

# Health in Action in Western China: Promoting Reform, Innovation, and Development

Study on the Evaluation of the Reform Effectiveness of Public Hospitals in Zichang County, Shaanxi Province

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**Abstract**—In the new round of medical and health system reform, Zichang County, Shaanxi Province boldly explored, courageously innovated, embarked on a new path in line with local medical and health development, and created a "Zichang mode" for medical reform, especially the county-level public hospital reform, accumulating lessons for the national medical reform. How to comprehensively, systematically and scientifically evaluate the reform of Zichang Public Hospital, summarize and promote experience and model, has a typical leading role and important practical significance for deepening the reform of the medical and health system, especially the comprehensive reform of county-level public hospitals.

**Keywords:** *Zichang County, public hospital reform, effectiveness, evaluation research*

## I. INTRODUCTION

The reform and exploration of public hospitals in Zichang County, Shaanxi Province began in 2008, earlier than the national medical reform. The main goal is to establish an "affordable hospital". It mainly focuses on the establishment of financial compensation mechanism, promotes the reform of the corporate governance structure of hospitals, promotes the reform of personnel system, innovates the performance assessment and distribution mechanism, strengthens the discipline construction of county hospitals, implements the full cost accounting and financial management of hospitals, and innovates the quality and safety supervision mechanism. And then, it has realized the "four improvements" in the number of outpatient inpatients, patient satisfaction, medical quality, employee income, and "four decreases" in the average cost of outpatient and inpatient visits, doctor-patient disputes, referral rate, and hospital operation cost. Based on the "evaluation index system of comprehensive reform pilot of county-level public hospital" as the standard, combined with the actual situation of Shaanxi Province, 34 core evaluation indexes have been formed. Through three levels of management, service and service object, the author collected the relevant indexes of Zichang County Hospital, distributed 150 questionnaire forms and more than 300 questionnaires, and systematically

analyzed the relevant data indexes. The effectiveness evaluation report was obtained.

## II. ESTABLISHING AND IMPLEMENTING MULTI-CHANNEL FINANCIAL COMPENSATION MECHANISM

The historical debts of public hospitals shall be packaged by the county finance and paid back year by year. Up to now, county-level hospitals have paid off all historical debts of 19.41 million yuan.

The salary of public hospital staff in the county is changed from the difference in government budget to the full budget, from only 70% to 100%.

The cost of large-scale inspection in public hospitals will be reduced by 30% for CT and 15% for Magnetic Resonance and Color Doppler Ultrasound. The cost of all examinations, diagnosis and treatment, outpatient and inpatient expenses shall be gradually reduced in proportion. The cost reduction, including the reduction and exemption of other measures taken by the hospital to benefit the people, shall be subsidized by the finance.

The capital construction of public hospitals and the renewal of large-scale equipment shall be undertaken by the county finance. In addition, the county finance shall subsidize the operation funds of 80000-100000 yuan for each township hospital in a fixed amount every year, and arrange 600000 yuan for the president's reward fund.

The subsidies for medical personnel and personnel training expenses shall be included in the government budget. The county budget is 1.3 million yuan per year, which is used for personnel training and excellent personnel award in public hospitals.

The annual budget of the county finance of 4 million yuan (3 million yuan for the county hospital and 1 million yuan for traditional Chinese medicine hospitals) is used as the key discipline construction funds of public hospitals to improve the medical service capacity.

### III. PROMOTING THE REFORM OF THE CORPORATE GOVERNANCE STRUCTURE OF THE HOSPITAL

Zichang County has established a public hospital management committee with the county magistrate as the director, the deputy county head in charge as the executive deputy director, the health director as the deputy director, and the heads of organizations, discipline inspection and other departments as the members, as a permanent decision-making and discussion body for the government to manage public hospitals. The hospital management association has an office under the County Health Bureau as a daily office, which is specifically responsible for the daily work of the hospital management association. It further standardizes the "three-level responsibilities" of the government, departments and legal persons, realizes the situation of "balancing of three powers" of decision-making, implementation and supervision, and forms a new mode of modern hospital operation with standardized operation, self-development, self-restraint and self-management.

### IV. PERSONNEL SYSTEM REFORM WITH INNOVATIVE EMPLOYMENT SYSTEM AS THE CORE

Zichang County reasonably set up the health posts in the county-level public hospitals, and it conducted open recruitment of the presidents of county hospitals, county hospitals of traditional Chinese medicine, county maternal and child health centers, and township health centers for the society. Through online registration, qualification examination, written examination, interview and other procedures, candidates with qualifications are selected for employment, and the target responsibility system is adopted. It is required to adhere to the principle of "three no-breakthroughs" in total amount, proportion and structure for other management personnel and professional and technical personnel, and implement competitive employment, contract employment and post management. Since the medical reform, 46 township hospital presidents have been employed six times in accordance with the four-year employment system.

### V. INNOVATION OF PERFORMANCE SALARY ASSESSMENT AND DISTRIBUTION MECHANISM

Through five adjustments from 2008 to 2018, Zichang County has successively changed the proportion of post salary and performance salary of medical staff from "70-30 system" to "60-40 system" and then to "40-60 system", gradually expanding the part of performance salary and mobilizing the enthusiasm of medical staff. In 2014, on the basis of strict implementation of the 40-60" wage system, the performance salary equivalent assessment system was implemented. The disease score was determined according to the complexity and severity of patients' condition, technical difficulty and diagnosis and treatment efficiency, and performance salary was paid according to the equivalent score assessment. At the same time, the gap control management was carried out, and the red line of gap control was set. The maximum gap between doctors' performance salary and nurses' performance salary in the same department was 5000 yuan and 3000 yuan, and the excess part was

deducted by the number of times, so that the income gap of medical staff was controlled between 3-5 times. This not only widens the income gap, but also takes into account the interests of most employees, effectively eliminating the blind pursuit of interests of some departments and medical staff. Finally it realizes the innovation of the incentive mechanism, breaks the formalism of traditional assessment, establishes the incentive mechanism of performance assessment, payment for work, efficiency priority, fairness, being in line with the characteristics of the medical and health industry, and mobilizes the enthusiasm of medical staff.

### VI. STRENGTHENING THE DISCIPLINE CONSTRUCTION OF COUNTY-LEVEL PUBLIC HOSPITALS AND IMPROVING SERVICE CAPABILITIES

County Hospital has formally established a cooperative relationship with Peking University Third Hospital, Shijiazhuang Eye Hospital, Shaanxi Provincial Hospital of Traditional Chinese Medicine, Shaanxi Provincial People's Hospital, and Xi'an Jiaotong University Second Hospital, continuously striving for provincial and municipal well-known experts and professors to Zichang County to carry out long-term medical support work, and vigorously introducing quality medical services. At the same time, it initiated the department assistance and co-construction mode in the whole province, established the department cooperation relationship with neurosurgery of Yan'an people's hospital, improved the overall medical technology level of the department, and opened a two-way referral green channel. Under the guidance of provincial and municipal experts, the county hospital has newly established neurosurgery, infectious disease, and rehabilitation medicine, focusing on the development of emergency department, gynecology, obstetrics, orthopedics, ICU and neonatal department. There are more than 20 new technologies and new projects such as minimally invasive tapered drainage for hypertensive cerebral hemorrhage and double knee arthroplasty.

It is required to develop a multi-level training and further education plan. Training is directly linked to performance assessment. All new recruits receive required training. Third-line physicians must receive the training of more than half a year from a well-known hospital in the country every five years. Second-line physicians must receive training at provincial level hospitals of more than one year every 3 years. Salary and bonuses are continuously paid during training, and a post-training assessment mechanism is established.

### VII. INNOVATION OF THE REFINED FINANCIAL MANAGEMENT MECHANISM OF TOTAL COST ACCOUNTING

#### A. *Carrying out the reform of 4:3:3 income distribution system*

40% of the surplus of hospital revenue and expenditure will be used for normal operation, 30% for benefit wage and 30% for development fund, so as to lay the foundation for sustainable development of hospital.

*B. Implementing the full cost financial accounting of classified projects*

It can calculate the direct cost of medicines and equipment, maintenance, etc., and depreciate the house based on the cost-sharing method. For the fixed assets, it can use the straight-line method to calculate the depreciation according to the service life; for the new medical equipment, it can take the distribution method to calculate the depreciation on a monthly basis. And staff costs and savings awareness are greatly enhanced to implement the accounting appointment system. Hospital accounting shall be appointed by the County Accounting Bureau to supervise the economic operation of the hospital. Financial revenue and expenditure shall be included in the centralized accounting of the county settlement hall, and internal and external auditing shall be strengthened.

*C. Carrying out three-level cost accounting of hospitals, departments and individuals, reducing hospital operation costs, and ensuring the maintenance of state-owned assets*

When the new buildings of Zichang County People's Hospital were in use, water, heating, power and other operating costs soared; the overall operating cost did not increase but decreased. At the same time, with the rapid increase of the workload brought by the improvement of medical conditions and service capacity, the balance of revenue and expenditure of the hospital has increased. The "dividend" of reform has been further released in 2013, and the hospital has achieved the goal of turning loss into profit for the first time. In 2014, the business revenue reached 120 million yuan, and the management cost decreased by 20% year on year. At present, there is no loss phenomenon in the hospital, which realizes the transformation from external "blood transfusion survival" to relying on its own "hematopoiesis" development.

**VIII. INNOVATIVE AND DIVERSIFIED QUALITY AND SAFETY SUPERVISION MECHANISM**

In view of the president, other management and medical staff of public hospitals, a supervision mechanism with the target responsibility system as the core and a four-level supervision network with the government, social patients and medical institutions as the supervision main body have been established to ensure the good development of all medical services and basic public health services in public hospitals and the public welfare of public hospitals.

It is required to carry out the presidents' administrative rounds. The presidents should hold a meeting of middle-level cadres every month, analyze the medical quality of that month, analyze, report and rank the indicators such as the qualified rate of outpatient prescriptions, the quality of medical records, the utilization rate of antibiotics, the proportion of drugs and the proportion of inspections, and cash rewards and punishments according to the ranking results. Responsibility investigations shall be carried out for liability accidents, and doctors, departments, and hospitals

shall be liable for compensation at a ratio of 1:1:1. The green channel for emergency treatment shall be set up, and the system of "three first and three later" shall be implemented for the critical patients, in which the patients can "see a doctor first, register later, get rescue first, pay fees later, make hospitalization first, and go through formalities later", so as to ensure that the critical patients can be treated in time.

**IX. EFFECTIVENESS OF REFORM**

*A. The medical service capacity of public hospitals has been greatly improved*

Since the medical reform, the medical environment of Zichang County Public Hospital has been greatly improved, and the medical service capacity, service level and service quality of Zichang County Public Hospital have been greatly improved. From 2009 to 2018, the number of professional and technical personnel in the Zichang County People's Hospital increased from 320 to 685, of which the number of undergraduate or above increased from 69 to 326; the number of clinical departments increased from 9 to 16; new business and new technologies were launched more than 150, widely popularizing Chinese medicine services; the actual number of beds increased from 210 to 600; the average number of inpatient beds decreased from 8.4 to 6.6 days; the number of surgical operations increased from 960 to 2687; the number of outpatient visits quadrupled from 134,400 to 391,000, and the number of hospitalizations increased from 7,932 to 24,051, which quadrupled. The professional and technical staff of Zichang County Traditional Chinese Medicine Hospital increased from 64 to 86, of which the undergraduate or above increased from 38 to 60; the number of clinical departments increased from 5 to 8; the average number of inpatient bed days decreased from 0.4 to 8.6 days; the number of outpatient visits increased from 21,600 to 34,500, an increase of 59.7%; inpatient medical care increased from 269 to 2,040, an increase of 75.8%.

*B. The burden of medical expenses on residents has been significantly reduced, and satisfaction has continued to increase*

Since the reform of public hospitals, the outpatient and inpatient costs of public hospitals in Zichang County have also increased compared with the rise in the price level of the society over the same period. However, compared with the increase in the per capita income of urban and rural residents, the proportion of medical expenditure has dropped significantly. The average cost of hospitalization of the People's Hospital was 2101 yuan, accounting for 13% of the per capita disposable income of urban residents in the current year of 16,119 yuan, and 51% of the per capita net income of farmers in the year.

*C. The income level and enthusiasm of medical staff are continuously improved*

From 2009 to 2018, the average annual income of the staff of the Zichang County People's Hospital increased from 50,000 yuan to 120,000 yuan; the average annual income of

the staff of the traditional Chinese medicine hospital increased from 33,000 yuan to 89,000 yuan; and the average annual income of the staff of the township health hospital increased from 31,000 yuan to 68,000 yuan. The income of medical staff is significantly higher than that of local teachers and civil servants. The questionnaire survey showed that the county hospital's monthly income satisfaction: very satisfied 15%, relatively satisfied 70%, generally 10%, dissatisfied 5%; TCM hospital" monthly income satisfaction: very satisfied 14%, relatively satisfied 73%, generally satisfied 10% and dissatisfied 4%. The medical staff of the two county-level public hospitals was more than 85% satisfied with their income. The increase in income level and income satisfaction has greatly stimulated the work enthusiasm of medical staff.

#### *D. The income structure of public hospitals tends to benign changes*

Before the medical reform, the total income of the Zichang County People's Hospital was 38.948 million yuan, of which 9.578 million yuan was financial subsidy, accounting for 24.6% of the total revenue; 11.78 million yuan was medical income, accounting for 30% of the total revenue; and 17.51 million yuan was pharmaceutical revenue, accounting for 45.4% of revenue. In 2016, the total revenue of county hospitals was 224 million yuan, of which financial aid income was 25.65 million yuan, accounting for 20% of total revenue; medical income was 14,400 yuan, accounting for 64.3% of total revenue; drug income was 35.16 million yuan, accounting for 15.7%; the ratio of medical insurance funds to hospitalization income increased from 16% before the reform to 45%. The hospital business has entered a sustainable development track.

### X. CONCLUSION

Zichang County Party Committee and the county government regard the reform of public hospitals as the top priority of medical and health services. By strengthening financial investment, vigorously improving infrastructure construction, and actively training and introducing professional and technical personnel, it fully solves the salary and treatment of medical personnel, reforms the purchase and sale system of medicine, and implements performance-based compensation system, fine management of hospital and integration of county, town and village medical services. The public hospital has realized "four improvements" in the number of outpatient inpatients, patient satisfaction, medical quality, employee income, and "four decreases" in the average cost of outpatient and inpatient visits, doctor-patient disputes, referral rate, and hospital operation cost, achieving the goal of "four satisfaction" of patients, medical staff, hospitals and the government.

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