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Explore the Localization Path of Hierarchical Diagnosis and Treatment Based on the International Experience of the British NHS System in China

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Abstract: On a global scale, population aging has become an irreversible trend, reshaping the supply and demand pattern of existing medical resources. Although China's hierarchical diagnosis and treatment system has been gradually built and improved, the rate of first diagnosis at the grass-roots level is less than 40%, which is facing a serious development bottleneck. The British National Health Service (NHS), as a model of global medical resource allocation, has a high efficiency of resource utilization and achieves 90% of the first diagnosis rate at the grassroots level. Therefore, based on the practical experience of hierarchical diagnosis and treatment in Britain, we put forward the localization suggestion of "rigid legislation + flexible technical technology" applicable to China's development.

Keywords: Hierarchical diagnosis and treatment system; UK NHS system; Population aging; Local path

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1. Introduction

According to the data of the United Nations, in 2025, the proportion of the global population over 65 will exceed 20%, the medical demand in the ultra-aging society (such as Japan and Italy) will grow rapidly, the burden of chronic diseases intensifies, and the coexistence of multiple diseases is widespread, leading to the structural shortage of medical resources. And China as a populous country, 2025 aging population is expected to exceed 300 million, mainly grading system of China's new health reform system construction promotion, but basic ability is weak (Gp 6%), patients with low trust (41%), due to the wide range, uneven distribution of resources, constraints more aspects, there are still more difficulties and resistance, and the true sense of hierarchical diagnosis and treatment still have a

certain distance [1]. Therefore, by comparing the construction of the British NHS system with the Chinese medical consortium, the efficiency of medical resource allocation can be optimized, and the implementation of the Healthy China strategy can be promoted.

2. The governance logic difference of hierarchical diagnosis and treatment between China and Britain

2.1. Practical experience of the hierarchical diagnosis and treatment system in the UK

The definition and current situation of the British hierarchical diagnosis and treatment system show the systematization of the system design and the complexity of practical operation, and its practical experience can provide an important reference for China [2]. The core mechanism of the UK NHS system lies in the role of general practitioner (GP) as more than 90% of the first diagnosis tasks, covering about 75% of private clinics across the country, forming a community-based hierarchical diagnosis and treatment system. Patients need to be referred by general practitioners to enter the secondary (general hospital) or tertiary (specialized center) medical level, and this mandatory referral mechanism effectively avoids the crowding of medical resources [3]. The design of the three-level diagnosis and treatment circle realizes rigid diversion through legal coercion and medical insurance leverage (such as a high surcharge for direct medical treatment without referral), making the first diagnosis rate at the grassroots level reach more than 90%. In terms of the fiscal model, the NHS is dominated by the government budget (81% of the total expenditure), supplemented by a mixed payment mechanism of capitation. The income of general practitioners consists of the "capitation prepaid + Quality Outcomes Framework (QOF)", in which the QOF index covers 19 categories of clinical items such as chronic disease management and preventive health care, accounting for 20% of their income. For example, for every 1% increase in diabetes management compliance rates, general practitioners receive performance awards per person of £164 [4]. This financial design not only guarantees the public welfare of medical services, but also improves the efficiency of primary medical care through market incentives.

2.2. The logical pressure of Chinese and English hierarchical diagnosis and treatment

Comparing the implementation of the system between the two countries, revealing the logical characteristics of medical governance, the UK realizes compulsory classification through legislative constraints and system reconstruction, but facing the challenge of insufficient innovation motivation and long waiting time; Chinese path depends on policy leverage and technology empowerment [5], and achieves local breakthrough while maintaining the stability of the system, but is subject to the weak basic capacity and the inertia of patients seeking medical treatment. In terms of technology application, the UK e-RS system focuses on the standardization of the referral process, while China focuses on telemedicine to break the space limit, which reflects the different orientations of fine management and scale effect respectively [6]. The root cause is the imbalance of interest distribution led by the administrative system. In order to maintain the income of tertiary hospitals for patients with mild diseases, the vacancy rate of primary beds is as high as 60%, and the independent financial accounting further aggravates the resistance of resource subsidence. Research shows that the crux of the lack of medical consortium collaboration lies in the lack of "goal-implementation" adaptation: policy objectives emphasize resource integration [7], but implementation tools rely on administrative pressure rather than market incentives. For example, a county medical community is not inclined to the grass-roots level due to the total advance payment of total medical insurance, a tertiary hospital occupies

high-weight DRG cases through technical advantages, and it is difficult for the grass-roots level to undertake reflux referral patients due to the narrow list of medical equipment [8].

3. The localization path of hierarchical diagnosis and treatment in China

Therefore, from the British NHS system, explore the localization of Chinese grading diagnosis and treatment development path, crack "big hospital siphon effect" to provide systematic solutions, is to strengthen the system of kernel, optimize health care pay synergy, build standardized information platform, reshape medical culture trust, walk a "legislation rigid + technology flexible" localization of the road [9].

3.1. Strengthen the core of institutions

It is suggested to revise the Law on Basic Medical and Health Care and Health Promotion to bind the first diagnosis of general practitioners with the payment of medical insurance, and to guarantee the status of "gatekeeper" of general practitioners.

First, the elite training mechanism: to reshape the professional attractiveness of grassroots doctors. Drawing on the British "5 + 2 + 3" general practitioner training model (5 years of clinical medicine undergraduate, 2 years of basic training and 3 years of general practice training), the educational system and curriculum reform were conducted to establish the "3 + 2 + X" grassroots medical education system with Chinese characteristics (3 years of clinical medical specialty education, 2 years of standardized general practice training and X years of sustainable career development). For example, Henan Province has improved the chronic disease management ability of grassroots doctors through AI-assisted teaching tools and case simulation training [10].

Second, the practice-based construction. A standardized GP training center has been set up in the county medical community, and the British model of "clinic rotation + community practice" has been introduced, requiring students to complete at least 500 diagnoses and treatment cases of common diseases and 100 family health management cases [11].

Third, salary benchmarking and career development. Referring to the average annual income of general practitioners in the UK of 90,000 pounds (about 1.2 times that of specialists in tertiary hospitals), the gap between the salary of primary doctors and doctors in tertiary hospitals was narrowed to less than 20%, and a "special allowance for primary health personnel" was set up (for example, Jiangsu Province uses 70% of the contract service fee for performance distribution).

Fourth, the family doctor contract service incentive mechanism. Referring to the incentive mechanism of head prepayment + QOF, it was localized into the "grassroots health management performance index system", covering 12 core indicators such as chronic disease control rate and vaccination coverage rate, and the proportion of performance reward increased to 30% of the total income of family doctors. For example, the Shanghai pilot "for every 5% increase, the family doctor team will be awarded 2,000 yuan per person".

Fifth, the dynamic adjustment mechanism of the signing service fee. We will establish an annual increase mechanism for contracted service fees linked to the price index, and the price of basic service packages will be gradually raised from the current 50-100 yuan per person to 200-300 yuan per year, and allow a 30% increase in economically developed areas [12].

3.2. Optimize medical insurance payment

We will promote the coordinated reform of DRG and medical consortium combination payment, establish a performance evaluation system of health protection, and be alert to the trap of different prices for the same disease.

First, DRG is a hybrid payment model of pay-per-capitation. Stratified payment design: The combination of DRG weight discount + cap payment, is implemented for primary medical institutions. For example, Zhengzhou implemented DRG standard payment for 298 grassroots disease groups, and paid 150 yuan per person per year according to the head of contracted residents to encourage the grassroots level to undertake mild cases. Balance retention and risk sharing: 50% of the DRG surplus funds in the medical consortium are allocated to basic institutions for equipment renewal and talent incentive; 30% of the excess expenditure part is borne by tertiary hospitals, forcing resources to sink (such as the special fund of 100 million yuan in advance in Nanjing City).

Second, the expansion of the basic drug use list and the reform of the prescription rights. Drug list of chronic diseases: 80% of chronic diseases, such as hypertension and diabetes in secondary and tertiary hospitals will be synchronized to the grass-roots level, and the restriction of one product and two regulations will be cancelled [13]. For example, Gansu province realized the unification of the drug list within the county through the compact medical community, and the number of basic drug types increased by 40%. Prescription extension and pharmacist coordination: family doctors are allowed to issue 3-month prescriptions, and online audit of pharmacists in secondary hospitals is realized through the cloud prescription examination platform, so as to reduce drug risk (for example, the prescription qualification rate of Healthy Brain platform in Zhejiang Province is increased to 98%).

3.3. Integrate the information network

Build a national unified medical data platform to achieve seamless connection of inter-agency referral.

First, data standards and sharing mechanisms. Referring to the EHR system of the NHS, the National Standard for Medical Data Connectivity was formulated, and the data interface of health, medical insurance, disease control and other departments was forced to open, thus increasing the inter-provincial mutual recognition rate of test results and electronic medical records from 30% to 90%. For example, the People's Hospital of Lingchuan County in Guangxi realizes real-time access of image data with Peking Union Medical College Hospital through the "cloud consulting room."

Second, intelligent referral and resource scheduling. A hierarchical diagnosis and treatment AI decision system was developed to automatically allocate referral paths according to 10 indicators such as disease severity and bed vacancy rate, and the referral response time was reduced from 3-7 days to 24 hours [14].

Third, promote telemedicine (such as "Internet hospital + medical consortium"), improve the grassroots diagnosis capacity, and promote 5G + AI diagnosis network. In the remote diagnosis center where CT, MRI and other equipment are deployed in the county medical community, the primary doctors have realized the primary screening accuracy of pulmonary nodules and diabetic retinopathy of 95% through the AI auxiliary system (such as Tencent Miying).

Fourth, home sickbeds and home monitoring. The "Internet nursing" model in Beijing is promoted, where grassroots doctors carry portable ECG monitors and blood glucose meters for door-to-door service, and the data are uploaded to the regional platform in real time and trigger an abnormal warning.

3.4. Reshaping the trust in medical treatment

The trust of patients at the grassroots level is only 41%. The habit of "worship of famous doctors" and the inertia of free medical treatment lead to the dilemma of "formal classification and substantial concentration," so it is necessary to open the trust of patients' medical treatment culture.

First, the family doctor contract points exchange and other modes. The pilot measures to improve hierarchical diagnosis and treatment recognition in Beijing and other places will be expanded to national health promotion projects. Through the short video platform, establish the community health ambassador system, strengthen the chronic disease management as the entry point, introduce the five habits communication mode, including starting the conversation with courtesy, fully listening to the condition, emotional resonance to build trust, clearly inform risks, and jointly decide on treatment plan. For example, the Xuhui District of Shanghai has increased the recognition degree of the primary diagnosis from 35% to 58% through the narrative communication of the health ambassador.

Second, medical science popularization and community education, to break down the cognitive barriers. General practitioners should lead community health education activities, such as giving lectures, free medical consultations, or health consultations on topics such as prevention and treatment of common diseases, rational drug use, and a healthy lifestyle. At the same time, information means are used to expand the coverage of science popularization, such as the development of short videos, WeChat public accounts and other platforms to spread disease prevention knowledge, and improve the transparency of primary diagnosis and treatment through telemedicine tools (such as AI-assisted diagnosis system), so that patients can intuitively feel the reliability and convenience of primary medical care. In addition, interactive mechanisms, such as patients' micro-wish wall and health file sharing, have been established to encourage patients to participate in health management decision-making, such as developing personalized plans together with doctors in the treatment of chronic diseases [15].

In addition, the construction of Chinese medical consortium should be alert to the trap of formal classification, establish a three-dimensional assessment system including the dimensions of resource sinking rate, first diagnosis rate at the grass-roots level, patient satisfaction and so on, and the assessment results should be deeply bound with financial subsidies, medical insurance quota and the appointment of president. The practice of hierarchical diagnosis and treatment during the COVID-19 period shows that when grassroots institutions are equipped with sufficient fever clinics and emergency supplies, 89% of mild patients can be managed in the community, which provides a model of emergency capacity building for regular grading.

4. Conclusion

The practice comparison between the British NHS system and the Chinese medical consortium shows that the success of hierarchical diagnosis and treatment not only depends on the rigid institutional guarantee but also on technological innovation and cultural identity. The British experience shows that the legislative force and financial incentive mechanism can regulate the flow of patients and realize the "gravity sinking" of medical resources; China reveals the driving orientation of institutional leverage, and digital technology can overcome the traditional resource barriers. Through the international experience of the NHS system, boosting the localization of medical governance mode reform, the couplet of medical system assessment focus from "scale expansion" to "patient health results," through "legislation mandatory + technology" can "two-wheel drive, realize medical resources gravity sinking" and "patients trust" gradient rise virtuous cycle," finally build both fair and efficiency of grading system with Chinese

characteristics.

Disclosure statement

The author declares no conflict of interest.

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