The Evaluation of Medical and Health Service Level of China

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Keywords: Medical and health service level. Evaluation system. Simple linear weighting medical and health.

Abstract. There is a big difference between different regions of the current level of medical and health services in China, So it is necessary to evaluation the overall level of medical and health services in China, to optimize the allocation of resources, make full use of health resources in order to improve the overall level of health service in China.In this paper, Based on China's 31 provinces (municipalities and autonomous regions) of the medical and health service situation as the research object, according to the different regional per capita gross national product (GNP), the administrative division in China classified into high-income , middle income and low-income areas, Objective To build up the evaluation indicator system of medical and health services in China. using simple linear weighted method from 2007 to 2011 in 31 provinces (municipalities and autonomous regions) to evaluate the health service level, in order to optimize the allocation of resources to provide Chinese medical science strong frame of reference.

Introduction

services is very important to people's physical health, it affects the economic and social development. Statistics Show, health spending has been increasing in our country. From 1990 to 1990, Chinese total health expenses increased from 74.739 billion yuan to 2.426878 trillion yuan, increased by 32.47 times, the total health expenses as a share of GDP has increased by 4.00% to 5.15%. per capita health expenditure increased from 65.40 yuan to 1806.95 yuan, increased by 27.63 times.Nnevertheless, China's health resources still can not meet the needs of the masses, The problem"a doctor is difficult, expensive medical treatment." is outstanding. Therefore, under the condition of current medical and health care investment, the government should from the macroscopic Angle to comprehensive evaluation of the regional health service as a whole, optimize the allocation of resources, reduce waste for maximum output.

Medical and health services

William • Petty was the first economists to "service" concept introduced into economic theory. William • Petty believe in the initial stage of the exchange of commodities, services, and the product itself were jointly produced and sold, but with the updated development of social productivity, in the production of continuously socialized while becoming a specialized service functions or sectors of the economy and independent existence[4].

The current medical and health services have not form a unified concept. Rex ford. E. sante le through research that medical services have become,inseparable, inconsistency and there was no inventory of special properties, Rex ford. E. sante le through research that medical services have become, inseparable, inconsistency and there was no inventory of special properties, Contains a large number of goods and services, mainly be used to improve, restore or maintain people's physical and mental health[5]. China's relevant laws and regulations of a comprehensive range of health services, including for patients with disease prevention, diagnosis, treatment, delivery, fertility services, and the provision of medical appliances, ward accommodation, medicines and food are related businesses. Medical and health services is a kind of humanistic care thoughts feelings intensive services, through advanced equipment, reliable medical means, to meet the health and survival of the masses demand

basic services, and its employees to complete their work at the same time , which won the remuneration they do to social obligations.

The construction of medical and health service level evaluation index system

The evaluation identified indicators. Different evaluation index system to get different results of the evaluation of medical and health services, in order to ensure the authenticity of the evaluation results, scientific and effective, this paper follows the usefulness, representativeness, comprehensiveness, scientific and sensitivity of the index selection principle , Through literature research and the actual situation, starting with the health institutions, health personnel, health facilities, health funding, medical services, etc. primaries evaluation of selected 11 alternative investment alternative indicators and 12 output indicators then used cluster analysis, correlation analysis, the coefficient of variation of three modern statistical analysis to these alternative input indicators and output indicators for index selection, the final choice of indicators identified six inputs and 7 outputs indicators the case shown in Table 1.

The determination of index weight. According to the 2007-2011 China health statistics yearbook data, by using entropy value method on the indicators in each of the weight, then each index weight of 5 years on average, ultimately determine the six of seven input index and output index weights, the specific results are shown in Table 1

Evaluation index system. Medical and health service level evaluation index system as shown in table 1.

Table 1 Medical and health service level evaluation index system

first-class indicator	second-class indicators	Detailed indicators	weight
Medical and health service level	Input indicators	Per capita health costs	0.0785
		Per capita health care spending	0.0813
		Medical institutions of beds per thousand population	0.0792
		Health workers per thousand population number	0.0769
		number of health institutions	0.0661
		Level hospitals proportion	0.0624
	Output indicators	cure rate	0.0873
		Average Daily Visits	0.0860
		Physician responsible for daily clinic visits	0.0698
		rate of utilization of hospital beds	0.0710
		Survival rate of critically ill patients	0.0803
		Proportion of admission	0.0775
		Admission and discharge diagnosis rate	0.0837

Empirical Analysis 2007-2011

Simple linear weighted model. In this paper, combined with the health service level evaluation index system, using a simple linear weighted model of health service levels for quantitative analysis. The specific steps are as follows:

The variable data standardization processing. to standardize the decision matrix, get the decision matrix. $R = (r_{ij})_{mn}$, $i = (1,2,\cdots,m), j = (1,2,\cdots,n)$.

The determination of weighted coefficient of each variable. $K = (k_1, k_2, \cdots, k_n)$.

Comprehensive score. $Y_i = \sum_{j=1}^{n} k_j \alpha_{ij}$, $i = (1,2,\cdots,m), j = (1,2,\cdots,n)$.

Geographic classification. Generally, the level of medical health services in an area with the region's economic development level is highly positively correlated. Economy developed more and more can provide medical and health care infrastructure with the necessary monetary support, the people have the ability to pay for medical and health services, which pay more attention to themselves health level and also to health service level requirement is higher. But the reality in China is provinces (autonomous regions) between economic development level differences, in order to scientific and objective comprehensive evaluation of China's provinces, municipalities, autonomous regions) level

of medical and health service, first of all the provinces, municipalities, autonomous regions) is classified according to the level of economic development.

The World Bank based on per capita GNP of a country or region classified as low-income, middle-income, upper-middle-income and high-income, four types. Learn from the World Bank's classification, in accordance with the 2007-2011 five-year average of per capita GDP (26936 dollars) as a measure of the scale, the country 31 provinces; municipalities (autonomous regions) are divided into high-income, middle-income and low-income three regions. Among them, the five-year average level of GDP per capita is greater than 150% classified as high-income areas, five-year average level of GDP per capita in the 75% -150% classified as middle-income regions, five-year average level of per capita GDP is less than 75% classified as low income areas, the specific classification shown in Table 2.

Table 2 Geographical Areas

category	Geographical Names
high-income	Shanghai、Beijing、Tianjin、Zhejiang、Jiangsu、Guangzhou
middle-income	Shandong、Neimenggu、Liaoning、Fujian、Jilin、Hebei、Heilongjiang、Shanxi、Chongqing、Xinjiang、Henan、Shanxi、Ningxia、Hunan、Hubei
low-income,	Hainan、Qinghai、Jiangxi、Sichuan、Anhui、Guangxi、Xizang、Yunnan、Gansu、Guizhou

Dynamic Comprehensive Evaluation Results. According to 2007-2011, "China Health Statistics Yearbook" and "China State Statistical Yearbook" the relevant data on China's 31 provinces, municipalities (regional) level of health services for dynamic comprehensive evaluation, to get the country's 31 provinces, municipalities (autonomous regions) sort the results of medical health services, the specific results shown in Table 3.

Table 3 2007-2011 Comprehensive Evaluation of health services ranked

region		2007	2008	2009	2010	2011	average
High income areas	Shanghai	4	4	5	5	6	5
	Beijing	1	1	2	1	1	1
	Tianjin	3	5	3	2	4	4
	Zhejiang	5	2	4	7	2	3
	Jiangsu	7	8	6	4	5	7
	Guangzhou	2	3	1	3	3	2
Middle-income areas	Shandong	6	7	9	7	6	6
	Neimenggu	24	27	25	26	26	25
	Liaoning	9	8	6	8	9	8
	Fujian	20	15	16	19	19	19
	Jilin	12	13	17	13	15	14
	Hebei	17	16	14	15	12	15
	Heilongjiang	10	12	10	12	14	13
	Shanxi	7	9	8	11	10	9
	Chongqing	14	11	11	9	8	10
	Xinjiang	23	19	20	20	20	21
	Henan	11	10	12	10	13	11
	Shanxi	13	14	13	14	11	12
	Ningxia	15	17	15	18	17	16
	Hunan	26	23	21	25	22	24
	Hubei	16	18	19	16	18	17
Low-income areas	Hainan	18	20	18	17	16	18
	Qinghai	22	21	22	21	24	22
	Jiangxi	25	26	26	24	25	26
	Sichuan	22	21	19	22	23	20
	Anhui	23	23	21	24	27	23
	Guangxi	27	29	28	28	24	27
	Xizang	31	31	30	30	29	30
	Yuannan	28	28	29	27	28	29
	Gansu	30	27	27	29	31	28
	Guizhou	29	30	31	31	30	31

Conclusions

Through quantitative analysis can be seen in high-income regions, Shanghai, Beijing, Tianjin, Zhejiang, Jiangsu, Guangdong, the average level of health services were ranked 5,1,4,3,7,2, in the national forefront ; the middle-income regions, Shandong, Liaoning, Shanxi, Chongqing, four regions were ranked 6,8,9,10, better medical services in the country, while the region's per capita GDP in Inner Mongolia and Shandong similar, but the medical health service level ranking is more rearward, only 25, Hubei ranking more rearward, only 24; while in low-income areas, in addition to the level of health services in Hainan ranked 18, the other regions were ranked at 20, and especially since Yunnan, Tibet, Guizhou three regions, the level of health services ranked as the last three.

Obviously, the level of economic development and the level of health services is strongly correlated to the economic backwardness, the location remote areas, health services were ranked by comparison. In order to improve people's quality of life, sharing the results of social production, the government should try to reduce regional differences lead to differences in the level of medical services. The rational allocation of health resources, increase investment in Midwest remote area medical and health care. Play to the market mechanism to promote economic development lags behind regional economic development. For backward areas of health care reform and innovation level of health services, to carry out flexible and diverse forms of service, improve service levels as soon as possible, so that people's health has been effectively protected.

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