

Study on the path of comprehensive reform and development of the People's Hospital of Shimian County

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Abstract: The People's Hospital of Shimian County is located in the underdeveloped agricultural county of western China with a population of 120,000. In light of the region's geographic location and cultural characteristics, the hospital has laid out a development strategy of becoming a regional healthcare service center in Shimian and extends services to surrounding regions. Its reform process would start with the overhaul of the personnel system to rejuvenate the hospital's internal operation, and then move towards more comprehensive reforms on corporate governance structure and trans-regional integration of medical resources. On the basis of constructing a digital hospital, we would build an information platform to explore the 'Shimian model' of information-based healthcare reform through regional medical coordination and whole-sector oversight. An appropriate strategy and development roadmap, comprehensively internal and external reforms and persistent culture building, as well as the use of information technology will help put the hospital onto a track of fast and healthy development and in the right direction of healthcare reform that accords with our national circumstances. This article makes a review, summary and analysis of the process and further discusses about how to overhaul the healthcare system through reform and development.

Keywords: Reform and development; digital hospital; Shimian model

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Introduction

As a polyclinic institution in a small agricultural county in western China, the People's Hospital of Shimian County has crafted a practical development strategy of becoming regional healthcare service center, explored a series of reforms to rejuvenate the internal operation, overhaul the corporate governance structure and to integrate regional medical resources. It built a digital hospital and introduced information technology to facilitate the ongoing healthcare reform. In 2013 it kicked off the construction of regional healthcare coordination system and explored the use of market tools and information technology to help overhaul the healthcare system. This article makes a review, summary and study on the issue.

General information

Basic information of Shimian County

Shimian County is located in the southwest of Ya'an City,

Sichuan and surrounded by Ya'an, Ganzi Tibet Autonomous Prefecture and Liangshan Yi Autonomous Prefecture. More than 80% of its area is covered by mountains. With a total population of 121,900 and 26% in ethnic minorities, the county has jurisdiction over 16 towns, including 10 towns of minorities, and one subdistrict. There are two public hospitals in the county-the People's Hospital of Shimian County and the Shimian Hospital of Traditional Chinese Medicine, two public health institutions-Centre for Disease Control and Maternal and Child Health Hospital, one health inspection and law enforcement team, and two rural cooperative medical service offices. The county is home to 16 community-level medical institutions, 32 clinical centers in 92 villages as well as two private hospitals. These health institutions have a total of 917 professional medical workers and 1,003 ward beds.

Basic information of the People's Hospital of Shimian County

The People's Hospital of Shimian County covers a total

land area of 1.73 hectares with a combined building area of 35,000 square meters. Total asset value is roughly 150 million RMB, including 50 million RMB worth of medical equipment. By the end of 2013, the hospital had 650 ward beds, 440 staff members, including 77 with medium or senior professional titles and 213 staffers were on the regular payroll. The hospital now has 22 medical departments and has begun to apply for qualification of 2A hospital since 2009. The hospital has introduced the engagement system with all staffers to have their contract renewed on a yearly basis and has outsourced all logistic services. The ISO9001 system has been applied in the hospital since 2005.

General situation of informationization

The hospital has been equipped with standard center rooms and deployed with 10,000 M fiber internet access (1,000 M used as backup option) and full coverage of wireless internet access. It has 11 servers, 390 work stations, including 70 mobile care terminals, 22 mobile doctor stations, one self-service register machine and one self-service printer of test report. The patient area has been fully covered by free wireless Internet signals.

Software modules include finance-focused HIS system. The system can realize real-time reimbursement and settlement of medical expenses and allows health insurance supervisors to monitor the business on a real time basis. In August 2012 the hospital became the first county-level hospital in Sichuan province to connect to a trans-regional payment settlement system. The electronic medical record system, featured by the medical work station, PACS and LIS, can exchange data with the resident health archives stored in the municipal healthcare information system. Hospital management has been strengthened with the use of the OA office management system and through tighter management on medicine service and drug use. The internal learning platform has provided good opportunities for the medical staff to pursue further study.

The healthcare coordination platform includes one business server and a set of platform software system, allowing the hospital to coordinate some medical services with 16 township hospitals and one community healthcare service center. Such services include two-way referral, reservation of medical test and patient registration, and remote review of X-ray pictures. The hospital is considering linking the platform with the Shimian Hospital of Traditional Chinese Medicine and the Maternal and Child

Health Hospital.

Individual patient' health information can be shared through the healthcare coordination platform, including the patient's health records and public health information among the health bureau and all public hospitals in the county and facilitates real-time and dynamic monitoring of healthcare services, disease control, maternal and children care, grassroots residents' health conditions, management of traditional Chinese medicines, and inspection of the quality of service.

Roadmap of internal reform and development

Strategic choice and practice

As an impoverished county in western China, Shimian has only a small population of about 120,000 with very limited market resources. However, its medical resources are relatively more sufficient with ward beds and doctors; per 1,000 people share more medical resources than the national average. The Shimian Hospital of Traditional Chinese Medicine, Maternal and Child Health Hospital and town hospitals are well-equipped along with two factory hospitals. However, these health institutions are stuck with intense competitions in providing low-level medical services. As a result, some patients choose to seek treatment at outside hospitals due to their dissatisfaction with local doctors' professional skills. Under such circumstances, it's crucial to find a proper position for the hospital's survival and development.

In the course of finding a way out, we notice that Shimian also has its distinctive advantages. It's located in the heartland of Ya'an City, Ganzi Tibet Autonomous Prefecture and Liangshan Yi Autonomous Prefecture, and seven neighboring counties have national, provincial or county highways passed by and all are mountainous and impoverished regions with ethnic minority population. These advantages make Shimian a natural traffic hub and a center of ethnic cultures. The county only has 120,000 people, but total population in the wider region of 80 km radius is close to one million. The county town is more than 120 km away from any municipal or prefecture hospital. That means, the hospital must extend its service range to seek a greater development space. Therefore, on the basis of intensive deliberations, we propose a clear development strategy for the hospital to become a regional healthcare service center in Shimian and extend services to surrounding regions.

After the development strategy is determined, the market

will be crucial to take practical steps to implement the strategy. As early as 2003 the hospital has set up a marketing department to focus on how to improve healthcare services and attract more patients. The department offered transportation subsidies and convenient services to persuade patients to get treated in the hospital. By 2013, 46% of the hospitalized patients were not from the county and the hospital had signed health service agreements with 2.7 million people who are insured and live in Ya'an, Ganzi and Liangshan. Its transformation into a regional healthcare service center has basically taken shape.

Roadmap of reform on internal operation mechanism

A major breakthrough of the comprehensive reform is to revamp the personnel system and wage distribution system to rejuvenate the hospital's internal operation. Since 2000 the hospital has adopted full recruitment mechanism, under which all positions shall be rehired annually and candidates must compete to take their favorite jobs, and the worst performers would not have their contract renewed. In the past decade or so, four staffs on the regular payroll have decided to leave the hospital with severance compensations; roughly 100 staff were given positions that require lower skills than they possess under their professional titles while 160 people were promoted to positions that actually need more skills than that they have possessed under their professional titles. Under the principle of 'efficiency comes first, balances fairness', the wage distribution system has been revamped to abolish egalitarianism and maximize staff's working enthusiasm. The highest paid worker earns nearly ten times more than the lowest paid staff.

Administrative and logistic division has always been the toughest sticking point for the reform and management of county public hospitals. After more than ten years of continuous explorations and improvements, the hospital has entirely outsourced the logistic services, including water and power management and security arrangement, to reduce its own burden. After several rounds of reshuffling and following the implementation of ISO9001 standard, the hospital has built an administrative structure likened to the super-ministry system and is on track to construct a modern hospital management structure with a streamlined but efficient workforce.

In the reform process, building culture and reshaping staff's core values is an essential condition to increase the hospital's core competitiveness, but it's also a very tough task that needs persistent efforts to accomplish. After years

of efforts, the hospital has developed an integrated set of culture framework system, highlighted by the hospital's spirit "doctors and patients are on the same boat with the same goal, medical ethics and skills can help develop harmonious relations between the two", the hospital song "surrounded by love", VI manual, hospital emblem as well as standard colors and standard characters. The hospital issued its first internal publication-Shimian Medical Journal-in 2003, and the journal has been published every three months. The annual weeklong culture & sports program has been run for 12 years and the weeklong academic exchange has been successfully held for seven consecutive years. The strong cultural atmosphere has strengthened staff morale and the hospital has been steadily developed in the wake of various reforms. For years the hospital's staff turnover has been very low, and culture building is too important to be overestimated for the hospital.

Digital construction facilitates hospital reform and development

The hospital launched digital construction on September 1, 2008, and deployed a large number of software modules in the first month. After a week of chaotic operations, a month of periodical breakdown and three months of breaking-in period, a digital hospital highlighted by electronic medical records has taken initial shape at the end of the year. In the following three years by 2012, the softwares were upgraded five times. The hospital replanned its internet network along with the massive reconstruction across the province after the devastating earthquake. At the end of 2012 the mobile care terminals and mobile healthcare system were put into use and standard center rooms were built in early 2013.

To facilitate building digital hospital, the hospital revamped and redesigned a long list of management and service procedures. Some managerial functions were adjusted to tie in with the ISO9001 standard, so that procedures are further standardized and various data can be shared, on a real time basis, by different departments of the hospital to make the decision-making process more accurate and efficient and to meet the internal and external policy demands. On the back of information sharing and the first logistic system in the province's county-level hospital, we set up customer service center to provide convenient non-health services, and redesigned the service procedures for drug administration, medical bill payment and medical insurance settlement. These moves have kept the hospital's

patient satisfaction degree at persistently high levels.

In early 2002, the hospital passed digital hospital assessment by the provincial health information center and its experience in building digital hospital has been repeatedly discussed at national and provincial meetings. On the basis of the powerful digital infrastructure, the hospital has enabled real-time cross-prefecture and cross-city reimbursement and settlement with Ganzi prefecture in 2009, and in August 2012 it became the first county hospital in Sichuan allowing real-time reimbursement and settlement of hospitalization expenses with Ganluo County, Liangshan prefecture. Hospital digitalization has provided strong technology support to the ongoing healthcare reform and internal management reform, and pushed the hospital to a fast track of rapid and healthy development.

Comprehensive exploration of public hospital overhaul

Reform on medicine service

For more than a decade, the hospital has been sticking to the principle that drugs it purchases must be at least 10% lower than the listed prices, and the cost savings are entirely going to the patients. It has been in strict compliance with relevant rules on the use of essential drugs and antibiotics and has spared no efforts to reduce patients' economic burden.

In December 2012, the hospital obtained approval from the county government to sell drugs to patients at exactly the same price as it purchases from suppliers, and the reduced revenue will be entirely subsidized by the financial bureau. Starting from October 1, 2013 the hospital has implemented a similar but broader policy announced by the provincial government. It tightened internal cost management and executed cost savings to offset about 10% of the reduced revenue.

As the reform on medicine service has effectively reduced the cost to see a doctor, the hospital also adjusted the procedure and model of medicine services. Pharmacists provide services to patients face to face, and as many as four pharmacists open clinical practices. These moves have substantially improved the quality of medicine services and boosted patient satisfaction, and have paved the way for the successful transformation of medicine services.

Establishment of corporate governance structure

In early 2013 the county government set up the governing

council and supervising council for the hospital, marking the start of reform on its corporate governance structure. Subsequently at the first meeting of the governing council, members passed a resolution about the council's article of association. The council appointed a new president to run the hospital under the leadership of the council. The article of association stipulates the respective duties of the governing council, the supervising council and the president in decision making process and overseeing hospital operations. At its second meeting in November 2013, the governing council approving two documents, separately concerning the management of backbone talents and strengthening development of special departments, officially kicked start the council's decision-making process. The hospital has since revamped the internal management system, defined the duties of the hospital executive council, general party branch, labor union and employee representative congress, and standardized the work rules and procedures under the new management system.

Practice on group development roadmap

In the second half of 2011, a loose medical group led by the hospital was established. The group has 28 members, including county-level and town-level medical institutions in the county and neighboring counties. For more than two years, the medical group has done a lot of work to build the information platform. It sent professional medical staffers to help county-level institutions provide public health services, offered trainings to improve county-level medical workers' professional skills and management ability. The group members have made joint improvements as a result, and the number of member institutions has quickly increased to 46 in five counties of three cities and prefectures.

According to the county government's arrangement in late 2013, a feasibility plan about group management of county-level public hospitals and a separate plan about these institutions' integrated management have been presented to relevant authorities. It suggested a new round of practical reform that involves intensive integration of all of the county's medical institutions is about to be launched.

Explore the "Shimian model" of information-based healthcare reform

A regional healthcare coordination platform was built in early 2013, linking the hospital and four town hospitals

in the initial stage. More than 16 town hospitals and a community health service center joined the platform in June. The participating hospitals can share individual patients' electronic medical records, public health information and resident health archives, offering such services as doctor appointment, reservation of medical test, two-way referral and two-way remote review of X-ray test results. One hospital can also commission another hospital within the platform to do medical tests on its behalf. The platform will further expand its reach to the whole county in 2014 when the Traditional Chinese Medicine Hospital and the Maternal and Child Health Hospital also join it.

Based on the regional healthcare coordination platform, health authorities built a regulatory platform to monitor business operations at all medical institutions across the county, and gather related information for inquiry and statistical purposes to facilitate health practice management, disease control, maternal and child care, management of essential drugs and traditional Chinese medicines, medical insurance management, and implementation of emergency health plan. With the help of information technology, the whole sector has been largely under the scrutiny of the county health regulators.

As more and more information gaps and loopholes are bridged, the digital hospital has amassed a huge database over the years and can share the data with other hospitals and patients, substantially improving the efficiency of the data management. The regional healthcare coordination platform and regulatory platform have addressed concerns raised by the stakeholders like government, regulators, medical institutions, medical workers and patients, and produced multi-win goals for the healthcare reform. The practice-dubbed as "Shimian model"-is proven successful with the help of information technology.

Result analysis

The hospital's business data and reform & development

In 2008 the hospital treated 57,076 outpatients and discharged 12,000 hospitalized patients. Total revenue was 41.99 million RMB, and 18% of the hospitalized patients were not from Shimian. By the end of 2013, the hospital had 430 medical workers with 658 ward beds. For the year it treated 212,558 outpatients and discharged 30,921 hospitalized patients. Total revenue was 120 million RMB, and 46.1% of the hospitalized patients were from other counties.

When taking the county's small population of 120,000

into account, we can see that the hospital is leading far ahead of other county-level hospitals in terms of business volume per capita, business efficiency and development pace. In consideration of its practical conditions and thanks to the choice of the right strategy, the hospital has taken itself to a path of rapid and healthy expansion through revamping the internal operation mechanism, introducing digital operations to redesign and optimize management functions and service procedures, and making enduring efforts to improve hospital management.

Data analysis on the hospital's comprehensive reform and development

By the end of 2007, the county's healthcare system had a combined workforce of 526 with 435 ward beds, 343,257 outpatients, 45,818 hospitalized patients, total revenue of 57.486 million RMB, and 10.6% of patients were transferred out of the county for further treatment. By the end of 2013, the respective figures were 917, 1,003; 587,550; 51,500, 212.635 million RMB and 6.8%. More than 46% of the patients in the People's Hospital of Shimian County were from neighboring counties, and the proportion was 10% for the Shimian Traditional Chinese Medicine Hospital. For the county as a whole, in the recent three years less than 10% of hospitalized patients chose to get treated out of the county.

It's not hard to conclude from the above data that the hospital has become a trailblazer in the comprehensive public hospital reform after internal reform rejuvenated its development potential. It led other health institutions to develop together and made joint efforts to accomplish the goal that local patients will no longer have to go out of the county to get treated for serious illnesses. The reception of patients from other counties have accelerated the hospital's special departments development and improved its service, allowing many ethnic people living in the mountainous and remote areas to get treated at nearby hospital and compelling surrounding hospitals to enhance their capabilities and services and make joint efforts to give more people access to affordable medical services.

Comprehensive analysis of regional healthcare coordination business

Since the regional healthcare coordination platform was launched, the hospital and 16 county-level hospitals have recorded 206 doctor appointments, 187 two-way referrals,

197 reservations of medical tests, 3,219 requests for a hospital to do medical tests on behalf of another, as well as 199 remote reviews of X-ray test results. In total, nearly 4,000 patients have enjoyed services through the platform.

According to the above data, all town-level hospitals have joined the regional healthcare coordination system and received some service demands from the system. Two hospitals examined health conditions for more than 3,000 residents. The number is not very huge, but this business remains revolutionary in consideration of the county's small population and the relatively low efficiency at county-level health institutions. Now farmers can enjoy medical services provided by county-level hospital just near their hometown, and that means hierarchical diagnosis and treatment and the sharing of medical resources and medical data in the rural and urban regions have become a reality. By applying the regional healthcare coordination system in the public health campaign, the once 'dead' residents' health archives have come to a new life.

Healthcare regulation

Through the regional healthcare coordination platform, the health bureau, department offices, the health law enforcement team and the new rural cooperative medical management office had made roughly 5,000 requests of data statistics and inquiries for management purposes. The regulatory scrutiny covers county, town and village-level medical institutions as well as various aspects of work required by the law and the government. Government leaders can check any information, even a prescription written by a doctor in a village clinic, and can do this in their own offices at any time.

By virtue of genuine, accurate, real-time and dynamic information-based regulations, the health authorities have dramatically enhanced the efficiency of its administrative and management work, and resolved the problem of performance management—the biggest challenge for county-level medical institution reform. The practice from 'Shimian model' suggests that countywide healthcare coordination platform is actually the most important in light of China's specific situation, although the nationwide "35211" health information project has made no explicit requirement that every county must establish a regional healthcare coordination platform. It's easier and more operable to build a coordination platform in a county than in a larger jurisdiction and the platform will also be running at higher efficiency. The disadvantages are apparent. County-level

government has no pricing power over the services offered on the platform, and the power to roll out healthcare insurance policies usually falls on to the municipal government. These disadvantages restrict the integrity and completeness of the coordination platform, and these restrictions may be removed when a municipal platform is put in place.

Conclusions and vision

The People's Hospital of Shimian County has set a successful example of comprehensive reform and development in the panoramic exploration of healthcare system

With the personnel system overhaul as a core part of its reform campaign, the People's Hospital of Shimian County has rejuvenated internal operation, drafted a clear business strategy and chosen a proper roadmap to achieve the strategy. On the basis of a powerful digital hospital that boosts its operating efficiency, the hospital has sought to realize hierarchical diagnosis and treatment through regional healthcare coordination and group management of medical resources, and comprehensive reforms in other areas have helped put the hospital on the path of a rapid, healthy and sustainable development. The successful practice in a small agricultural county of 120,000 people in western China demonstrates the public hospital comprehensive reform can also be successful in other parts of the country.

"Shimian model" can be refined and promoted

On the back of a powerful digital hospital as the central hospital, a regional healthcare coordination platform is built to facilitate coordination among counties, towns and village-level medical institutions and help achieve information-based regulation and supervision throughout the entire healthcare sector across the county. The reform promoted medical institutions' scientific development and produced multi-win results to achieve the healthcare reform goals. The "Shimian model" can be refined and summarized, and promoted in some pilot regions to provide practical examples for the information-based healthcare overhaul.

Vision of healthcare reform

Based on the study of the path of the comprehensive reform and development of the People's Hospital of Shimian County, the article reviewed and summarized the "Shimian

model” and made prospective analysis about some steps that are being taken. The design of county-level healthcare system reform is correct, and we can expect a bright prospect for the ongoing healthcare reform as long as we fine-tune the top-level design and strengthen the work on

IT infrastructure construction.

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