Am J Transl Res 2021;13(9):10469-10476
www.ajtr.org /ISSN:1943-8141/AJTR0127901

Original Article

A study of the development path of key disciplines in the Guang'an hospital based on construction of west China's compact medical consortium hospitals

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Received December 9, 2020; Accepted April 28, 2021; Epub September 15, 2021; Published September 30, 2021

Abstract: Objective: To investigate the development path of key disciplines in Guang'an Hospital based on the construction of West China's compact medical consortium hospitals. Methods: The urological medical staff and facilities in Guang'an Hospital were selected as the study subjects. The urological medical staff were interviewed, and a detailed investigation and analysis of the current development of urology and the allocation of experts and medical equipment and resources were performed, so as to promote the development of key disciplines in Guang'an Hospital. Results: We aim to focus on the operational targets of the compact medical consortium while remaining committed to the construction of disciplines of urology. Meanwhile, the relationship between patients and health care providers was coordinated in regard to health care services. The mean of compactness of the dimensions involved in the targets of the operational body of patients was 4.71, while that of the improvement of the medical and health environment was 4.88. The allocated proportion of healthcare resources was optimized, and the operational efficiency was improved. If an excellent medical service experience was provided, the obtained data are statistically significant. Conclusion: Based on the medical consortium, the assessment model of scientific experimental methods, and with the goal of improving the quality of medical treatment regarding urology, the responsibilities of urologists are further defined. A standardized training plan was conducted, with assessment systems of disciplines and better access systems of urologists are formulated and improved, and therefore the construction of key disciplines is promoted, thereby providing more references for the construction and development of key disciplines of urology.

Keywords: Compact medical consortium, Guang'an hospital, urology, development trend

Introduction

Focused care disciplines underpin the development of a hospital. The construction of disciplines contributes significantly to the advances in teaching, scientific research and medical treatment [1]. The key for a good discipline construction lies in the construction of key disciplines, because key disciplines play a radiating and exemplary role in driving the overall improvement of individual care focused disciplines [2, 3]. Since the levels of disciplines directly mirror the overall management level and academic standing of a hospital, the construction of key disciplines remains a crucial task for the construction of a hospital [4]. Strengthening the construction of key disciplines can inevitably lead to the enhanced competitiveness and elevated technical levels of a hospital. Urology is a well-developed and continually evolving helth care discipline [5, 6]. Recently, the burgeoning development of all disciplines caused a quantum leap in basic research and clinical diagnosis and treatment of modern urology, leading to multiple breakthroughs in health care which have been obtained [7].

Individual health care disciplines, the basic academic units of a hospital, underpin the con-

struction and development of a hospital. The construction of key disciplines can contribute to enhanced scientific research capabilities and improved quality of medical services [8, 9]. The promotion of the connotation construction of a hospital can remarkably enhance the power of care in each discipline. The construction of an enriched and complete connotation lays a foundation for the development of key disciplines. A sound departmental culture is conducive to strengthening the connotation construction of medical staff. Science and technology are the keys to the construction of departmental connotation [10]. The key focus of health care disciplines should be constructed with a focus on the cultivation of high-caliber talents, and the contents of key disciplines (e.g., medical treatment, teaching, scientific research and management) should be developed in sequence. Sophisticated medical equipment is the significant indicator of the high-tech degree in modern medicine [11, 12]. Additionally, the promotion of connotation construction, including cultural construction, technical development, talent cultivation and equipment management, can significantly drive the progress in the key disciplines of urology. Therefore, the connotation construction contributes to the continuous and healthy development of the key disciplines of urology in a scientific way [13].

With a view to building Guang'an Hospital into a hospital dedicated to maintaining the healthy life of the social masses and training more high-caliber healthcare and medical staff for the society, Guang'an Hospital has established a medical consortium with the West China Medical Center of Sichuan University. The promotion of the connotation construction of Guang'an Hospital can markedly enhance the power of the disciplines. The connotation construction signifies cultural accumulation, enhanced academic research capabilities, and advances in medical technologies. The development of key disciplines is based on the construction of enriched and complete connotation. The development of key disciplines of urology involves multiple aspects. Therefore, strengthening the connotation construction can undoubtedly facilitate the development of key disciplines of urology, so as to obtain the developmental path of the discipline of urology, thereby providing a reference for other hospitals across China.

Materials and methods

General data

The urological medical staff and facilities in Guang'an Hospital were selected as the study subjects. The urological medical staff was interviewed, and a detailed investigation and analysis of the current development of urology and the allocation of experts and medical equipment and resources were performed, so as to promote the development of key disciplines in Guang'an Hospital. The investigation has been reported to and approved by the hospital ethics committee. All the study subjects signed the written informed consent prior to participating in the investigation.

Observation indexes and assessment standards

Dimensional demonstration of the operational targets of compact medical consortium

During the investigation, we strictly followed the operational standards of the compact medical consortium, and analyzed the relevant content based on the operational standards, and established multiple targets in the later stages. Meanwhile, based on the Mitchell score-based approach, the demonstration and consultation regarding the relevant personnel of health policies, administrative personnel and those engaging in the construction of the medical consortium were conducted in this investigation, and a theoretical analysis of the consultation results was performed. The dimensional grading analysis was performed on the operational targets of the compact medical consortium, and Grade 1 indicates the weakest grade, and Grade 5 indicates the strongest grade [14].

Dimensional demonstration of the operational target function of compact

Medical consortium: The importance of the operational targets of this new type of compact medical consortium and the degree of close association of sub-targets in this dimension are closely related to the policies, and the grade of each sub-target was scored based on different dimensions, with the scores ranging from 1 to 100 points [15].

Institutional construction: During this investigation, the strong support from hospitals and the

cooperation with hospitals' institutional construction were required, and the successful investigation played a pivotal role in the establishment of internal policies and the regulation of executive and monitoring agencies. Based on relevant targets, we established eight professional management departments, including human resources department and financial department, and provided standardized guidance and management instructions [16].

Link management: In the study, the grading method is very effective. There are different management mechanisms for different indicators, and talent training and clinical study remained the focus based on the institutional construction of disciplines, human resources, and the development of disciplines [17].

Assessment indexes: Regarding the investigation of Guang'an Hospital, the assessment indexes of some key disciplines and the references of the related discipline construction capability were adopted as the scoring standards in this study. We conducted the classification in accordance with the four primary indexes, namely, the medical service ability (1st index), academic exchange (2nd index), scientific research level (3rd index), and talent training (4th index). The comparison of the 1st index was conducted based on four aspects: the number of emergency patients, the number of patients undergoing surgery and the number of patients discharged from hospital every year. It was necessary to develop new technology projects, assess the number of successful rescues in hospitals and the number of critically ill patients rescued, and pay attention to the indexes for academic exchanges and talent training. The number of personnel with middle and senior professional titles and the proportion of physicians with a bachelor degree or above had a significant impact on this study. Moreover, the existing trial teaching was used to conduct the project research. The number of classes held by the person in charge of the first institution, and the number of scientific research manuscripts were taken as the related standards of secondary indexes [18].

Statistical methods

SPSS 20.0 was adopted to conduct the mathematical statistical analysis, and the statistical results were expressed using $\bar{x} \pm s$. The differences between groups were detected using the Student's t test, and the feasibility of measurement data was expressed using [n (%)]. The differences between groups were calculated by mathematical variance, and some continuous variables were detected using the Student's t test. Graphpad Prism 8.0 version was used in this study for making graphs.

Results

Basic information of urological medical staff in Guang'an hospital

We input the basic information of the urological medical staff in the hospital, and hepled them have an understanding of the discipline construction (**Table 1**).

Dimensional demonstration results of target functions of the construction of disciplines of urology in Guang'an hospital

The resumes with dimensions of over 60% were selected, the investigation of target dimensions for discipline construction was performed, and the scope planning regarding 2 target dimensions and 10 sub-targets was conducted (**Figure 1**).

Demonstration results of sub-targets of targets for the construction of disciplines of urology in Guang'an hospital

Regarding the sub-targets, it was necessary to alleviate the relevant influences of the "social style" target dimensions, and to provide guidance on the improvement of the comprehensive abilities. Second, the sub-targets of the "high-quality health" of patients, and the "improvement of credibility" and the "improvement of policy implementation ability" of healthcare providers were removed. Finally, "improvement of medical and health environment" was included in the target system in this investigation, and the corresponding scores were given (**Figure 2**).

Establishment of operations for the construction of disciplines of urology in Guang'an hospital

In this study, the operational targets for the construction of disciplines of urology in Guang'an Hospital were very noticeable. During

Table 1. Basic information of urological medical staff in Guang'an Hospital

Items	Classification	Frequency	Value
Professional title agency	Chief physician	1	0.067
	Associate chief physician	5	0.333
	Attending physician	2	0.133
	Resident physician	7	0.467
	Co-chief nurse	1	0.063
	Supervisor nurse	2	0.125
	Nurse	7	0.438
	Senior nurse	6	0.375
Education	Doctor	1	0.032
	Master	6	0.194
	Master student	2	0.065
	Undergraduate	19	0.612
	Junior College	3	0.097
Scores for familiarity with medical consortium	<5 points	0	0.000
	5-8 points	1	0.032
	≥8 points	30	0.968

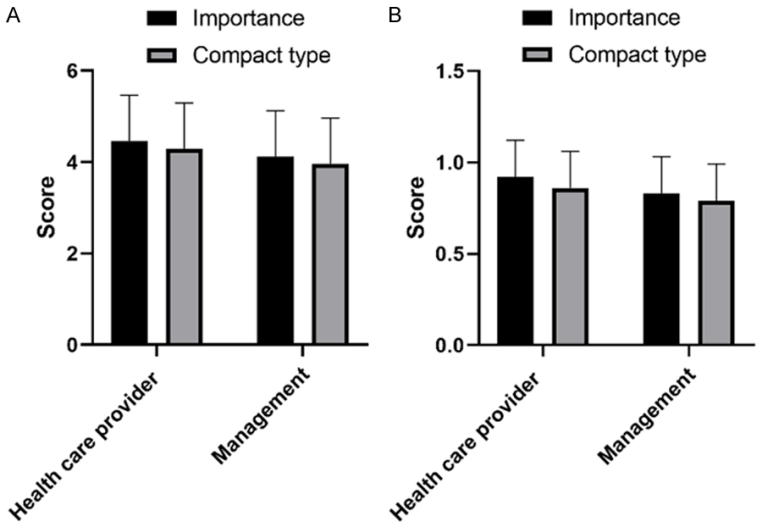

Figure 1. Dimensional demonstration results of target functions for the construction of disciplines of urology in Guang'an Hospital. The dimensions with support degree of higher than 60% are selected as the operational target dimensions of the compact medical consortium. Among them, 2 target dimensions (A) and 10 sub-targets (B) are included in the operational targets of the compact medical consortium.

the investigation of the targets, the links among sub-targets were converted into numbers for recording (**Figure 3**).

Analysis of medical and health environment and medical service experience regarding urology in Guang'an hospital

The medical and health environment and medical service experience regarding urology in Guang'an Hospital were significantly improved after a period of time, and patients' satisfaction was markedly elevated (**Figure 4**).

Analysis of medical resources allocation and operational efficiency regarding urology in Guang'an hospital

The investigation exhibited that the operational efficiency and medical allocation regarding urology in Guang'an Hospital were gradually improved (**Figure 5**).

Discussion

The construction of key disciplines of urology can promote the optimization of resource allocation and the integration of teaching, scientific research and medical work, so as to obtain the comprehensive benefits [19]. Additionally, the development of key disciplines in urology plays a radiating and exemplary role in driving the development of related disciplines and departments. The construction of the specialities in urology in hospitals above county level should be promoted, and the construction of the subspecialities in urology in provincial and munici-

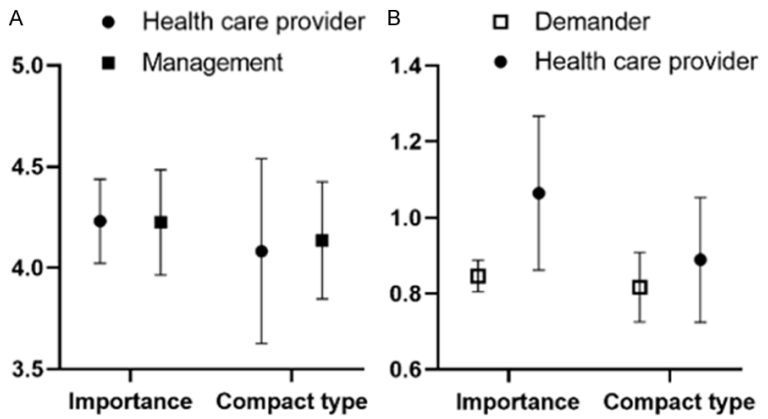

Figure 2. Demonstration results of sub-targets of targets for the construction of disciplines of urology in Guang'an Hospital. The sub-targets are taken as the operational sub-targets of the compact medical consortium, and the target dimensions of "social side", the sub-targets of "stability and harmony" and "improvement of comprehensive competitiveness", "improvement of health quality" of patients (A), and "improvement of credibility" and "improvement of policy implementation ability" of healthcare providers (B) are removed. Meanwhile, the target of "improvement of medical and health environment" is included in the operational target system in this compact medical consortium, and the scores for the importance and compactness are given.

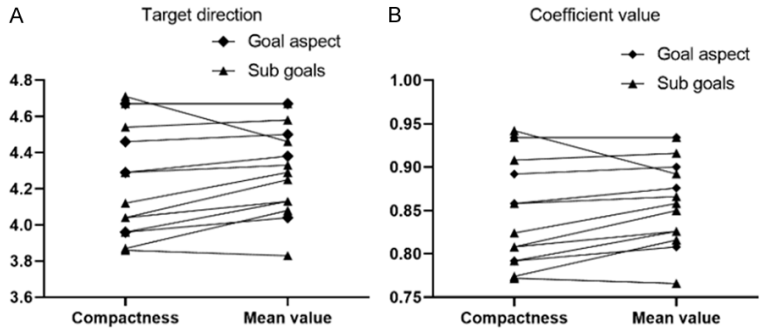

Figure 3. Establishment of operations for the construction of disciplines of urology in Guang'an Hospital. Note: (A) target direction; (B) coefficient value. Through the investigation and study, the operational targets of the compact medical consortium for urology in Guang'an Hospital are established. Regarding the targets of the consortium, the mean of the importance and compactness of the possible connection between target directions and sub-targets and operational targets is the coefficient values of both in the operational target system.

pal hospitals should be conducted based on the actual conditions [20, 21].

The key disciplines of urology should be constructed based on the needs of patients. The priority regarding personnel and equipment should be given to the department of urology to ensure its prioritized development, aiming at increasing the hospital's popularity and enhancing the hospital's brand competitiveness. As science progresses, many changes take place in the development of specialities of urology. For example, the development of specialities (e.g., transplantation and endoscopic techniques) contributes greatly to the development of the disciplines, and the extensive implementation of minimally invasive surgery leads to the improved diagnosis and treatment of urological diseases. China is a late starter in minimally invasive urology [22]. With the deepened communications between China and other countries across the globe and the in-depth studies on minimally invasive techniques, the comprehensive departments that integrate general urology and andrology and those that excel in medical care, education and research are established in the construction of key specialities of minimally invasive urology in hospitals in China. Among them, general urology should feature endourology and laparoscope, and grouping can be performed based on diseases, such as a urinary oncology group, a group for treatment of urinary calculi, a group for female urinary diseases, *a* group *for* pediatric urology, and a group for laparoscope and minimally invasive surgery. Andrology is collectively referred to as the diseases of the male reproductive system and organs. The construction of andrology not only meets the needs of patients, but also promotes the development of disciplines. There is a designated specialist in each group to conduct symptomatic treatment, so as to achieve the sound development of sub-specialities of urology and form the hospital characteristics.

For key disciplines of urology, there are high-caliber principal investigators and talent echelons [23, 24]. Regarding a well-developed disci-

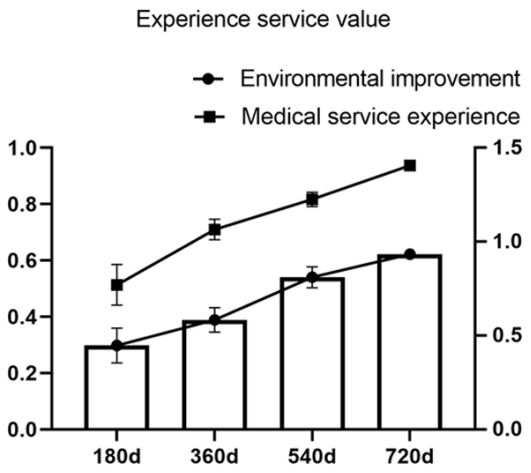

Figure 4. Analysis of medical and health environment and medical service experience regarding urology in Guang'an Hospital. The study exhibits that the medical and health environment and medical service experience regarding urology in Guang'an Hospital are significantly improved after a period of time, and patients' satisfaction is markedly elevated.

pline of urology, the principal investigator should have a picture of the developmental direction of the discipline and have the spirits of innovation and cohesion, but the academic echelon that is willing to making contributions, is united and cooperative, and has a rigorous style of study, with the spirit of innovation, and reasonable structures of knowledge, educational background, origin of degrees and age [25].

Regarding the selection of the principal investigator, young and middle-aged candidates with an excellent political background, a high educational background, professional knowledge, strong technical abilities and organizational abilities are preferred. With respect to management, the team of the principal investigator should be continuously optimized [26]. In regard to the cultivation, the principal investigator should be encouraged to engage in advanced studies in well-known hospitals at home and abroad, participate in academic activities, improve technical levels, and raise the popularity *of* academia. Additionally, the principal investigator should take the lead in undertaking subjects, attach importance to medical techniques, and achieve remarkable results.

To promote the construction and development of key disciplines of urology, it is necessary to follow the developmental trend of medical equipment and have top-notch equipment, so as to ensure that the equipment for specialities of key disciplines of urology feature advanced technologies, excellent performance and complete functions. Scientific demonstration should be conducted to meet the needs of construction without wasting medical resources. Based on the needs of the business development of the key disciplines of urology, the hospital should introduce advanced technical facilities and equipment, and give full play to the role of existing instruments and equipment to make the best use of everything. In terms of raising funds, we can emancipate our minds, renew our concepts and broaden our financing channels [27]. Efforts should be made to develop leading techniques and projects that are well-known nationwide, and hospitals with a strong cash flow should strive to introduce robotic surgery systems. The translational medicine research should be emphasized, and the urology research institute and a research-oriented discipline integrating medical care, education and research should be established. The construction of information databases should be expedited, clinical data and various specimen data should be scientifically managed. The construction of key disciplines of urology can promote the progress in science and technologies. On the one hand, scientific research achievements can be transformed into teaching and clinical resources, resulting in advances in medical technologies. On the other hand, scientific research achievements can be transformed into the productivity to directly serve economic construction.

Key disciplines play a leading role in discipline construction. Key disciplines, reflecting the core competitiveness of medical institutions, are a far-reaching and complex systematic project (four). China began establishing national key disciplines in 1989. At that time, only Peking University Health Science Center offered the major of urology, and there were six universities offering the major of urology in 2006. By the end of this century, there will be 1-2 national key discipline(s) in each province, municipality and autonomous region, and no less than 50 universities and hospitals will have national key disciplines. The overall objective for the construction of key disciplines of urology is to improve the academic level regarding urology with a focus on the clinical efficacy.

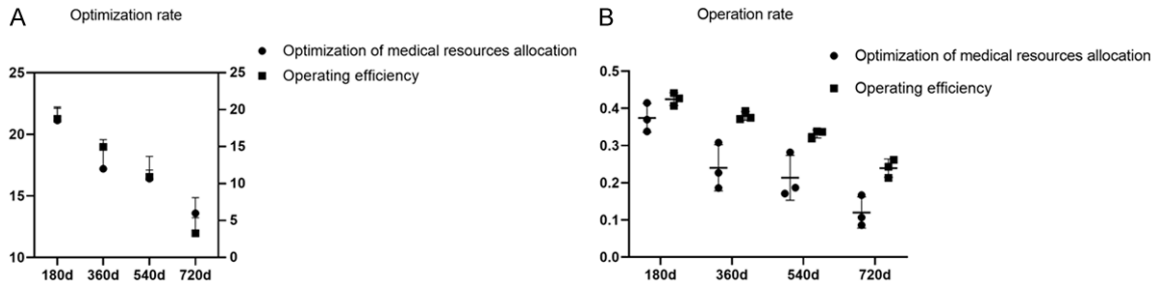

Figure 5. Analysis of medical resources allocation and operational efficiency regarding urology in Guang'an Hospital. Note: (A) optimization rate; (B) operation rate. The investigation shows that the operational efficiency and medical allocation regarding urology in Guang'an Hospital are gradually improved, thereby elevating patients' satisfaction.

The ultimate objective of the construction of urological disciplines is to improve the academic level primarily measured by clinical efficacy. Therefore, the construction of key disciplines of urology must be performed with a focus on improvement of clinical efficacy. The construction of key disciplines of urology is a long-term work. Therefore, specific and pragmatic measures must be worked out to comprehensively improve the medical quality, academic level, talent cultivation and self-development abilities and promote the development of the hospital. Throughout the construction and development of key disciplines of urology, challenges and issues inevitably occur and can be tackled through support from the hospital and cooperation with the department of urology. It remains a long and arduous journey for the construction of key disciplines of urology. Multiple issues need to be further explored in the spirit of continuous research, practices and reforms, and efforts should be made to strengthen the construction of key disciplines of urology and promote the greater development of urology.

The limitation of this study is that the included research subjects were from only one unit, and the research results may be biased due to the limitation of the research subjects. A multicenter large sample survey will be carried out in the next step to compensate for the impact of the sample size on the results, thus providing more detailed data support for other scholars' research.

Acknowledgements

This work was supported by The Social Science Research and Planning Project of Guang'an City in 2020, project number: 2020-56.

Disclosure of conflict of interest

None.

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