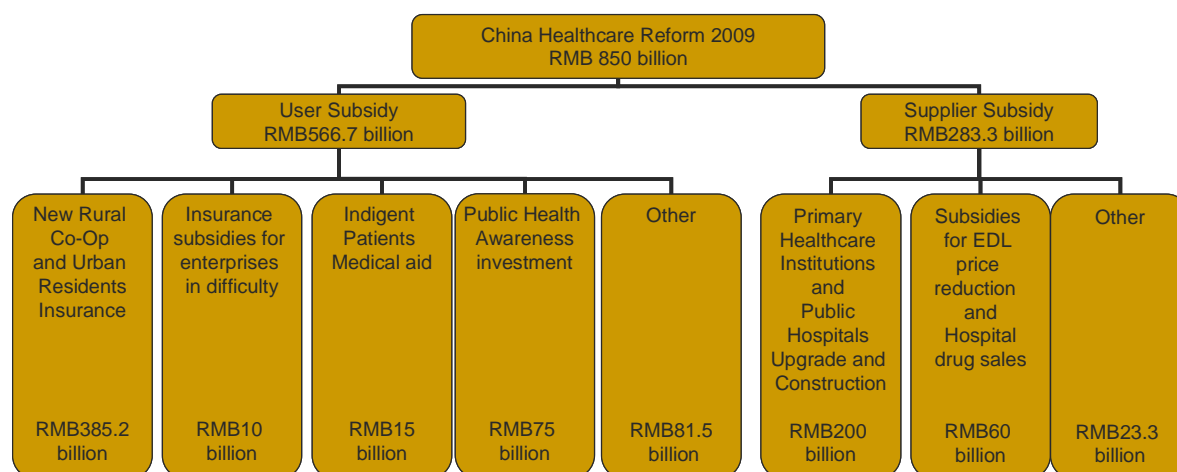
- Public health insurance coverage has expanded to 93% of the population. Notably, China's new Rural Cooperative Medical System covered 836 million rural residents in 2010, compared to 833 million a year earlier and 179 million five years earlier. The wide gap between health services in rural and urban areas is narrowing and government subsidies for subscribers to the new rural medical plan are 79% higher than the amount subsidized in 2008. A study by academics at the Chinese Center for Disease Control and Prevention found that rural patients were now generally more satisfied with healthcare service compared with urban and suburban residents. However, it was expected that rural residents' expectations would increase over time as the availability of medical services and infrastructure increased.
- The number of hospital beds and doctors per 1,000 people grew from 2.45 in 2005 to 3.56 in 2010, while patient visits have steadily increased by 19% since the start of the current reform,

reflecting improved insurance coverage and an increase in the number of lower-tier hospitals and clinics around the country.

- Earlier this year, the medical treatment contribution towards government support funds was increased to RMB200 per person, from RMB120 previously – and just RMB60 in 2008. Over time, the government is committed to bringing down the out-of-pocket burden for individuals to <30% during the 12th Five-year plan period and aims to provide universal access to a range of healthcare services by 2020.

Progress has been less clear-cut on the supplier-side of reforms, where the establishment of an essential drug list system meant to reduce hospitals' reliance on revenues from prescription drug sales has met with varying success due to strained hospital finances.

Figure 1: Breakdown of China's 2009 Healthcare package



Source: Implementation Plan for the Recent Priorities of the Healthcare System Reform (2009-2011)-Shanghai Pharma Prospectus

As recently as in 2009, Chinese healthcare spending accounted for just 3% of the world total, with the government contributing only 27% of total expenditure while patients contributed 73% (as compared to the developing country average, where governments contribute 55% of total expenditure and patients contribute 45%). With the new health insurance initiative, the burden has been reversed, with the government shouldering 63% of costs in 2010, while individuals picked up the remaining 37%. In the first half of 2011, government expenditure on healthcare surged 61.4% YoY to reach over RMB245 billion, according to the Standing Committee of the National People's Congress. Despite the ramp up in spending, healthcare expenditure in China still remains modest in international comparison at 4.7% of GDP in 2010, according to Economist Intelligence Unit, compared to an OECD average of ~8%. Actual spending will continue to increase as the economy grows, while rising incomes will lead to higher expectations for healthcare. The research firm *Espicom Business Intelligence* projects that health expenditure in China will rise from an estimated US\$277.3 billion in 2011 to US\$593.4 billion by 2016, with per capita spending more than doubling during this period from US\$210 in 2011 to US\$437 by 2016.

Although there is now a favorable long-term macro-environment for investing in China's healthcare industries, the sector has been a relative underperformer year-to-date due to perceived uncertainties arising from government price control and its efforts to reduce excessive margins. Chinese A-share listed healthcare stocks have underperformed the CSI300 by 5.9 percentage points since January 1

(particularly following the release of the government's EDL and NRDL pricing caps), however more recently this underperformance has reversed as the sector's defensive characteristics have been attractive to investors. At the company-level, equipment manufacturers, MNC pharmaceutical companies, as well as distributors with a primary focus on the higher-end of the healthcare spectrum have experienced less direct impact from the healthcare reform than manufacturers of basic equipment and generic drugs. First-half results for major Chinese healthcare companies show some impact from downward pricing pressure on the margins of pharmaceutical companies with exposure to the EDL system. Medical equipment makers, however, recorded strong sales growth in the domestic market, reflecting the surge in hospital construction and upgrades since early 2009.

This report examines key aspects of China's healthcare modernization, and considers the current healthcare investment climate.

### **Changes in China's Healthcare Infrastructure**

A major focus of the central government with the current reform plan has been reducing the disparity between urban and rural healthcare, with more emphasis on allocating a greater share of central government funds to more needed areas and socio-economic groups. Beijing and Shanghai, which account for 1.3% and 2% of China's total population, have 544 and 306 hospitals respectively, or 4.5% of the national total. A poorer province like Henan, accounts for 7% of the population, but only has 5% of China's total hospitals (which tend to have less sophisticated equipment, facilities and staff).

As part of the reform plan, the government has set a target of constructing some 2,000 county level hospitals to ensure that each county in the nation will have at least one such facility (usually these are the best equipped institutions in each county, with at least 250 beds). In a recent discussion, Thomas Kelly, senior vice president of Sanofi-Aventis Asia, highlighted the development of China's county-level hospitals as the most significant growth opportunity for pharmaceutical companies, with there now being 3-6 county hospitals in many counties. In addition, the government is constructing 29,000 township hospitals and upgrading another 5,000, as well as funding the construction or upgrading of numerous village clinics, community health centers and health stations.

In 2010, 627 new hospitals were built in China, bringing the total to 20,918. The number of private hospitals continued to grow, adding another 828 to a total of 7,068 private hospitals. With the expansion of basic healthcare insurance coverage, patient traffic in hospitals increased 6.4% from 549 million visits in 2009 to 584 million in 2010. Public hospitals, which account for two thirds of total hospitals, saw 91.7% of the traffic while private hospitals, which account for one-third of all hospitals, saw the remaining 8.3% of hospital traffic. Large public hospital visits constituted 35% of the total, or 204 million visits. With increased government subsidies and spending, as well as increased patient traffic, larger public hospitals expenditures have surged to meet demand.

### ***Private investments***

In December of 2010, China enacted new policies to encourage private investment in hospitals, including wholly-owned foreign hospitals. China has simplified the approval process for opening new joint venture hospitals, giving authority to provincial level governments, while wholly-owned foreign hospitals are still approved by the Ministry of Health. Over the past decade, a significant number of mid-size/county hospitals were privatized, however many of the newly-privatized institutions focused on short-term profits through the sales of medicines and suffered from a shortage of experienced doctors. Doctors in China are generally licensed to practice at a single facility, and so few top doctors opted to give up their affiliation with more prominent large public hospitals in order to practice at private facilities. As a result, both doctors and patients have actively shunned the majority of China's

private medical facilities. The MOH is now undertaking pilot projects that allow physicians to practice at multiple institutions – the Municipal Health Bureau of Beijing, for instance, has allowed doctors to work at up to three hospitals since March 2011.

Roberta Lipson, CEO of Chindex International (CHDX.US), the operator of the first foreign-invested hospital in China, the Beijing United Family Hospital and Clinics, recently described a renewed interest in the private healthcare industry from the central government, having seen more government officials touring Chindex's hospital facilities in the last several months than in the last 10 years. Government attitudes towards private healthcare have also changed dramatically as provincial leaders are now trying to attract investment back to their provinces.

The government has stated that it will provide equal insurance coverage for state-owned hospitals and private hospitals, so long as private hospitals follow the same government pricing directives for their services and products.

### **The Expansion of Insurance Coverage**

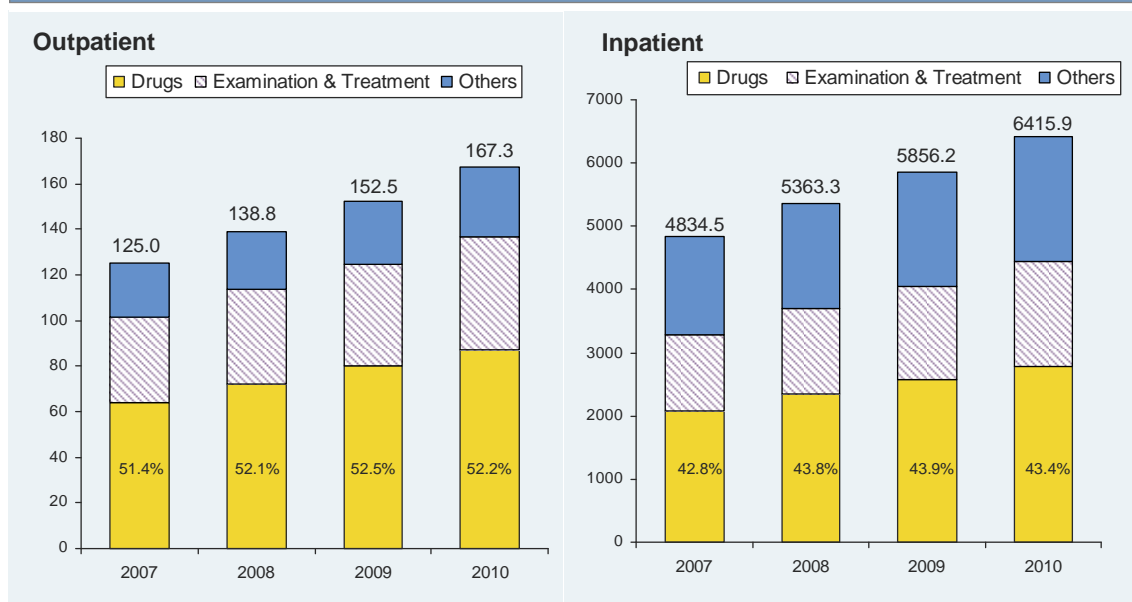
Reforms in China's national health insurance constituted changes to the major components of China's basic health insurance covering urban and rural residents:

- The Urban Employees' Basic Medical insurance (UEBMI); a mandatory plan which covers urban workers and their family
- The Urban Resident's Basic Medical insurance (URBMI); a voluntary plan which covers those urban residents not covered by UEB
- The New Rural Cooperative Medical Scheme; a plan which provides coverage to rural residents. Though the system was initially established in 2003, funding for the scheme has increased substantially from RMB 4 billion in 2004 to RMB 130.8 billion in 2010, while participation in the scheme has also increased with 80 million people covered in 2004 growing to 960 million covered in 2010. The healthcare reform's greatest impact on the New Rural Cooperative Medical Scheme has been the awareness and utilization of the scheme, jumping 85% from 585 million beneficiaries in 2008 to 1.08 billion in 2010, putting greater central government focus on upgrading rural healthcare.

With the UEBMI and URBMI schemes, the maximum reimbursement paid annually will be RMB 100,000 while the New Rural Cooperative Medical Scheme subsidizes spending by paying directly into a personal healthcare account, with an annual reimbursement cap of RMB50,000 – or 10 times a typical farmer's annual salary, an increase of 66% since 2009. Under the above schemes, patients are reimbursed for about 70% of their inpatient expenditures. Earlier this year, the medical treatment allowance from government support funds was increased to RMB200 per person, from RMB120 previously – and just RMB60 in 2008.

According to the MOH, the reforms in national health insurance have brought China's rural health insurance coverage to 832 million people, or 96% of the rural population, with most of the remaining 4% being migrant workers outside their hometowns who may qualify for urban health insurance schemes.

Figure 2: Average Medical Expense per Capita in Public Hospitals (RMB)



Source: MOH

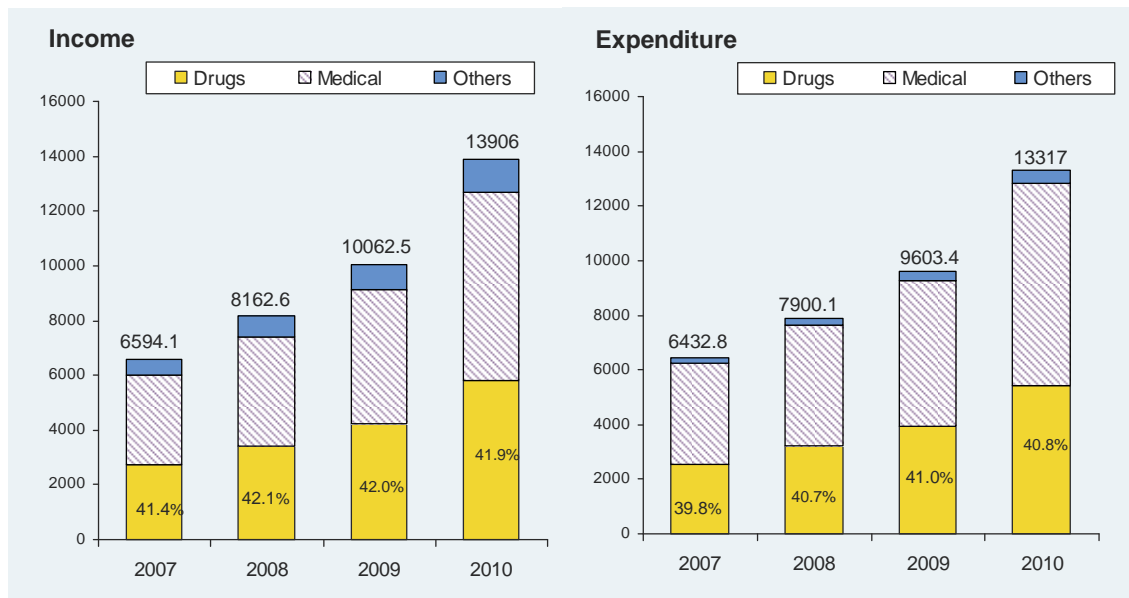
### China's Pharmaceutical Landscape and Impact of the Essential Drug List (EDL)

China is forecast to become the world's third-largest pharmaceutical market by 2013, according to IMS Health. However the country's pharmaceutical landscape remains extremely fragmented with over 5,000 companies in the market. The vast majority of these companies produce generic drugs, with the largest player having only 2% market share. The three distinct drug segments are patented drugs, generic drugs (drugs which are manufactured or sold without any patent on their active pharmaceutical ingredients) and branded generics, which are marketed under trade names. Locally-produced generic drugs are often reimbursed under the National Reimbursed Drug List (NRDL), which includes over 2,000 drugs, whereas innovative, higher-priced patented drugs tend not to be reimbursed under the scheme.

Public hospitals in China have historically been under-funded and have relied substantially on drug sales to make up budget shortfalls, to the tune of over 40% of revenue (see *Figure 2*). A major source of public discontent with healthcare in China has been the tendency for hospitals to over-prescribe or prescribe unnecessarily expensive drugs.

As part of China's overhaul of drug manufacturing, procurement and prescription, the government established an Essential Drug List (EDL) in 2009, which now contains over three hundred Western and Chinese medicines that are expected to be sold at government-controlled prices. With a reduction in price for pharmaceutical companies whose products fall under the EDL, profit margins will shrink while the exclusive rights to produce these drugs should theoretically boost sales volumes. All essential medicines are integrated into the NRDL, with markedly higher rates of reimbursement than non-essential medicines.

Figure 3: Income and Expenditure of Government General Hospitals (10,000 RMB)



Source: MOH

The government is also setting up a digital monitoring network spanning a drug's transportation, storage and sale and has required State-run hospitals to purchase all essential drugs from the network since April 1. Although provinces have been given some independence in deciding their localized EDL and NRDL's, these lists are expected to be 90% consistent with the national EDL and NRDL.

### Drug Price Reductions and EDL Implementation Issues

According to the government's healthcare policy, the essential drug system will cover all government-funded health institutions at the grassroots level by the end of 2011 and essential drugs will be sold at a zero percent mark-up, in return for which hospitals are due to receive a subsidy of approximately 15% of the drug price for the lost margin. However, there have been anecdotal reports of affected institutions that have not received the subsidy, while some hospitals that implemented the zero mark-up system are said to have faced deficits due to lost drug sales. A Xinhua news report earlier this year described several grassroots hospitals in Hunan Province that lost 60-70% of their revenue as a result of the zero mark-up policy.

*Caixin* magazine has reported that as the process of pricing essential drugs becomes more standardized, the NDRC intends to move towards establishing a nationwide unified price system to correct the problem (which arose during early EDL tendering exercises) of artificially low prices being bid for essential drugs. Reportedly, the intense price competition between bidding companies has in some cases benefited small-scale pharmaceutical companies that are able to win tenders based purely on low cost – a situation that might later give rise to unfulfilled orders or problems with quality. The "Anhui model", named for the province that first implemented the lowest-price bidding system in question, has come under heavy criticism, as has the implementation of the zero mark-up policy. Other regions have since adopted a tendering model that assigns significant weighting to drug quality and manufacturer reputation, in addition to price considerations.

Separately, the government has also announced two rounds of retail drug price cuts this year, first in March when the NDRC cut the maximum prices of certain antibiotics and circulatory system drugs by an average of 21%, and more recently in August when prices for 82 types of endocrine and neurological drugs were cut by an average of 14%. Further drug price cuts are likely to continue into 2012, however major drug companies are likely to be able to adapt through cost controls and adjustments and in many cases, the impact on margins could be limited since the price caps mainly served to narrow the gap between tender and retail prices. As the government looks to cut excessive prices, drugs manufactured from companies with low R&D expenditure but high profit margins are expected to experience the brunt of price-capping, while companies that invest heavily in R&D could experience less scrutiny.

With the top three to five manufacturers of each specific EDL product expected to receive the exclusive national or provincial rights for production, consolidation of the smaller, less efficient manufacturers is expected to take place over the next couple years. Since the tendering process at a provincial level has put pressure on companies to secure contracts, the expectation has been that the price for high quality generics would be lowered while the pricing for patented medicines should remain stable. Tom Kelly of Sanofi Aventis believes that a more flexible adoption of the EDL process is likely to take form, allowing hospitals more scope to prescribe innovative pharmaceuticals alongside EDL medicines. On a policy-level, he believed the government would prefer to channel more funds towards expanding medical insurance rather than towards a zero mark-up EDL system.

**Figure 4: Top 10 Multinational Pharmaceutical Companies in China in 2011 Q1**

Company	Ticker	Sales (USD mn)	% Growth
<b>Pfizer</b>	NYSE:PFE	835	31
<b>AstraZeneca</b>	LON:AZN	749	32
<b>Bayer Healthcare</b>	ETR:BAYN	663	20
<b>Sanofi</b>	EPA:SAN	620	31
<b>Roche</b>	VTX:ROG	531	31
<b>Merck</b>	NYSE:MRK	443	15
<b>Novartis</b>	VTX:NOVN	440	25
<b>GlaxoSmithKline</b>	LON:GSK	378	30
<b>Novo Nordisk</b>	CPH:NOVO B	359	30
<b>Johnson &amp; Johnson</b>	NYSE:JNJ	288	30

Source: BMI China Pharmaceutical report, 2011 Q1

Thus far, multinational pharmaceutical companies have generally not embraced the EDL system, as this would entail drastic price reductions on patented drugs without commitment on volume. Most major global pharmaceutical companies have had a sizable presence in China for over a decade (see *Figure 3*) and according to data from IMS Health, the MNCs have recorded faster revenue growth in the last three years than their local counterparts. Together with the NRDL scheme and higher standards of regulation, branded generic drugs are facing diminishing brand advantage and greater pricing pressure from generic drugs, while patented drugs continue to accrue the highest margins.

The impact of downward pricing pressure has been evident in the first-half results for companies with significant product exposure to the EDL. China Shineway (2877.HK) – a company with 40% of 2010 sales in products that are included on the EDL, according to estimates by J.P. Morgan analyst Leon Chik – announced a 4.2% increase in 1H11 net profit to RMB439 million; however the company's

gross margin narrowed to 66.6%, from 69.5% a year earlier. Management indicated higher gross margin pressure in the second half, due in part to expected NDRC price cuts, which thus far have not primarily targeted Chinese medicines. Any move towards a uniform EDL pricing mechanism could serve to mitigate downward pricing pressure and alleviate concerns about the further adoption of the Anhui tender model.

Meanwhile, United Laboratories (3933.HK), reported 1H11 net earnings of HKD308 mn (-33% YoY), with a drop in gross profit margin to 35.6%, from 40.6% a year earlier. The company has come under considerable pressure not only from its exposure to price controls, but also due to additional restrictions and regulations governing the use of antibiotic products in medical institutions at all levels. This is consistent with the central government's policy of lowering medical costs while cutting down on hospitals' reliance on over-prescribing. Although the company has seen profit margins decline for certain products, the approval of its much anticipated human insulin by the FDA this January is positioning the company to capture market share in the Chinese insulin market. China now has the world's largest diabetic population at 92 million people, with ~13% of China's total healthcare expenditure directly related complications from diabetes, according to a study by the International Diabetes Federation.

### **Consolidation of the Pharmaceutical Distribution Industry**

China's pharmaceutical distribution industry is highly fragmented with over 15,000 distributors nationwide. Currently the three largest pharmaceutical distributors in China account for 20% market share, whereas the three largest in the United States command 97%. The fragmented nature of the distribution industry has stifled innovation and increased the price of drugs, with contracts sometimes awarded on the basis of local relationships. As Chinese hospitals raise their requirements for quality control, customized packaging, import and technical support assistance, and digitalized payment collection systems, larger distributors with innovative and effective strategies stand to gain higher market share. Larger, more efficient distribution companies with connections to manufacturers selected to participate in the EDL stand to benefit from the reform program, while smaller distributors risk being squeezed out.

China's largest pharmaceutical distributor, Sinopharm (1099.HK), which has 12% market share, aims to become one of the three largest distributors in every major city and has been actively making acquisitions of smaller distributors throughout the reform process, spending RMB 2.5 billion since the start of 2010. Since the government has exerted pricing pressure on EDL drugs, net profit margins have contracted to 1.63% in 1H11, from 1.97% a year earlier, while sales volumes have increased. Sinopharm posted a 23% increase in first-half profit, largely fueled by the contribution from acquisitions, as net income reached RMB785 million. Apart from reducing the prices of essential drugs, consolidation in the pharmaceutical manufacturing and distribution sectors will also allow for more efficient and transparent regulation of these industries.

### **Medical Equipment**

Medical equipment and devices will be the main driver of growth in the healthcare sector as fixed asset investments from 2009 and 2010 rose 60% YoY mainly due to the construction of new hospitals and upgrading of existing facilities. China's medical device makers have seen strong earnings growth in 1H2011, while in comparison, the pharmaceutical sector's profit growth slowed to 21.7% in 1H2011, from 37% a year earlier, reflecting rising input costs and government price controls. Mindray Medical (MR.US), China's largest exporter of medical devices and the most profitable medical device manufacturer in China, saw year-over-year revenue growth of 21.2% in 2Q11, with non-tender sales

in China up 25.3% (vs. an 18.5% increase in international sales). This compares to YoY sales growth of 24% in 1Q11 and 12% in 4Q10. With an 18-month lag in hospital construction to completion, signs of momentum in the domestic market support J.P. Morgan analyst Leon Chik's view that the surge in rural hospital construction that started in early 2009 is now nearing completion and has been boosting demand for equipment from early-2011, with 2 or 3 years of strong demand in the future.

As part of the healthcare reform program, the government changed the tendering process to put more control in the hands of the individual hospitals and at lower-tier clinical facilities. According to May Li, Deputy CEO of Mindray Medical, since 2010, there has been a shift in the focus of investment on the part of NDRC and MOH, from one that was heavily geared towards urban health care development, to one that has put county-level hospitals as the focal point for reforms.

The increase in direct subsidies to county hospitals has benefited low and mid-range medical equipment players like Mindray by fueling new purchases of medical equipment. Whereas the last 20 years benefited the larger hospitals in the 1<sup>st</sup> and 2<sup>nd</sup> tier cities, for the low to mid-range, there is now a very high demand for products at the county-level.

### ***The Attraction of the mass-market***

Driven in part by the expansion of bundled reimbursement and the emergence of coverage for the middle class, the market for medical technology is expanding from one of affluent demand for premium products to a broader-based middle market with different demands. We expect local and MNC players to develop products and brands targeting the middle market in China, with price points and features designed to meet the specific demands of the Chinese market. Over time, MNCs and local players will likely channel these mid-tier China products to other emerging markets.

China's medical device healthcare industry has long been dominated by foreign MNC's. GE Healthcare, for instance, has done business in China since 1979 and now employs over 4,500 people in the country. Revenue in 2010 totaled USD 1 billion, out of global healthcare revenue of USD 17 billion. Although 1<sup>st</sup> tier hospitals will continue to account for the majority of GE Healthcare's sales in China, GE is making inroads in mid-range product lines to capitalize on the focus of the healthcare reforms on sponsoring the procurement of X-ray, CT, and MRI machines by county-level hospitals. Since 2006, GE has manufactured a basic, simple to use X-ray machine expressly for the Chinese market. Exports currently account for 70% of the divisions' sales, however a domestic sales target of 50% is expected in the coming 3-5 years. GE Healthcare has USD2 billion in investments planned in China, which includes opening six customer innovation and development centers and moving the company's global X-ray unit to China, where more than 20% of the new X-ray products will be developed.

As China's healthcare reform has reshaped the domestic medical device market, production in low to mid-end imaging products is now mirroring demand in other emerging markets. China became a net exporter of medical equipment and devices in 2005, with the US in 2009 the leading destination accounting for 26% of the total value, and Japan, Germany and Hong Kong accounting for 10%, 7%, and 4% respectively. Industry experts expect the export trend to shift towards more developing countries as China becomes the manufacturing base of mid-end medical devices and equipment.

### **Healthcare Human Resources**

The single biggest impediment to China's healthcare reform plan is perhaps the severe disparity in healthcare human resources across regions and institutions. As hospitals are popping up all over the country, a shortage of doctors and nurses has plagued China's healthcare system stymieing investment in sophisticated equipment, since the training of hospital staff takes several years. The

healthcare reform has devoted a large portion of resources to developing new training facilities, upgrading existing medical schools, and encouraging the training of nurses (since the doctor to nurse ratio is still above). From 2009 to 2010 China increased the total number of doctors from 0.175% of the national population to 0.179%, and nurses from .0139% to 0.152%.

The MOH is also taking steps to augment the number of healthcare professionals in rural regions, such as by providing training subsidies and offering tuition waivers for doctors who agree to take employment in township clinics upon qualification.

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