

## Joint mechanism of clinical medicine and public health service of AIDS

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**Abstract:** Since the year of 2004, we have been focusing on the coordination of prevention and therapy of AIDS on the basis of the epidemic status of AIDS in the rural area in Henan Province, to prevent its further transmission although the medical resource is limited. After the enthusiasm of medical and public health teams has been fully aroused, we have achieved a satisfactory result by exploring and establishing a set of strategy and method to integrate clinical medicine and public health resource. The resource is shared, the management becomes standard, the operation is concordant, the efficiency is promoted and the patients' life quality is improved. Our study provides a practical model for establishing a joint mechanism of clinical medicine and public health in the treatment of AIDS and other infectious diseases.

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Since the first report of AIDS in the world in 1981, HIV spread quickly everywhere in the world[1-2]. Up to the end of 2011, there were about 780 000 HIV-infected and AIDS patients in China, with the infectious rate of 1.158%. There were 48 000 newly-diagnosed AIDS infected patients and 28 000 AIDS-related deaths in 2011. China has been one of countries with a quick increase of infectious rate. We face arduous tasks in prevention and treatment of AIDS. In the prevention and treatment of infectious diseases, barriers existed between higher and lower levels or between public health and clinical medicine, the resources were unevenly dispersed, information channel was unimpeded, service capacity was insufficient, administration efficiency was lower, which were especially serious in the prevention and treatment of AIDS. Therefore, to establish a scientific and perfect system of joint mechanism of clinical medicine and public health is one of the most important subjects in the prevention and treatment of AIDS.

### 1 Materials and Methods

1.1 All materials were from AIDS Databank and Information network direct report system of Chinese Center for Disease Control and Prevention Henan Branch. The medical staff, grade of service and equipment were collected and a retrospective cross-sectional analysis was done in 1013 AIDS designated medical institutions established from 2004 to 2005.

1.2 All the medical staff participating the treatment of AIDS were visited and asked to fulfill a questionnaire in order to know their ability of diagnosis and treatment of AIDS and normal diseases.

1.3 All data were downloaded from the databank to collect the antivirus treatment information from 2004 to 2011 in Henan, including annually increased number of patients receiving treatment, accumulative number of patients receiving treatment, exit number and number of died patients.

1.4 Centralized data entry was adopted. VEP6.0 software was used to input all data by full-time staff within the stipulated time, and SPSS software was used to calculate and analyze after checking there is no mistake or omission. Data were expressed as  $\bar{x} \pm s$ . Non-parametric test was used in those without normal distribution and homogeneity of variance to analyze the difference between different groups. Chi-square test was employed for categorical variable analysis. The inspection level alpha was 0.05.

In 2004, the individuals with paid-blood donation were screened in Henan, all HIV infected patients were found in the largest range, AIDS status of Henan Province was acquired, and the general condition of HIV/AIDS patients was grasped[3-4]. In HIV/AIDS patients in Henan, farmers accounted for 93%, in which 85% were localized in the rural area in the southeastern part of Henan, the national or provincial poverty counties with deficient medical resource, poor medical equipments and low level of medical service. From the actual condition, Henan Province put the national prevention and therapy policy into practice and established a perfect system of prevention and therapy of AIDS.

This system included public health service and medical service institutes. The public health service was consisted of three-level (provincial, municipal and

county level) prevention and control institutes for disease, and the medical service institute was consisted of five-level (provincial, municipal, county-level, town-level and village-level), including 253 AIDS designated medical rooms and 577 town-level public health centers who served over 90% AIDS patients in Henan. And the provincial, municipal and county-level designated medical institutes served 10% AIDS patients. There were 4391 full-time or part-time medical workers indicating to the antiviral therapy of AIDS, the treatment of opportunistic infection and health education.

Henan provincial government paid high attention to the prevention and therapy of AIDS, carried forward the policy of “four-free, one-care” (policy to give HRV carriers and AIDS patients free medical treatments), and tried to suppress, prevent and treat AIDS during the 11th and 12<sup>th</sup> Five-Year Plan. We had a good organization, careful division, and joint participation of whole society. And we formed a mechanism of joint conference by civil administration bureau, finance bureau, public security bureau and education bureau[9]. The treatment and cure countermeasures were adjusted with the constant changes of epidemic situation. The medical treatment was combined with new rural cooperative medical system and medical insurance for urban residents, and AIDS was catalogued into chronic infectious disease. The government supervised the special funds to be used in buying drugs for prevention and therapy so that the patients could be more willingly to see doctors and the patients’ compliance to therapy was improved. Therefore the coverage fraction of anti-virus therapy increased continuously, the fatality rate decreased year by year, a good result was achieved (seen in Table 1). Under the leadership of the government and policy guarantee, the medical department established a long-term mechanism by playing a role of public health resource and medical resource.

3.1 To form a coordinate and linkage mechanism of clinical medical service and public health. A comprehensive analysis of HIV epidemic characteristics and the status of the disease could provide a corresponding strategy for clinical treatment so that HIV carriers could enjoy free medical service in the early stage. Consultant and screening by medical institutes and the feedback of related data provided public health service institutes the interventional measures for high-risk population. It is proved scientific to make treatment strategy on basis of analysis of epidemic situation and medical statistics, and the interventional countermeasure on the basis of clinical data is feasible and pertinent. The prevention and treatment of AIDS in Henan were satisfied after a long-term cooperation with centers for disease prevention and control by researching the changes of

diseases situation and adjudging strategy and focal point.

3.2 To establish of intergration mechanism of clinical medicine and public health service. The medical institutes had the advantage of performing clinical diagnosis, laboratory diagnosis and clinical treatment, and as well as the public health institutes had the advantages of performing epidemic monitor and surveillance, laboratory monitor and surveillance, and sentinel monitor and surveillance. We improved treatment level by making full use of the advantages from two sets of institutes. We established 62 laboratories for identifying HIV, 60 flow cytometers and 12 HIV-RNA detection units for AIDS patients freely. The AIDS patients in **base-level countryside** could enjoy basic medical service. The share of public health and clinical medicine resource offered the patients and high-risk population a high-grade medical service and consulting service and obtained good social and economic benefits.

3.3 To establish mutual motivation system of clinical treatment and epidemic information management. We made clear the whole AIDS status in Henan and acquired the general information of HIV carriers and AIDS patients, which provided a basis for establishing a scientific management system. The epidemic management system for prevention and treatment of AIDS was established and the information management system was also established, mainly relying on centers for disease prevention and control, taking direct network reporting in every-level medical institutes as its carriers, and a follow-up survey of epidemic information by both medical staff and public health staff. As soon as the HIV carriers were found, they could be included into the medical rescue system and receive treatment immediately. The medical rescue information was connected with national epidemic information databank via national anti-virus treatment databank, therefore the disease control departments could guide patients and their family more scientifically to receive health education by carrying the epidemiological survey and epidemic situation tracing.

3.4 To establish linkage mechanism of clinical medical service and public health service.

Henan AIDS medical treatment system formed the five-level designated medical institutions, and a close business contact was established with the link of clinical diagnosis and treatment. The medical staff in county, town and village-level medical institutes were in charge of basic diagnosis and treatment service, and the specialists in provincial, municipal and county-level institutes were in charge of consultation and round-visit service. Meanwhile the provincial and municipal infectious hospitals were pointed as the partner assistance for the key counties and cities, consulting and guiding the diagnosis and treatment of difficult and

critical cases. County institutes of disease control were in charge of information reporting, coordinating and managing anti-virus affairs. According to the report and health examination results, specialists in county medical institutes chose the patients eligible for anti-virus treatment, and survey and recheck the patients undergoing treatment together with the designated institutes, focusing on the epidemiological tracing and immunological and virological surveillance[10]. Provincial and municipal center for disease control also undertook drug resistance test, virus load determination, and guided basic medical institutes to give standardized treatment to the patients according to the test results.

3.5 To establish a supervision and assessment mechanism participated by public health staff and

medical specialists according to the national assessment criteria of AIDS prevention and treatment. The assessment criteria included the practice of prevention and treatment policy, the coverage of patients receiving treatment, success rate of antiviral treatment, proportion of patients receiving standard immunological and virological detection, the proportion of patients receiving standard follow-up survey, health education, patients compliance and the management of information on epidemic situation. All the above reported data and on-site evaluation were combined to analyze the fulfillment and accomplishment of each index. An administrative rectification advice note was issued aiming at the problem, asking them to correct before deadline and to improve the rescue quality continuously.

Table 1. The recovery rate and fatality rate of AIDS from 2005 to 2010 in Henan Province

year	Adults receiving antiviral treatment	Fatality rate of AIDS patients	
	(%)	(/case per year)	Fatality of ART patients (/100case per year)
2005	76.1	15.3	13
2006	79.8	11.5	9.4
2007	82.1	12.2	9.7
-2009			
2010	85	9.6	7

More than 3000 0000 patients died of AIDS in the world. Although there was no method to cure AIDS nowadays, with the appearance and wide application of highly active anti-retroviral therapy (HAART), AIDS has been successfully changed into a chronic infectious disease, and it greatly prolonged the patients' life and improve their life quality in the developed countries[11]. But generally speaking, the prevention and treatment of AIDS is still serious. Most of the AIDS infected patients come from the developing countries in Africa, the limited medical resource can not satisfy the patients' need. Of the 30 000 000 AIDS infected patients, less than 15% received HAART. In the recent 20 years, many countries have established community network and therapy system to offer HIV carriers and AIDS patients a wide social support and therapy as well as spiritual and emotional support[12]. The prevention and therapy has become the key comprehensive project, which is consisted of government-leading, multiple units cooperation, whole society participation, joint implementation of publicity and education, behavioral intervention, therapy and care. At present, to establish a joint mechanism of medical rescue and public health service is the key

point of research in each country [13-14].

Problem and challenge exists in the process and result of establishing medical rescue system for AIDS in poor rural areas with limited medical resources. To study and establish a joint mechanism of clinical medicine and public health service for the treatment of AIDS and other serious infectious diseases plays an important role in the improving the fairness, accessibility and persistence of public health and basic medical care.

After an 8-year hardwork, we have established an effective, practical and persistent medical rescue pattern and working mechanism, ensuring patients a quick, convenient and effective medical service. The prevention and therapy system depending on the rural medical units and public health institutes has obtained a fine preventive and therapeutic result. The life quality of AIDS patients has been improved greatly after HAART. The fatality of AIDS infected patients decreased from 15% in 2005 to 9.6% in 2010[15], which was in a low level in China. After the medical institutes and staff are improved their rescue ability, grasp much professional knowledge, and continuously improve their public health consciousness

and ability, they can fulfill their public health duty and basic medical service.

The experience in Henan has been confirmed by Chinese government, Chinese colleagues and international society. It is proved that to establish a joint mechanism of clinical medicine and public health service is scientific for preventing and treating AIDS by taking active measures in poor areas with limited medical resources, and meanwhile it is a good example for carrying forward the medical and health system reform and establishing a basic public health system and medical service system covering both urban and rural area.

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