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Health care: Time for a check up

China's health care system is widely considered to be in crisis: the quality of care deteriorating and too much of the cost borne by patients. While the truth is more complex, fear of the cost of a serious or chronic illness is certainly a major reason why Chinese households save so much of their income.

As part of its stated commitments to building a "harmonious society" and stimulating household consumption, the government is now contemplating a thorough overhaul of the way health care is delivered and paid for. Major reforms could be announced by the end of this year. Our survey dispels the myths and hysteria that have grown up around China's health care system, identifies the true problems, and describes how the government may begin addressing them. It does so in four parts:

I. Get the problem straight

II. Primary care: not enough to go around

III. Health care finance: user pays – and pays, and pays

IV. Pharmaceuticals: too many, too costly and not good enough

The authors are Gabriel Wildau, the CEQ*'s Beijing correspondent;* CEQ *managing editor Arthur Kroeber; and research associate Pei Zhuan.*

I. Get the problem straight

Here is the fairy-tale account of the history of Chinese health care. Once upon a time, a good wizard called Mao Zedong sent "barefoot doctors" into the countryside to heal the Chinese peasantry. These barefoot doctors brought vaccines, medicines, modern hygiene and basic techniques of both Western and traditional Chinese medicine. The barefoot doctors were spectacularly successful until a bad fairy called Market Forces came along and drove them all away. Ever since then China's health care has been getting worse and worse – especially in the countryside – and epidemic diseases are again on the rise.

Shoeless and unproven

It is a popular and compelling tale, but little of it is provable. What the legendary barefoot doctors of the 1950s and 60s actually did has been subjected to surprisingly little systematic scrutiny. But there is scant evidence that they were ever more than ill-trained paramedics whose main job was to propagandize for boiled water, better latrines, and other basic public health measures. These measures were very important, and during the Mao years China enjoyed spectacular gains in basic health outcomes: between 1952 and 1982 life expectancy nearly doubled, from 35 to 68 years, and infant mortality fell by more than 80 percent, from 200 to 34 per 1,000 live births. The incidence of diseases such as malaria, schistosomiasis and syphilis fell dramatically.

Few of these gains had anything to do with "medical care" as it is widely understood in the modern world – i.e. the diagnosis and treatment of disease. They were the result of better hygiene and sanitation, totalitarian social control (which worked wonders against sexually transmitted diseases such as syphilis) and mass campaigns to exterminate disease vectors such as mosquitoes (malaria) and snails (schistosomiasis).

Better than you think

Just as the availability and quality of Chinese medical care during the Mao era has almost certainly been exaggerated, so too the "collapse" of health care in recent years. Strangely, this supposed collapse cannot be detected in statistics on health care outcomes. True, the density of hospital beds and doctors has fallen somewhat in rural areas; but the beds and doctors are simply resources, not outcomes (and in any case the availability of beds in rural areas has increased modestly since 2003). Of the 12 key health outcome indicators listed in tables 1 and 2, most have posted significant gains in the last 20 years; none has shown a meaningful decline. China ranks ahead of India on all 12, ahead of Brazil on eight, ahead of Russia on five, and ahead even of the United States on two. Where China lags, it is usually not by much, especially considering its low per capita income. Data simply do not support the idea of a "collapse" in China's health care system – as they did in 1990s Russia, where life expectancy fell, mortality rates rose, and the prevalence of tuberculosis and other diseases soared.

Despite Western hysteria about AIDS and avian influenza, overwhelming evidence exists that the capacity of China's public health system to contain epidemic disease has rapidly improved – especially since the 2003 SARS scare, which forcefully demonstrated to the government the political risk of failing to counter epidemics. Government funding for public health nearly doubled between 2002 and 2004, from US$835m to US$1.4bn. Between 2002 and 2005, the average time it took for a report of a new case of one of China's 37 major communicable diseases to go from the county level to the central government fell from 29 days to just one day.

Table 1
Health outcomes for various nations, 2005

	China	Brazil	India	Russia	USA
Per capita GDP, US$ (market exchange rates)	1,700	4,800	700	5,300	42,100
Life expectancy (avg of male/female rates)	73	72	63	66	78
Adult mortality per 1,000 population (avg of male/female rates)	127	172	244	322	109
Child (under 5) mortality rate, per 1,000	27	33	74	14	8
Infant mortality, per 1,000 live births	23	28	56	11	7
Maternal mortality rate, per 100,000 live births (2000)	56	260	540	65	14
Newborns with low birth weight, % (2002)	6	10	30	6	8
One-year-olds immunized for measles, %	86	99	58	99	93
One-year-olds immunized for diphtheria/tetanus/pertussis, %	87	96	59	98	96
One-year-olds immunized for hepatitis B, %	84	92	8	97	92
Births attended by skilled health personnel*	83	97	-	99	99
Tuberculosis detection rate, %	80	53	61	30	85
Tuberculosis treatment success rate, % (2004)	94	81	86	59	61

Sources: WHO; IMF for GDP figures *Brazil and US 2003, India 2004

Table 2
China health outcomes, 1981-2005

	1981	1997	2005
Life expectancy, years	68	71	73
Child mortality, per 1,000	64	42	27
Maternal mortality, per 100k	89*	64	56**
Births attended by skilled health personnel, %	81	80	83
Tuberculosis detection rate, %	na	32	80
Tuberculosis treatment rate, %	na	96	94

Source: Ministry of Health, WHO *1990 **2000

The impact of this push on public health can clearly be seen in the response to China's number one killer infectious disease: tuberculosis, with an estimated 1.3m new cases a year. Between 2002 and 2005 the detection rate for TB skyrocketed from 30 percent to 80 percent. This was the result both of better planning and a seven-fold increase in anti-tuberculosis funding over the same period (when it reached US$35m). Effective TB treatment rates have remained at around 90 percent, despite the huge increase in detection and hence the workload for treatment centers.*

The real issues

Struggling with demand

None of this is to say that all is rosy in Chinese health care – quite the contrary, the system suffers from many enormous problems whose solution is an urgent task for government policy. But it is crucial to understand what these problems are and what they are not. Citizens do not receive, on average, objectively worse health care than they did in the past. It is more accurate to say that the health care system has failed to keep up with rapid changes in the nature of demand.

Up through the mid-1980s, China's health care challenges were those of a very poor agricultural society: reducing infectious and epidemic disease and cutting back on infant and maternal mortality. Better hygiene and command-and-control social engineering pretty much did the trick. Since then, China has transformed itself into a middle-income, rapidly urbanizing society, and its big health challenges increasingly

*Exhaustive documentation of China's progress against tuberculosis and in epidemic reporting and control in general can be found in "Progress in tuberculosis control and the evolving public-health system in China," *The Lancet*, vol. 369, 24 February 2007, pages 691-95.

are chronic diseases like heart disease, cancer and diabetes, as well as the higher standard of basic care demanded by wealthier and better-educated urban consumers. China's two biggest needs, therefore, are an efficient network of primary care centers and a health care finance system that can shoulder the inexorably growing burden of chronic disease costs. At present it has neither. The subsequent articles will describe how these problems may be addressed.

II. Primary care: Not enough to go around

The biggest problem with health care delivery in China is the lack of a coherent system for primary care. General practitioners or family medicine doctors do not exist; hospitals without dedicated primary care physicians dispense the vast majority of medical service. There are lots of small clinics, both state-run and private, that could fill the primary-care gap, but they are overly specialized, of doubtful quality, not trusted by patients, and not supported by government policy.

Nice-looking network

In theory, China has a wide network of health care facilities. Even after the ravages of three decades of policy drift, and despite its enormous population (which normally makes China look bad on per-capita measures), the availability of doctors and hospital beds is quite respectable. Urban China has as many doctors per capita as South Korea; rural China has more doctors than all of India, including urban areas. Urban China has more hospital beds per capita than the United States, and overall China has three times as many beds per unit of population as India (Figures 1 and 2). According to the 2003 National Health Services Survey (NHSS), 95 percent of rural households are within 5km of a health facility and 61 percent lie within 1km; more than 80 percent of urban households are within 1km of a facility.

This statistical surfeit, however, is illusory. When measured by value provided, Chinese health care is concentrated in a small number of hospitals. The vast number of small clinics play virtually no meaningful role in health care delivery. China's 18,000 hospitals make up just 6 percent of the nation's 300,000 health care facilities, but account for 60 percent of patient visits. *Urban* hospitals are just 4 percent of all facilities, but consume fully half of all health care spending in China, up from a third in 1990. At the other end of the spectrum, outpatient clinics make up nearly half of all health care facilities but in 2005 accounted for just 2 percent of patient visits (though this figure probably reflects some underreporting by small private clinics), and only 12 percent of health care spending, down from 21 percent in 1990.*

Table 3
Structure of Chinese health care delivery
% of total health care expenditures

	1990	2005
Urban hospitals	33	50
Outpatient clinics	21	12
Retail pharmacies	2	9
Rural county hospitals	11	7
Rural township public health centers	11	6
Other	23	15

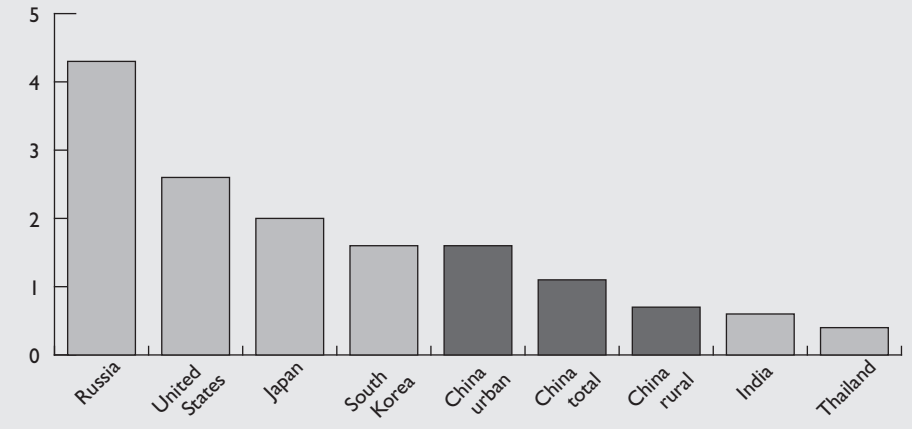
Source: Ministry of Health

Not surprisingly, hospital use is lower in the countryside, but it is still significant and frequently involves a lot of travel. The NHSS found that 57 percent of rural health care consumers visited a hospital for inpatient care, of whom three-quarters used county-level hospitals (involving significant travel time to the county seat) and a quarter traveled farther to better-equipped city- or province-level hospitals.

The increasing concentration of health care in hospitals is accompanied by another phenomenon: the absence of general practitioners or primary care physicians. When patients enter a hospital, or even a small outpatient clinic, they choose a doctor from

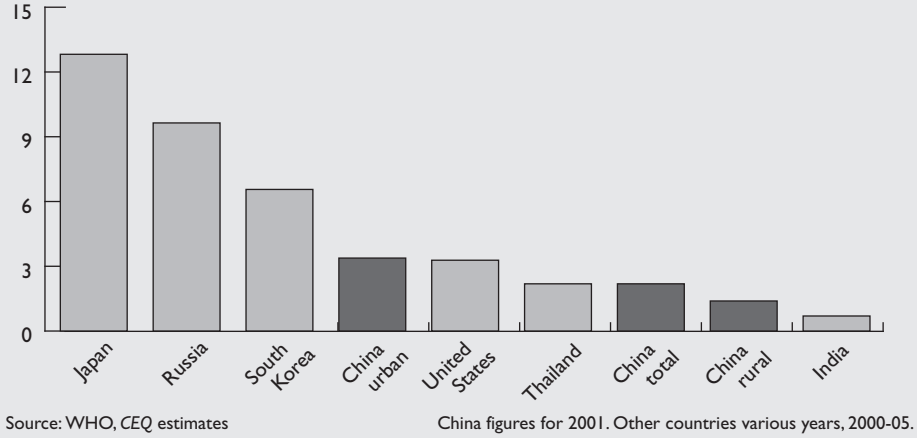
*The low figures for patient visits almost certainly reflects under-reporting of visits by small clinics. Clinics offering STD treatments, for instance, do not record patient names, so it is unlikely that they are making accurate reports of patient numbers.

Figure 1
Physicians per 1,000 population



Source: WHO, *CEQ* estimates
China figures for 2001. Other countries various years, 2000-05.

Figure 2
Hospital beds per 1,000 population



Source: WHO, *CEQ* estimates
China figures for 2001. Other countries various years, 2000-05.

Clinical skepticism

a particular department, depending on their own assessment of their condition. Medical schools also don't offer education and training specifically for primary care; the closest specialty is internal medicine. The lack of competent primary care physicians exacerbates the flight to hospitals. Patients distrust small clinics, assuming that only second-rate doctors would practice there. Public skepticism about local primary-care clinics has increased with the closure or privatization of clinics previously run by state-owned enterprises and rural communes, and further fuelled by media reports of price gouging and appalling care at fly-by-night clinics. The 2003 NHSS found that just 26 percent of patients chose primary-care clinics for outpatient care.

The ownership and management structure of China's health care system is convoluted. Eighty-three percent of hospitals are state owned. About three of five state-owned hospitals are administered directly by the government health bureaucracy – mainly health bureaus at the municipal or district level (a district is a subdivision of a city government); or by counties and townships in rural areas. A few large scale or specialized

The good old days

Health care in the Mao era was more about quantity than quality. In the 1950s, health care facilities in China increased nearly 30-fold, from less than 9,000 to 261,000 (Figure 3). Between 1950 and 1980 hospital beds per thousand people rose 11-fold (from 0.18 to 2.02) and the number of doctors per thousand people rose by two thirds, from 0.67 to 1.08 (the relative increase of beds and doctors neatly illustrates the weight Mao's government put on physical and human capital respectively). Although the expertise of the doctors was questionable and that of the rural health clinic staff non-existent, this Salvation Army of health workers spread the gospel of better hygiene, pest control and vaccination to good effect: infant and maternal mortality plummeted and average life expectancy doubled between 1952 and 1982.

In cities, hospitals and large clinics were managed directly by government health agencies and their staff were government employees. Primary-care clinics, meanwhile, were usually attached to state work units – either state-owned enterprises (SOEs) or government departments – which owned and managed them. Their staff were employees of the work unit. In the countryside, primary care clinics were run by communes (equivalent to today's townships) or production brigades (villages).

Fees were virtually non-existent. Urban health care facilities were funded by budgets provided by their government agency or SOE owners, and virtually all urban residents had access to a facility via their state employer. The rural health delivery system was financed by a Rural Cooperative Medical System (RCMS), which relied on premiums collected from individual farmer families, contributions by communes, and subsidies from higher levels of the government health bureaucracy. In the mid-1970s, around 90 percent of Chinese villages were covered by the RCMS.

The financing of this system began to crumble in 1980 with economic reforms. The RCMS got most of its funding from the communes, which were dismantled in the early 1980s. Central and provincial government subsidies also declined. As the RCMS's sources of funding dried up, many clinics closed and those that remained switched to a fee-for-service model, deriving most of their income from drug sales. By 1998 less than 10 percent of the rural population had access to any sort of health insurance program. Even so, the per-capita availability of health care facility beds for the agricultural population, after a sharp decline in the 1980s, held steady in the 1990s, and since a sharp dip in 2002 has started to recover (Figure 4).

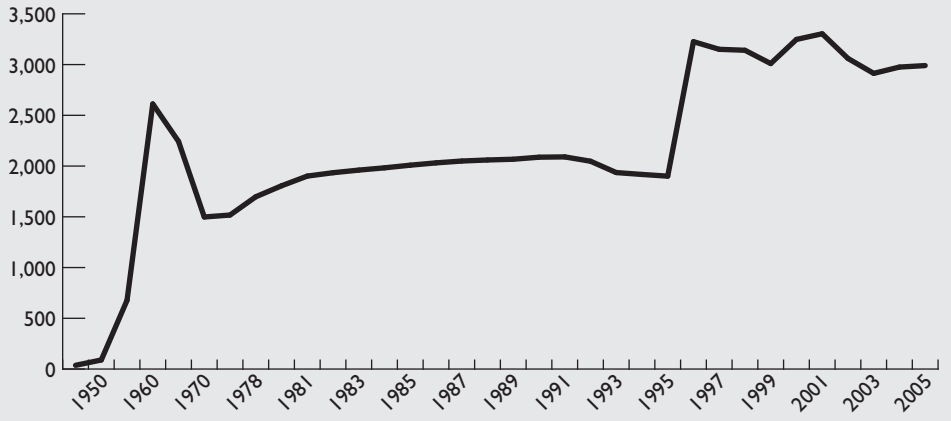
Profits before patients

The cities experienced a somewhat different problem. In 1980 the Ministry of Health ordered hospitals to move towards commercial management and find ways to increase income and reduce costs. Like enterprises which were learning about profit and loss management, hospitals were allowed to keep any financial surplus they earned from their operations. The government thus began to abandon the idea of health care as a public good, and encouraged hospital management and doctors to focus on generating profits, rather than providing service. Urban users experienced no decline in the physical availability of hospitals and doctors, but they found themselves saddled with an ever-rising share of the system's costs.

Nostalgists should remember that although the Mao-era system was pervasive and free to its users, it did relatively little in terms of diagnosis and treatment of disease. It served its purpose well, but its passing is no disaster

hospitals are managed by provincial-level health bureaus or by the Ministry of Health. In such government-run hospitals the supervising government agency appoints top management and the local Communist Party branch appoints a party secretary.

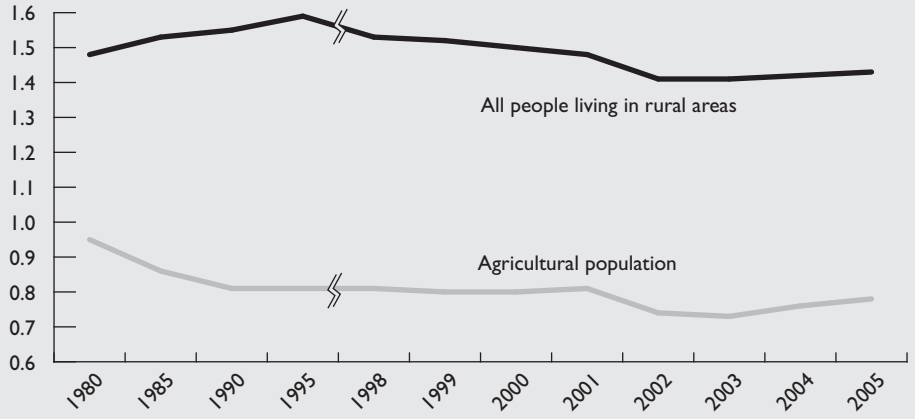
Figure 3
Number of health facilities in China, 1949-2005, '000s



Source: Ministry of Health

Upward spike in 1995 reflects a definitional change. Before 1995 private clinics were not counted.

Figure 4
Health care facility beds in rural areas, beds per 1,000 people



Source: Ministry of Health

Still owned by everyone

Another nearly 30 percent of state-run hospitals are still administered by big SOEs, despite the fact that these enterprises are theoretically supposed to be shedding their social welfare obligations. The remaining 12 percent or so of state hospitals are run neither by SOEs nor by health agencies. Some of these are university hospitals run by the Ministry of Education; others are holdovers from the planned economy period, when many government departments outside the ministry of health would host their own clinics and hospitals for the benefit of their employees and their families.

Another bastion of state ownership is the network of 41,000 rural township health centers. The military also operates a network of hospitals, but even basic information about them is inaccessible.

Not everything is in the grip of the state. Private-sector health facilities were first permitted in 1980, and their growth accelerated in the 1990s. But most private care is small scale. Only 11 percent of hospitals are privately owned; most are specialty

Profitable non-profits

In an attempt to foster the growth of non-profit medical institutions, which play a large role in the American health care system, in 2000 China's central government established guidelines establishing non-profit medical institutions as a legal category. Almost all state-owned institutions, including 84 percent of all hospitals, are now classified as non-profit. Virtually all private health facilities are classified as for-profit. A handful of private, non-profit health care facilities do exist, but they are anomalies, grandfathered into this status following the 2000 classification. No private hospital or clinic established since 2000 has been able to gain non-profit status.

The effect of these guidelines has not been to deter medical facilities from seeking profit – in reality, state-run "non-profit" health facilities are just as commercially driven as private for-profit ones. Zhou Shenglai, vice-president of state-run Anzhen Hospital in Beijing, estimates that direct government funding accounts for no more than 6 percent of his hospital's total expenditure, and in practice the hospital is held responsible for its own profits and losses. In theory, a non-profit institution committed to improving public health should use financial surpluses to lower prices for critical medical procedures and drugs. In fact, hospital surpluses get spent mainly on big pay packets for managers and on expensive new medical devices that raise hospitals' prestige but do little to improve health outcomes.

The true effect of the guidelines was to create a new mechanism for discrimination against private-sector health care. For-profit facilities pay corporate income tax on any financial surplus (30 percent now, 25 percent beginning in January 2008) and are not eligible for reimbursement by the two major health insurance schemes, the Urban Employees Basic Medical Insurance program and the Rural Cooperative Medical System.

Stick with the state

The inability of private health facilities to get reimbursed under national health insurance schemes is a major flaw in the government's approach to health care, says Peter Liu, who runs a high-end private clinic in Beijing and chairs the Non-Public Medical Institution Association (NMIA) in his district. It creates a vicious circle in which private facilities (the vast majority of which are small clinics, not big hospitals) are forced to charge higher fees and cut service corners in order to make ends meet. The worst practices are then subject to media exposure and government crackdown, convincing most citizens that only state-run hospitals are safe. If the government really wants to make low-cost primary care available to the greatest possible number of people, Mr Liu argues, it should end its discriminatory reimbursement policy and ease the cumbersome rules on registering private clinics. Neither step is likely in the short term.

hospitals offering dermatology, orthopedics, plastic surgery, and other cosmetic treatments where prices are less regulated and profits higher. The vast majority of privately owned health facilities are small clinics (*zhensuo*) – about 91 percent of the 161,000 clinics in China are privately owned. But these clinics accounted for just 2 percent of patient visits and 12 percent of total health care spending in 2005. Moreover, it is effectively impossible for doctors to set up private or group practices as in the US or the UK (see "What role for the private sector?").

The least important element of the system is the foreign-invested bit. The central government first opened the health sector to foreign investment in 1989. Current regulations require a minimum of 30 percent Chinese ownership and a minimum investment of US$2.4m. Opening multiple branches is forbidden. There are probably 200-300 foreign-invested health facilities in China, including 50-60 hospitals. These

include the Beijing and Shanghai United Family Hospitals operated by Nasdaq-listed firm Chindex (which charge American prices to a mainly expatriate corporate clientele) and more modest hospitals run by Taiwanese and Hong Kong investors and catering to factory staff in industrial areas around Shanghai and Guangzhou. Foreign-invested health facilities require central government approval, but after establishment are regulated by district governments.

Table 4
Ownership and management of Chinese hospitals, 2005
% of total

Ownership	
State/collective	82.8
Private	10.8
Other	6.4
Management	
Ministry of Health/ local health bureau	56.8
Enterprises	27.6
Non-health govt agency	3.8
Other	11.8

Excludes military hospitals
Source: Ministry of Health

Table 5
China's medical institutions

	% of total	% for-profit
Clinics	72	52
Rural township health centers	14	0
Hospitals	6	16
Community health centers	6	12
Maternity & child health clinics	1	0
Other	1	2
Total	100	54

Source: Ministry of Health

Too much profit, not enough market

This patchwork system came under fire in an influential 2005 report on health care by the Development Research Center (DRC), the in-house think tank of the State Council. The report, which identified a new primary-care system as the nation's top health care priority, harshly criticized what it called excessive reliance on competition and market forces in health care, as well as the application of the "grasp the large, let go the small" industrial policy principle to the health system.*

It is true that the public health successes of the 1950s through 1970s stemmed in part from government control of a huge network of small clinics (see "The good old days"). Three decades of economic reform have created a health delivery system that combines some of the worst aspects of free-market and state-run systems. Health care is now essentially a profit-making activity, and tends to get concentrated in hospitals that benefit from government favoritism, achieve economies of scale, and serve the patients who will pay the most money. These hospitals are almost all state-owned and not very efficient. But their grip on the system makes it hard to create space for a more flexible network of smaller-scale primary care facilities.

But while China's health care system is obsessed with profit, it is by no means a market system where competition plays a meaningful role. Many of the worst abuses of the hospital system result as much from misguided regulation and cost controls as from *laissez faire* run amok. The government strictly caps the prices that doctors can charge for standard visits, procedures and drugs. This encourages doctors to indulge in two types of bad behavior. One is to ration care according to who can pay the biggest bribe. The second is to over-prescribe new drugs and unnecessary sonograms, MRIs and other tests, whose prices are not regulated. They are encouraged in this practice by hospital compensation schemes which award bonuses to doctors based on how much they increase hospital revenues.

So far, the deficiencies in the health care delivery system have not shown up in health outcome statistics. But they do show up in the decreased willingness of sick people to visit a doctor for fear that the cure will be less affordable than the disease. The NHSS found that in 1998, one-third of sick people did not visit a health facility; by 2003 that figure rose to 45 percent. A third of people referred to a hospital by a doctor in 2003 did not enter the hospital. Of these people, three quarters gave financial difficulty as the reason for avoiding treatment. Some 43 percent of people discharged from hospital did so against their doctor's advice; again, financial constraints were the reason nearly two-thirds of the time. Sooner or later, fear of using health care services is likely to lead to a decline in national health. Averting that outcome requires a new system of health care finance, which is the subject of the next article.

*_Zhuada fangxiao_, or "grasp the large, let go the small," was a slogan coined by then vice premier Zhu Rongji in 1997 to justify the privatization of small-scale state enterprises while retaining state ownership of large enterprises in key sectors such as energy, transport and communications.

III. Health care finance: User pays – and pays, and pays

The biggest problem with health care in China today is how it is paid for: mainly, cash on the barrelhead by patients. The state share of national health care spending plunged from over 80 percent in 1980 to 36 percent in 2001. It has since crept back up to 39 percent but is still easily the lowest in the world. Judged by who pays the bills, communist China runs a more privatized health care system than the United States (tables 6 and 7).

Table 6
Government health expenditure, 2005
% of national health spending

United Kingdom	87
Sweden	85
Japan	82
France	80
Finland	78
Germany	77
Canada	70
Poland	69
Korea	53
Mexico	46
United States	45
China	**39**

Source: OECD, Ministry of Health

In theory this might not be so terrible if all this private expenditure was made via health insurance companies, who could spread risk and mitigate the burden on individual households. In reality, an increasing proportion of private health expenditure is cash payments by patients: in 2003, only 50 percent of urban residents had any kind of health insurance, down from 73 percent a decade earlier. In the countryside, insurance coverage fell from16 to 13 percent of households. Even for households that have insurance, coverage is pitifully inadequate.

Accompanying this massive shift of risk from the state to households has been a ferocious run-up in health care costs. Between 1995 and 2005 national health care expenditure rose from 3.5 percent to 4.7 percent of GDP. Household survey data show that between 1997 and 2006, health care expenditures rose nearly twice as fast as household incomes (Figure 5). Not all of the rise in health care expenditure reflects higher prices – increased demand plays a role. But rising prices are probably the major factor. According to the last National Health Services Survey, the cost of an average hospital stay (even after adjusting for consumer-price inflation) soared by nearly 80 percent in just five years (1998-2003), from Rmb4,297 to Rmb7,606 in cities and from Rmb1,522 to Rmb2,649 in rural areas. In the four years since, health care prices have almost certainly climbed at a similar rate. Relative to income, the cost of a hospital stay in China is far higher than anywhere else in the world (Figure 6.).

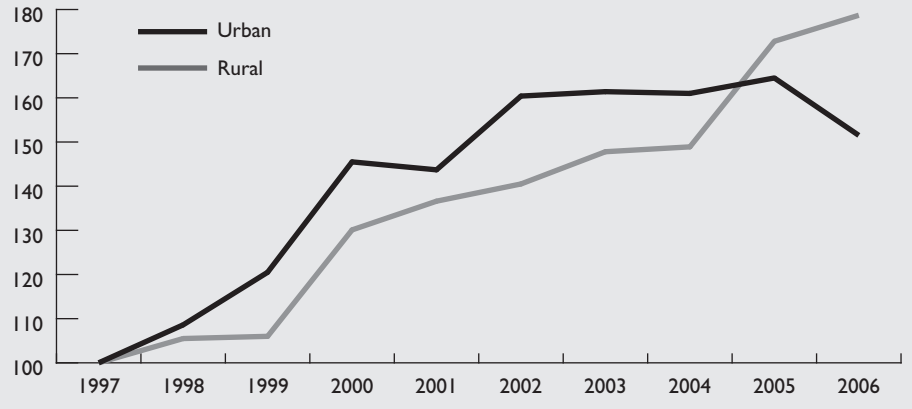
This cost escalation, combined with the privatization of health care spending, has several consequences, none of them good. The government's efforts to contain health care costs by regulating prices of common drugs and procedures has backfired: it encourages doctors to ration service by taking bribes, and to steer patients towards more expensive drugs and services whose prices are not controlled. Households, fearful that a single person's serious illness could bankrupt the whole family, prefer to

Table 7
Structure of China's health care finance 1996-2005

	Total expenditure Rmb bn	Share of total		
		Social insurance, %	Government outlays, %	Individuals, %
1996	271	29	18	53
1997	320	27	17	56
1998	368	23	19	58
1999	405	22	19	59
2000	459	22	16	62
2001	503	20	16	64
2002	579	20	16	64
2003	658	19	17	64
2004	759	21	17	62
2005	866	21	18	61

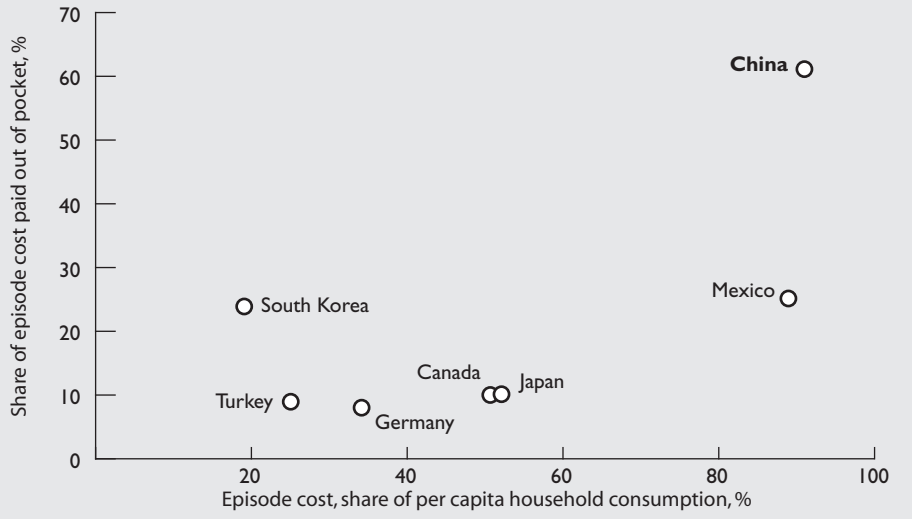
Source: Ministry of Health

Figure 5
Health care expenditure relative to income, 1997=100



Source: NBS, Dragonomics estimates

Figure 6
Cost of average inpatient episode, various countries



Source: World Bank, calculated from OECD and Ministry of Health Data for various years, 2000-05

save rather than spend every marginal penny. Until a credible health insurance system is in place, it will be very difficult for the government to achieve its stated goal of creating a consumption-driven economy.

In poor health

The current health care finance system is a collection of band-aids applied to the gaping wounds left when the planned-economy health system began to fragment. In the Mao era, work units provided health insurance to employees through two separate but similar programs, for government departments and for state-owned enterprises (SOEs). The system began to come apart in the mid-1980s, as the government capped subsidies to health care facilities while granting them more freedom to manage their own operations. Hospitals started charging higher fees at a time when patients paid almost nothing directly and the state insurance programs had no cost-control

measures. Costs exploded, increasing 25 percent annually from 1985-89. For many enterprises, the 11 percent of payroll normally devoted to health insurance was not enough, and they were forced to pillage their meager profits to pay their employees' health costs. At the same time, the old insurance programs were useless to the rapidly growing body of private-sector workers.

Realizing that the old system was broken, the State Council in 1988 began authorizing local governments to experiment with new health insurance schemes covering all urban workers. The most influential pilot programs began in Jiujiang (Jiangxi province) and Zhenjiang (Jiangsu) in 1995. These pilots were extended to another 50 cities in 1996, and in 1998 the program was named the Basic Medical Insurance (BMI) program and made available in all Chinese cities.

No more barefoot doctors

Under BMI, contributions from employees and employers go into two accounts: an individual account for each worker, used for outpatient care, and a "social pool" account, used for major illnesses and hospitalization. The State Council originally suggested contribution rates of 2 percent of wages for employees, and 6 percent for employers. But local governments can set their own contribution rates and most have pegged them higher – on average, above 10 percent of wages in total. The entire employee contribution and 30 percent of the employer contribution go into the individual accounts; the remaining 70 percent of the employer contribution funds the social pool. The amount a worker can withdraw from the social pool to pay for medical expenses is capped, usually at around four times the beneficiary's annual wages.

Sorely undercovered

BMI disbursed Rmb171bn (US$22bn) in 2006, when it covered 157m urban residents – 115m workers and 42m retirees. That is an overall coverage rate of just 47 percent, including 41 percent of urban workers and 82 percent of retirees. Many firms facing financial difficulties fail to enroll their employees, despite an ostensible requirement that they do so. Workers in short-term or irregular employment – notably most migrants – also lack coverage. Families of workers are not covered. In July, the State Council launched a 70-city pilot program to expand BMI to children, the handicapped and the irregularly employed.

The rural counterpart to BMI is the new Rural Cooperative Medical Care System (RCMS), which was launched in 2003 to replace the tattered remnants of the old cooperative medical service left behind after the collapse of the rural communes. Unlike the original RCMS, which was a network of village clinics staffed by the famous "barefoot doctors," the new RCMS is simply a bare-bones insurance scheme. Individuals pay Rmb10 a year to enroll, and various levels of government put in another Rmb40 per enrollee. The program covered 410m people at the end of 2006, 55 percent of the rural population. Benefits are scanty: reimbursement is available only for serious illness, and a 2005 government study found the average reimbursement rate was just 26 percent.

Two stakes through the heart

BMI and RCMS share two ultimately fatal design flaws. First, both programs (in most localities) require patients to pay cash at the time of service, and apply for reimbursement later. The insurance is thus useless for people who cannot pay hospital fees in the first place. The fee-for-service model also creates incentives for hospitals and clinics to bill for unnecessary drugs and services. For an insurance system to

work properly, says World Health Organization (WHO) Beijing representative Henk Bekedam, there must be a third-party payer which can rein in hospital charges and enable patients to receive care even if they lack ready cash. "As long as the patient is still paying the doctor at the point of service, things are not fine," Mr Bekedam notes. NDRC agrees: its 2006 review of health finance policy stated that the current insurance system "cannot function as a balancing power for hospital drug dispensing."

Keeping it in house

The second flaw is that BMI and RCMS mainly cover inpatient hospital care, not outpatient primary care. Mr Bekedam laments that while 150m Chinese suffer from hypertension, they must wait until they have a stroke before their insurance kicks in. Chronic and non-communicable diseases like diabetes and heart disease are replacing infectious diseases and malnutrition as the major threats to public heath. Controlling such illnesses requires constant access to primary care. Because BMI and RCMS reimbursement is not available for most of the country's 200,000 clinics, the insurance system bolsters the disproportionate power of large hospitals. Though Mr Bekedam believes the government can afford a comprehensive insurance plan that includes both hospitalization and primary care, he emphasizes that at the margin, primary care is most important and this should be the focus of reform efforts.

Small group, slow progress

The government accepts that radical reform for health finance is required. This conclusion was spurred by a 2005 report from the Development Research Center, the in-house think tank of the State Council, which bluntly stated that the current reform effort "is basically a failure." In 2006, the State Council formed a healthcare reform "small group" headed by health minister Gao Qiang and by NDRC head Ma Kai.

In February this year, the group solicited reform proposals from six organizations, three foreign (the World Bank, WHO, and consulting firm McKinsey) and three domestic (Peking University, Fudan University, and the DRC). Apparently dissatisfied with the submissions, the group subsequently commissioned two additional plans, from Beijing Normal University and Renmin University. All eight plans were discussed at a meeting in late May, and another proposal was subsequently solicited from Tsinghua University. Although the group has committed to no timetable, Mr Bekedam says it may present a reform proposal at the next Communist Party congress, in October.

Still socialist at heart

Few details of the nine confidential proposals have leaked out, but a few major areas of consensus and dispute are clear. On the consensus side, in a speech last October Hu Jintao committed the government to universal health care access, even in remote rural areas. Free provision of essential vaccinations and ending the hospital monopoly on prescribing and dispensing drugs are two other features with broad support. (However, James Shen, publisher of industry newsletter *China Pharma*, is skeptical that hospitals will lose their hammerlock on drug sales: "Scholars and experts have been talking about it for many years, but nothing happens.")

One major area of disagreement is whether a new system will follow an insurance or a comprehensive service model. In January, Mr Gao gave a speech appearing to endorse a British-style national health service, with the government providing care virtually free to patients directly through state-run hospitals. (In June, Mr Gao was replaced as health minister by Chen Zhu, a highly regarded scientist from the China Center for Disease Control. But Mr Gao remains the ministry's party secretary and is still involved in the reform process.)

Private insurers: profitable, but in a small niche

Commercial medical insurance plays a negligible role in financing Chinese health care. Private plans cover about 6 percent of urbanites and 8 percent in rural areas; in most cases private plans are used to supplement less generous government insurance. The government would like to exploit private insurers' cost-control techniques in order to check wasteful and unnecessary services by health providers. Two cities have run pilot projects in which private firms ran social insurance funds and proved successful in containing costs. But it is unlikely that the national health reform will allow a large place for private insurers because of the risk that such firms will cherry-pick the richest and healthiest consumers, leaving a poorly-funded social insurance system to cover the most costly patients.

The private health insurance market reached Rmb38bn in 2006, according to the China Insurance Regulatory Commission, up from Rmb7bn in 2000. Individual plans accounted for 70 percent of premiums in 2005, with the remainder sold to enterprises, according to a report by global insurer Swiss Re. Two-thirds of individual policies are sold as riders to life insurance policies, and 81 percent are "catastrophic" policies covering only serious illnesses. By contrast, 90 percent of enterprise policies are comprehensive reimbursement plans.

Keeping it catastrophic

Individuals in the market for private insurance prefer to buy catastrophic policies because they are mostly relatively well-off people with stable jobs, whose ordinary medical expenses are covered by government social insurance. What they need is extra cover for serious illness, since social insurance has limited payouts. Insurers also prefer to sell catastrophic policies because they are more profitable than reimbursement plans, which require insurance companies to verify medical expenditure with health care suppliers and are thus more costly to administer.

Private health insurance is dominated by a handful of domestic firms. CIRC data show that five companies – Ping An, China Life, New China Life, Taikang and China Pacific – together controlled 91 percent of the market in 2005. The largest foreign company was American International Assurance, the China operation of U.S. insurance giant AIG, with a 3 percent market share.

Mr Gao's speech clearly reflected the bureaucratic interests of the agency that controls the majority of the nation's hospitals. But the Ministry of Labor and Social Security, which runs the existing health insurance programs, and the Ministry of Finance were reportedly more pleased with the Beijing Normal plan, which emphasized the cost containment potential of a third-party insurer.

Anti-market forces

A second debate centers around the proper role of the market in health care. This could prove intractable, given the growing strength of an anti-market backlash in Chinese academe – reflected, for instance, in the contentious two-year process required to pass a relatively anodyne law protecting private property. The 2005 DRC report laid most of the blame for the current system's woes on the market, lamenting: "China has selected a quite irrational model, for which the core problem is that … excessive belief had been put in the market and competition." It also blasted excessive investment by hospitals in expensive equipment and new facilities, and the high salaries of hospital managers.

Spend now, save later

Yet as our previous article noted, while Chinese hospitals are excessively profit-seeking, it is far from clear that there is effective competition among them. In a

recent interview with the influential newspaper *21st Century Economic Herald*, Prof Liu Guo'en, who worked on the Peking University plan, emphasized the need to promote competition between hospitals. But Prof Liu's views are not universally held even within his own institution: disagreements over the role of the market reportedly made it difficult for Peking University to present a unified plan.

80 percent socialist

A well-designed national health system will cost a lot because it must expand coverage greatly and push up reimbursement rates, which are now too low. WHO's rule of thumb is that health insurance must reimburse at least 80 percent of costs, otherwise individual face too high a cost burden and forego needed care.

Effective health care finance need not, however, be a budget buster: WHO estimates that at a cost of 1.5 percent of GDP, the government can offer a modest but sufficient universal coverage package emphasizing essential services and primary care, rather than hospitalization. The alternative, in Mr Bekedam's view, is a future in which total health expenditures double to 8 percent of GDP but public health and access to care does not significantly improve.

IV. Pharmaceuticals: Too many, too costly and not good enough

When the government began cutting subsidies in the 1980s, hospitals and other health service institutions needed a new revenue stream. Drugs filled the bill: hospitals began prescribing more, and doctor salaries were boosted by commissions on drug sales. By 2005, pharmaceuticals accounted for 48 percent of all health care expenditure, far more than in most other countries (Table 8).

Table 8
Pharmaceutical expenditures, 2005
% of total health expenditure

China	48
Poland	28
Korea	27
Mexico	21
Japan (2004)	19
United States	12

Source: OECD, Ministry of Health

China is also unusual in that most drugs are sold by hospitals and clinics, not pharmacies. Prescription drugs sold by health care facilities accounted for 79 percent of total drug sales in 2005, and well over half of hospital drug sales (46 percent of the total) were to outpatients. Retail pharmacies sell the vast majority of over the counter (OTC) drugs. But many drugs that are sold OTC in other countries require a prescription in China, so the prescription market dwarfs the OTC one.

Fly in the ointment

All this new business should make drug makers happy, and it does – up to a point. The wholesale market for pharmaceuticals in 2006 was around Rmb330bn (US$42bn), according to James Shen, president of pharmaceutical research firm WiCON International Group and publisher of the industry newsletter *China Pharma*. Revenues have been growing quite smartly, but profits have not (Table 9 overleaf).

There are three main reasons for this. One is that drug production is fragmented among many small factories, and economies of scale are non-existent. The top ten manufacturers accounted for just 14 percent of the market in 2006; the nation's biggest pharmaceutical firm, Jiangsu Yangzijiang, had a mere 2.1 percent market share. The rest of the market is distributed among roughly 4,000 drug manufacturers. Firms with more than Rmb300m (US$37m) in annual revenue accounted for just 20 percent of pharmaceutical sales in 2006, while small firms (less than Rmb30m in sales or Rmb40m in assets) accounted for 38 percent.

Table 9
Pharmaceutical revenues and profits, 2006

	Sales, Rmb bn	Growth, %	Profits, Rmb bn	Growth, %
Finished products				
Ordinary pharmaceuticals	136	15%	11.2	1%
Traditional Chinese medicine	113	14%	10.4	3%
Biologicals	39	26%	4.1	14%
Other				
Active ingredients	110	11%	6.4	17%
Other	58	12%	12.3	32%
Total	**456**	**16%**	**44**	**9%**

Source: SFDA Southern Medicine Economics Institute, via China Pharma Online

Dodgy dealers

Reason two is an inefficient, high-cost distribution system. The typical hospital purchasing managers does not deal with drug companies directly; instead he relies on three to five distributors. Drug distribution companies tend to be small and local: there are 10,000 of them in China. This is down from 16,000 in 2001 – thanks in part to a campaign by the State Food and Drug Administration (SFDA) to shut down firms unable to meet government quality criteria. But the cost to manufacturers of having to deal with multiple tiny distributors is still high. Corruption also plays a role: many pharmaceutical firms bribe purchasing managers to buy their drugs, or doctors to encourage prescriptions.

Finally, prices for many drugs are strictly regulated. Since 1998, when the National Development and Reform Commission (NDRC) took over responsibility for pharmaceutical pricing from SFDA's predecessor agency, the number of drugs with state-fixed prices has risen from 300 to 2,700.

Price-fixing

NDRC sets the retail price for the sale of drugs to patients as well as setting allowable markup rates for hospitals and the distributors that sell to them. (The Ministry of Labor and Social Security – which administers the urban employees' Basic Medical Insurance (BMI) program – determines which drugs are eligible for BMI reimbursement. But NDRC still sets the prices.) NDRC's price-control efforts run at cross-purposes to much of the rest of government health policy, which implicitly encourages hospitals to profit from drug sales. Drug manufacturers are also persistent in efforts to evade price controls. NDRC has lowered drug prices 24 times since 1998, but the results are rarely satisfactory. Following a price cut, low-price drugs disappear from the market, only to reappear, repackaged as a new drug not subject to price control.

In 1999, NDRC ordered that hospital drug purchases be done via tender, and today 90 percent of drug sales to health facilities are done this way. But this reform has failed to achieve its goal, which was to lower pharmaceutical costs to consumers. Even though the tender process requires the submission of bids to large groups of hospitals, the winner of the tender must still negotiate and contract with each individual institution. Rules for judging bids aren't clear, and hospital managers often demand kickbacks, so higher bids often trump lower ones. IMS Health, a consultancy, reckons that the price consumers pay for drug is on average 20 times the ex-factory price. In a blunt assessment of the current system in late 2006, NDRC highlighted the excessive power of hospitals in drug purchasing: "The hospital pharmacy sector continues to enjoy an

What's a foreigner to do?

Ranked by sales, seven of the top ten pharmaceutical firms in China are the local operations of multinational drug firms. But even for these firms, China is a marginal and not enormously profitable market. Price controls and high distribution costs make life just as difficult for them as for local competitors.

Foreign and domestic drug firms compete to some extent, but for the most part target different niches. Foreign firms sell high priced on-patent drugs to large hospitals in first-tier cities, while Chinese firms mainly produce generics and dominate the market in smaller cities and rural areas. Raymond Hill, generan manger of pharmaceutical consultancy IMS Health, says brand-name drugs can generate profits in China, but adds that it is often best to target just 25 percent of the top hospitals in a few major cities.

The big worry, of course, is piracy. China did not recognize foreign product patents until 1993, and because of long development lead times, many new drugs introduced by domestic firms in the subsequent decade were based on pre-1993 rip-offs of patented active ingredients. That pipeline has now pretty much run dry, but enforcement action against patent violators remains spotty. And obtaining local registration of international patents is by no means a sure thing. In 2004, China's patent agency, the State Intellectual Property Office (SIPO), struck down Pfizer's patent for Viagra on a technicality. A Beijing court overturned that decision two years later, but off-brand Viagra remains widely available.

Domestic companies, meanwhile, complain that NDRC favors foreign firms by classifying their products – even those whose patents have expired – as "originator drugs" and setting their prices much higher than for domestically-produced generic versions. NDRC defends its pricing rules as adhering to the principle of "better quality, better price." Another factor may be that NDRC believes that the Chinese drug industry can benefit in the long run from more investment and technology transfer from multinationals. While big pharma's production investments in China remain modest, interest in China-based research and development centers is rising. Swiss drug firm Novartis announced a China R&D facility in 2005, and the UK's AstraZeneca followed suit in 2006. Its planned US$100m research center would be the largest single investment by a pharmaceutical company in China.

absolute monopoly position in the pharmaceutical market, resulting from past failures to separate hospitals from drug dispensing."

The amazing Mr Zheng

Over-prescriptive

The government has also failed to take account of the interaction between drug registration and price, according to WHO's Mr Bekedam. In the short term, setting prices too low simply encourages doctors to prescribe more drugs, since they typically earn a fixed percentage of drug sales. There is also no mechanism to control doctors who prescribe high-priced drugs not on insurance reimbursement lists. In the long term, it encourages pharmaceutical companies to game the system. A frequent tactic is to add a vitamin supplement to an existing formulation in order to get a drug re-classified as an "originator drug" eligible for a higher price.

The underlying problem, says Mr Bekedam, is that the government registers too many drugs. Zheng Xiaoyu, the former SFDA director who was arrested for bribe-taking last December and executed in July, registered 10,000 new drugs in 2004 alone. On a recent visit to the Chinese countryside, Mr Bekedam said he was "amazed" at the

variety of drugs available at rural clinics – two or three times the number that WHO recommends.

Toxic cures

A final problem is drug safety. This hit international headlines this year because of the discovery that a Chinese factory had exported liquid medicines containing toxic ethylene glycol instead of glycerin. But unsafe drugs have been in the news in China for far longer. Last year, a scandal erupted when fake antibiotics produced by a Heilongjiang factory killed 11 people, provoking widespread media coverage and promises of reform from Premier Wen Jiabao.

In July 2007, the same week Mr Zheng was executed, SFDA issued a revised drug registration rules meant to close loopholes exploited by Mr Zheng. SFDA deputy director-general Wu Zhen said the previous regulations ensured the safety and efficacy of the underlying chemical compound but failed to assure the quality of raw materials, production facilities, and distribution. Under Mr Zheng, drug companies would often submit for testing and approval safe, high-quality versions that bore little resemblance to the products that later appeared on the market.

SFDA has also pledged to scrutinize past drug approvals. The agency says that last year it reviewed more than 28,000 drugs approved under Mr Zheng, and cancelled about 600. Another 170,000 drug approvals await review. In the first four months of this year SFDA sent out nearly 7,000 inspection teams to pharmaceutical factories, suspending production at 168 and revoking the licenses of five, including the Heilongjiang factory at the center of the fake antibiotic scandal.