



## Exploration and practice of medical defense integration model in Yunnan Province

Li Li<sup>1</sup>, Zhou Jia<sup>\*</sup>, Zhao Zeting<sup>2</sup>, Pan Ying<sup>3</sup>, Yang Siyi<sup>3</sup>, Zhao Jianshu<sup>3</sup>, Li Xiaoya<sup>3</sup>, Liu Jianxing<sup>3</sup>

<sup>1,2</sup> Kunming Medical University, Social Medicine and Health Management, Yunnan province, Kunming

<sup>\*</sup> First Affiliated Hospital of Kunming Medical University, Prof, Yunnan province, Kunming

<sup>3</sup> Kunming Medical University, Master of Public Health, Yunnan province, Kunming

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**\*Corresponding author:** Zhou Jia. First Affiliated Hospital of Kunming Medical University, Prof, Yunnan province, Kunming. Email: 994290321@qq.com

### Abstract

The integration of health care and prevention is an inevitable requirement of health development strategy and institutional arrangement in the new era, and an important way to realize the focus on disease treatment to the focus on people's health. This paper systematically compares the current research status of medical defense integration in China, focuses on people's health problems based on the provincial situation of Yunnan Province, and discusses the exploration and practice of medical defense integration model in Yunnan Province from four dimensions: chronic non-communicable disease management, emergency public health event management, basic public health service management and close county medical community construction. It is of practical significance to promote the construction of medical and preventive synergy mechanism, do a good job in medical and health care in Yunnan Province, promote the construction of healthy Yunnan and realize healthy China.

**Keywords:** Medical and Defense Integration; Medical Institutions; Public Health Institutions; Yunnan Province

### The concept of "integration of medicine and defense"

The term "medical" refers to clinical work, and "prevention" refers to public health work. The integration of medical

prevention is the integration of prevention-based public health services and clinical treatment-based medical services, combining "treatment" and "prevention", minimizing the occurrence of health problems, controlling the deterioration of health problems in a targeted manner, and improving the appropriateness and effectiveness of medical health services. To achieve the goal of "health-centeredness", we have integrated "treatment" and "prevention" to minimize the occurrence of health problems, control the deterioration of health problems, and improve the appropriateness and effectiveness of health services.

### The current situation of medical defense integration in China Policy basis

The integration of medical defense is not only an important part of China's medical and health system reform, but also an important way to maintain people's health throughout their life cycle. To this end, the state has issued a series of policy documents to promote the integration of medical prevention work to provide policy support and basis. Various regions in Yunnan Province have also carried out the practical exploration of the integration of medical prevention one after another. The main policy documents at the national level on the promotion of medical defense integration are shown in **Table 1**.

<i>Time</i>	<i>documents Name</i>	<i>Main contents</i>
2015	<i>Outline of the National Health Service System Plan (2015-2020)[1]</i>	Combine prevention and treatment, establish and improve the mechanism of division of labor and collaboration between medical institutions and public health institutions, integrate the service functions of institutions, and provide systematic, continuous and comprehensive health services for the people.
2016	<i>"Health China 2030" planning outline[2]</i>	Establish a "trinity" of public health institutions, medical institutions and primary health care institutions to prevent and control diseases, promote the integration of chronic disease prevention, treatment and management, and realize the integration of medical prevention.
2017	<i>China's medium- and long-term plan to combat chronic diseases (2017-2025)[3]</i>	Strengthen the synergy between medicine and prevention, and make it one of the basic principles of China's prevention and treatment of chronic diseases to provide residents with services that integrate prevention, treatment, rehabilitation and health promotion.
2020	<i>Medical consortium management methods[4]</i>	The medical consortium should implement the requirements of combining prevention and treatment, so that prevention and treatment services are given equal importance; implement the family doctor contracting system to form an organic integration of medical and defense work mechanism.
2021	<i>Opinions of the General Office of the State Council on promoting the high-quality development of public hospitals[5]</i>	Public hospitals should adhere to the integration of medicine and prevention, as well as promote the organic integration of medicine and prevention of family doctor contracting services.

**Table 1:** Relevant policy documents on promoting medical defense integration.

Yunnan Province has also introduced a work program to promote the integration of medical prevention. In 2016, when the General Office of the Yunnan Provincial People's Government issued the *Implementation Opinions on Establishing and Improving the Graded Diagnosis and Treatment System* [6], it was pointed out that the prevention, treatment, rehabilitation, long-term care service chain should be improved to provide patients with scientific, appropriate and continuous diagnosis and treatment services. In December 2016, the Yunnan Provincial Party Committee issued the *Decision on Further Accelerating the Reform and Development of Health and Wellness* [7], indicating the need to accelerate the capacity of public health services and medical services, and to fully implement "prevention-oriented and integrated prevention and treatment". In September 2022, the newly released *"14th Five-Year Plan" of Medical and Health Service System in Yunnan Province* [8] clearly pointed out that: medical and preventive synergy, combined with emergency. Prevention is the main focus, combined with prevention and treatment, to establish a long-term mechanism of medical prevention synergy.

### The need to explore the integration model of medical defense

For a long time, the emphasis on treatment rather than prevention and the disconnect between medicine and defense have been the pain points of China's medical and health work. Whether it is controlling chronic non-communicable diseases or responding to public health emergencies, it is necessary to coordinate resources from all sides, sound government-led, departmental collaboration, social mobilization and participation

of all people; building a medical defense integration development model is a key link to promote the whole life cycle of health, and is a key task to comprehensively promote the construction of a healthy China.

Yunnan has a special geographical location, a low level of Social and Economic Development, complex topography, chronic non-communicable diseases among the top causes of death, and frequent occurrence of public health emergencies, and the special and complex nature of chronic disease management and public health emergencies prevention and control determines the long-term and difficult nature of the prevention and control tasks. The inevitable choice for the Health Yunnan strategy.

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#### Chronic Non-Communicable Disease Management

Based on China's medium and long-term plan for prevention and control of chronic diseases, Yunnan Province has gathered health management and disease management techniques and experience to classify the population of important chronic diseases such as hypertension, diabetes, tuberculosis and severe mental disorders under its jurisdiction, and adopt different interventions and appropriate techniques for high-risk groups and patients respectively, and evaluate the management effects to form a sustainable integrated prevention and control model for chronic diseases. The establishment of professional

public health institutions, general hospitals, primary health care institutions "trinity" of major disease prevention and control mechanism, in order to promote chronic disease prevention, treatment and management of the overall integrated development.

Yunnan Province has taken single disease as a breakthrough to realize the optimization of the hierarchical diagnosis and treatment system of primary care, Bi-directional referral, acute and slow treatment, and upward and downward linkage for chronic diseases such as hypertension. By improving the level of primary care services, more patients have been provided with consultation and follow-up services. The number of hypertensive patients managed in Yunnan Province increased from 2,539,300 in 2017 to 2,795,400 in 2020, the standardized management rate increased from 79.71% to 85.27%, and the blood pressure control rate increased from 51.36% to 61.38%; the province rescued 5,377 critical patients through treatment stations, and timely referred 5,006 to higher-level medical institutions for treatment [9], effectively reducing the death and disability rate of patients with cardiovascular and cerebrovascular diseases. In 2021, Yunnan Province will integrate a total of 277 million yuan to build 796 chronic disease management centers in township health centers. Gradually realize the information sharing of electronic health records and electronic medical records between different levels and categories of medical institutions, and give full play to the role of information technology tools in graded treatment and chronic disease management. The next step is planned to be able to achieve information interoperability between primary medical institutions, higher-level medical and health institutions and professional public health institutions such as the CDC, and realize the integrated management model of chronic disease medical prevention.

### Management of public health emergencies

Yunnan is located in the southwest border, with unique geographical location, geographical environment, ethnic composition and other characteristics. In addition to the conventional characteristics, the development of public health emergencies also has special characteristics such as many international transmission paths and difficulties in control, and complex factors and weak capabilities in domestic prevention and control. It is necessary to fully consider the border characteristics of Yunnan and build a prevention and control system and medical treatment system that meet the border characteristics. Yunnan has made significant strategic achievements in epidemic prevention and control, taking the lead in developing and using the "anti-epidemic" sweeping system and adopting the "five controls" for border prevention and control, with strict "external prevention of import", firm "internal prevention of rebound", and "internal prevention of rebound". The general policy of "internal prevention and rebound" and "dynamic zero" is adhered to. The policy environment for the construction of sudden public health system has been optimized, the joint prevention and control mechanism has been gradually improved, team building has been generally attached to the improvement of infrastructure and equipment.

Yunnan has constructed a "3+1" line of defense and innovative prevention and control mechanism [10]. The first line of defense is the inspection and quarantine line, which is implemented at 20 national ports in Yunnan to prevent and control the occurrence and spread of public health emergencies in the port area and ensure the safety of the national gate. The second line of defense is the joint defense and control line, border inspection, customs and other departments found imported epidemic disease situation, risk assessment and analysis to the local government to put forward early warning, close collaboration and cooperation of various departments to protect the security of the border areas. The third line of defense is the group prevention and control line, which organizes and mobilizes border residents and community residents to participate in group prevention and control measures under the leadership of the governments of the eight border cities and 25 border counties (cities) in Yunnan. The people's defense line of epidemic and disease prevention and control is constructed to ensure the safety of Yunnan province. Finally, the overseas cooperation defense line, and the neighboring 3 countries border area government communication, in the outbreak of epidemic disease, can take the initiative to quickly inform our situation, synchronize the effective prevention and control measures, the actual epidemic prevention and control line control outside the national gate.

Medical treatment is a key aspect of dealing with public health emergencies, and the Yunnan provincial party committee and provincial government set up a medical treatment group led by the health department in response to major public health emergencies, and launched a dual enhancement project of the treatment capacity of major infectious diseases and the core capacity of disease control institutions. The medical and health service system in the region was integrated, and the medical community was brought into play with upward and downward linkage to form a linked defense system with the general hospital as the main body of treatment and the primary medical institutions as the main body of prevention and control [11]. The layout of the three-level service network in provinces, cities and counties will be more optimized, fully reflecting the principle of "combination of level and warfare, emphasis on emergency response and unified management".

### Basic Public Health Service Management

The basic public health service program is a long-term institutional arrangement in the field of public health in China, which is a public health intervention strategy with the largest coverage and the widest beneficiary population since the founding of the People's Republic of China. The governments at all levels in Yunnan Province attach great importance to it and constantly improve the policies and measures, with children, maternity, the elderly and patients with chronic diseases as the key groups, and the most basic public health services provided free of charge for all residents. The most basic public health services are provided free of charge to all residents. Yunnan has basically realized the management model of "unified leadership by county, categorized implementation according to project content, primary medical

and health institutions as the main body, and technical guidance by professional public health institutions". Strengthen the project management of basic public health services and adhere to the "two hands" of basic public health and basic medical care.

Yunnan has achieved results in the management of basic public health services: it has established a model of "managing chronic diseases by combining prevention and treatment", put the technical guidance of chronic disease management under the responsibility of general hospitals, made use of their medical technology advantages, ensured the effective combination of prevention and treatment, and gradually explored the establishment of a two-way referral mechanism for patients with chronic diseases; it has tracked and managed maternal and child health services and preventive vaccination, and strengthened the work of basic maternal and child services. The tracking management of maternal and child health services and vaccination ensures that health services are not missed, and consolidates the basic services for maternity and children; the specific contents of basic public health service programs, service hours and funding standards are fully publicized to residents, and innovative health education and propaganda methods are used to increase the transparency of services while improving the public's awareness and perception. Yunnan Province in the basic public health services project gradually innovation gradually standardized, the results are remarkable. The project has covered 47.418 million people in the province, with 16 items and 48 services. Compared with 2009 when the project was first launched, the per capita life expectancy in the province has increased from 69.5 years to 75.26 years, maternal mortality rate has decreased from 41.53/100,000 to 17.72/100,000, infant mortality rate has decreased from 13.10‰ to 5.78‰, and the management of hypertension, diabetes and severe mental illness has reached 2,795,400, 587,000 and 210,000 million people [9].

### Close-knit county medical community construction

The construction of a compact county medical community is based on the geographical distribution, urban and rural residents and the current situation of medical and health resources in the county, the establishment of county-rural integrated management reform with county hospitals as the main body, township health centers as the hub, and village health offices as the basis. Integrate the resources of medical and health institutions at the county, township and village levels, implement unified management of people, finance and materials among institutions, integrate basic medical and basic public health services, rely on information technology, and provide residents with continuous, all-round, whole-life health services. The construction of medical community is to build an integrated medical and health service system, and to achieve efficient cooperation and collaborative governance between medical services and public health services. The capacity of medical and health services is improved, medical insurance funds are effectively utilized, an orderly pattern of medical care is formed, and the construction goal of graded diagnosis and treatment is ultimately achieved. On the basis of the construction of county medical community, urban tertiary

public hospitals play a full role in forming various forms of medical association with medical community institutions to improve the medical service capacity and management level of the leading institutions through joint construction of specialties, clinical teaching, business guidance and teaching visits.

In 2016, Kunming, Qujing, Yuxi, Chuxiong, Honghe, Pu'er, Dali and Baoshan municipalities were included in eight national pilot cities for graded diagnosis and treatment. In terms of deepening health management and highlighting the integration of prevention and treatment, a new mechanism for the management of basic public health services has been actively established to enable the deep integration of basic medical care and basic public health services, and to further establish and improve the development mechanism of medical and health care that integrates prevention and treatment. Through the construction of county medical community, the integration of medical prevention and treatment has been greatly promoted. It has gradually promoted the reform of personnel system, salary system, performance assessment system, and medical insurance payment system; unified medical business, procurement and supply guarantee, regional center construction, and information construction management; and practiced graded diagnosis and treatment, and grassroots support and guidance. After years of exploration and practice, we have initially realized the synergy of medical care, management, prevention and treatment in medical institutions at the county, township and village levels. The rate of primary care, county consultation, and chronic disease management is also increasing year by year, and the initial pattern of "primary care at the grassroots level and major diseases at the county level" has been formed. County-level hospitals continue to develop medical technology and key specialties, and guide primary health care institutions to carry out new projects and technologies. The provincial-level tertiary public hospitals are playing their roles and functions better, continuously improving their ability to treat difficult and complicated diseases, and vigorously developing specialty alliances and telemedicine collaboration networks.

In summary, the integration of health care and prevention is an important direction for the future development of health care in China. The medical and health care service system in Yunnan Province is gradually forming with hospitals, primary health care institutions and professional public health institutions as the main body, supplemented by new service institutions for the health care of the elderly, infants and children and other special groups, providing services for the whole population in the whole cycle of life and the whole process of health such as disease prevention, treatment, rehabilitation and health promotion, and further improving the high level of medical and prevention integration mechanism.

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