Building a Tiered Rehabilitation System: the Case of Yunnan Province

YE Bin

Thesis submitted as partial requirement for the conferral of the degree of

Doctor of Management

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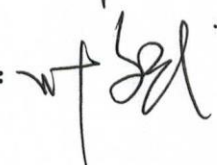
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Abstract

Research purposes: The hierarchical rehabilitation system model of Yunnan Province is built to provide a reference for the establishment of a standardized three-level rehabilitation system so as to meet the patient demands for different functional rehabilitation at different stages during the whole treatment.

Research methods: 1. The General System Theory model is adopted as a guidance for the organizational structure construction of the hierarchical rehabilitation system model in rehabilitation centers, rehabilitation sub-centers, and rehabilitation stations in Yunnan Province. Standardized hierarchical rehabilitation hardware construction for these rehabilitation institutions of different levels helps form an exemplary structural model of a three-level standardized rehabilitation system. 2. The Learning Cycle Theory model is adopted as a guidance for the unified standardized training for patient rehabilitation management in the exemplary rehabilitation institutions of the three-level system. The researchers regularly guide, supervise, and summarize the standard implementation situations of patient rehabilitation management in these institutions and assess the operational quality and management efficiency of the hierarchical rehabilitation system model in Yunnan Province, finally forming the exemplary and standardized three-level rehabilitation system model. 3. The researchers analyze the operating parameters of the medical institutions at all levels in the three-level standardization rehabilitation system and evaluate the structural process and operational efficiency of the three-level standardized rehabilitation system model based on the analysis results.

Results: 1. The government has clearly obtained a sense of gain in the reduction of social resource consumption as well as the increase of mobilized labor force. 2. The implementation of the rehabilitation medical model has greatly improved the public satisfaction with the government health policy and shaped a good image of integrity for the government. 3. Rehabilitation patients receive a sense of gain from short-term relief of illness, reduced payment in treatment, and recovery of labor forces as well as increase of their earnings. 4. Establishment of the hierarchical rehabilitation model in Yunnan has given a sense of gain to medical institutions involved in terms of increased returns and reputation. In many medical institutions, the outpatient amount, hospitalization amount and rehabilitation service revenue has been increasing at a rate of over 10% for two years, some even reaching 89.6%. 5. The medical institutions involved have gradually formed a culture of aggressiveness, innovation,

and accountability. 6. Establishment of the hierarchical rehabilitation model in Yunnan has given a sense of gain to rehabilitation service staff in terms of real increase of income and promising career development prospects. The income of rehabilitation doctors, rehabilitation therapists (abbreviated as technicians) and rehabilitation nurses has increased significantly in the two years. In many medical institutions involved, the income growth rate of all types of employees in both the two years has exceeded 20%, some even reaching 75%.

Conclusion: Application of the General System Theory model and the Learning Cycle Theory model in the construction of hierarchy rehabilitation system model in Yunnan is appropriate and worth popularizing. The results of the hierarchy rehabilitation system model in Yunnan have reached the expected objectives of the three stakeholders of the government, the general public (patients), as well as the medical institutions and their employees, so the model has reached a first-class level. The expert consultation standards which have undergone multiple rounds of expert discussion provide visible targets and orientation for the supervision and homogeneous standardization of hierarchy rehabilitation system model in Yunnan. They ensure the successful construction of the hierarchy rehabilitation system model in Yunnan and are worth popularizing. This shows that the criteria set by the experts team, the process and the results of the demonstrative model of standardized tiered rehabilitation system in Yunnan Province can provide a scientific learning basis for building regional rehabilitation systems in a rapid and standardized way.

Resumo

O modelo do sistema de reabilitação hierárquico da Província Yunnanfoi concebido comoumreferencial para a implementação de um sistema de reabilitação estruturado em três níveis, de modo a responder às necessidades dos doentes nas diferentes fases da sua reabilitação funcional.

Como guias metodológicos foram adotadosa Teoria Geral dos Sistemas e o LearningCycleTheory, entre outros contributos teóricos considerados relevantes.

Os investigadores participantes supervisionaram a operacionalização do sistema e avaliaram as instituições de cada um dos três níveis, quanto àestrutura, ao processo e à eficiência operacional.

Quanto aos resultados houve uma clara perceção dos ganhos obtidos em várias dimensões. Pelo lado das instituições governamentais, pela redução dos recursos utilizados e pela maior mobilização e empenhamento dos profissionais e por parte dos doentes, pela maior rapidez de resposta às suas necessidades e a uma redução do tempo da sua reintegração no mercado de trabalho. A reputação deste sistema implicoutambém ganhos significativos nas receitas obtidas, que aumentaram em mais de 10% em dois anos, tendo mesmo algumas serviços atingido incrementos de 89,6%.

A mudança de cultura organizacional das instituições envolvidas,no sentido da inovação e da proatividadeé também um facto a reter com particular relevância.

Como conclusão, poderemos referir que este modelorespondeu as expectativas de todos os stakeholders, desde o governo, aos doentes e ao público em geral, bem assim como às das instituições de saúde implicadas e os seus profissionais.

Deste modo, este modelo pode fornecer contributos sustentados de aprendizagem para a conceção e implementação de sistemas de reabilitação regional de um modo rápido e estruturado.

Palavras-chave: Reabilitação;centros de reabilitação; modelo hierárquico de reabilitação
JEL: D02; I18

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摘 要

通过构建云南分级康复体系模型为构建规范的三级康复体系提供参考，从而满足患者疾病治疗全病程中分阶段功能康复需求。

研究方法: 1. 以"一般系统论理论"模型为指导在云南省进行康复中心、康复分中心和康复站点分级康复体系模型组织结构建设，对他们进行规范化分级康复硬件建设形成康复三级规范化体系示范性体系结构模型。2. 以"学习圈理论"模型为指导对康复三级规范化体系示范性单位的患者康复管理进行统一规标准范化培训，定期对这些单位患者康复管理工作的标准执行情况进行指导、督导和总结，构建云南分级康复体系模型运行质量同质化管理效率，形成康复三级规范化体系示范性体系运行模型。3.分析康复三级规范化体系中参建各级医疗机构运行参数，根据分析结果对康复三级规范化体系模型的结构流程和运行效率进行评价。

结果: 1. 政府在社会资源消耗减少和社会可动员劳动力的增加方面有了明显获得感。2. 康复医疗模式的实施大大提高了对政府卫生政策满意度，为政府塑造了良好的诚信形象。3. 接受康复患者得到了病痛短程解除、自然全病程支付减少和劳动力再次恢复创造收益增加的获得感。4. 云南分级康复体系模型构建让参建各医疗机构有了实实在在增加效益和赢得声誉的获得感。很多单位的两个年度门诊人次、住院人次和康复服务总收入各项增长率均超过 10%，有的甚至达到 89.6% 的增长。5. 参建体系的各医疗机构在体系构建中逐渐形成了积极进取、不断创新、勇于担当的文化氛围。6. 云南分级康复体系模型构建让康复体系服务的相关人员有了实实在在收入增加和广阔职业发展前景的获得感。从事康复的医生、康复治疗师 (简称技师)和康复护士收入两个年度都有较大幅度增长，很多单位的两个年度各类人员收入增长率均超过 20%，有的甚至达到 75% 的增长。

结论: 云南分级康复体系模型构建过程中运用的"一般系统论理论"模型、 "学习圈理论"模型是合适的、恰当的，有推广借鉴价值；云南分级康复体系模型构建结果达到了使政府、百姓 (患者)、医疗机构及其员工三个利益方均满意的预期目标，所以达到了上等医疗模式水平；经多次专家论证的"构建云南分级康复体系模型" 专家组论证标准为督导和同质化规范"云南分级康复体系模型"构建提供了可见性目标和方向，保障了"云南分级康复体系模型" 成功构建，有很好的推广价值。由此可见,云南分级康复体

系模型构建的专家组论证标准、过程及结果可以为区域性康复体系快速规范化构建提供科学借鉴依据。

关键词：康复；康复中心；康复分中心；康复站；分级康复；模型

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Chapter 1: Introduction

The goal of modern medicine is more than cure diseases, but to restore functional ability that patients have lost due to diseases, to help them return home and society, and enhance their quality of life (Chen, Ni, Chen, Li, Sun, Liu & Han, 2008). Such goal of treating diseases in modern medicine cannot be properly achieved without a comprehensive rehabilitation system to help patients restore their functions and come back to their homes and the society. Under the said rehabilitation system, the rehabilitation services are clearly tiered and customized to meet the needs of patients at different treatment and function stages. An assessment should be done immediately to check to what degree a patient has lost his or her function due to diseases even when the patient is medically unstable. Based on the assessment results, a rehabilitation plan shall be made and implemented in sync with treatment at the medically unstable stage in hope of preventing the patient from losing more abilities and helping with restoring functions. Under the tiered rehabilitation system, the early rehabilitation conducted in sync with treatment at medically unstable stage is referred to as level III rehabilitation, which is done by the rehabilitation department of general hospital and specialized rehabilitation hospital, namely the rehabilitation center. When the inpatient clinical treatment of acute period ends, the patient starts the clinical treatment for medically stable stage in which his or her medical conditions are under control. At this stage, the patient needs to stay in the rehabilitation institutions and restore the functional ability deprived by diseases. A new assessment of function should be done as soon as the patient becomes medically stable. Based on the assessment results, a rehabilitation plan shall be made and implemented to prevent the patient from losing more abilities and to restore functions. Under the tiered rehabilitation system, the mid-phase rehabilitation conducted at the stable stage of cured diseases or controlled medical conditions is referred to as level II rehabilitation, which is done by the rehabilitation department of primary hospital, namely rehabilitation sub-center. Level II rehabilitation continues and extends the results of level III rehabilitation. When the patient enters the later stage that his or her disease is clinically cured and begins the stage of recovery, another assessment should be done to check the functions that the patient has lost due to diseases. Based on the assessment results, a rehabilitation plan shall be made and implemented to ensure that after discharge some functions be restored as much as possible, no more abilities be lost and the functions that cannot be improved be maintained at current level which may also be called limited

function maintenance. Under the tiered rehabilitation system, the late rehabilitation conducted at the later stage that the patient's disease is clinically cured and the recovery starts is referred to as level I rehabilitation, which is done by community based rehabilitation institutions, namely rehabilitation stations. Level I rehabilitation continues and extends the results of level III and level II rehabilitation. As level III rehabilitation (early rehabilitation) is the foundation and key to level II rehabilitation (mid stage rehabilitation) and level I rehabilitation (late stage rehabilitation), prompt and overall level III rehabilitation will make it easier to standardize level II and level I rehabilitation, speed up the standardization process and lead to better functional rehabilitation outcomes. As level I rehabilitation is the extension and enhancement of level II and level III rehabilitation, standardized and complete level I rehabilitation will make it easier to maintain, prolong and strengthen the outcomes of level II and level III rehabilitation, which results in better functional rehabilitation and shorter time needed for patients to return home and the society. As level II is the transition and consolidation of level III and level I rehabilitation, timely and comprehensive level II rehabilitation will bring better connection and satisfactory functional rehabilitation.

At present, there is no difference between China's grade three general hospitals and developed countries in terms of patients' average hospital stay for clinical treatment of diseases. However, follow up shows that the time for functional rehabilitation in China is much longer than that of developed countries and the recovery effect of some functions is not so satisfactory as that of developed countries. The fundamental reason is that in developed countries, patients have access to rehabilitation plans at the earliest possible time to start functional training at different stages of clinical treatment of diseases (the first stage of rehabilitation, namely level III rehabilitation), however (Malkoc, Karadibak, & Yildirim, 2009; Bourdin, Barbier, & Burle, 2010), in China, patients seldom, even never, obtain such early rehabilitation plans to help them restore functions at the stage of clinical treatment of diseases (the first stage of rehabilitation, namely level III rehabilitation).

So far, in developed countries or regions such as Britain, the United States, Australia, Canada, Taiwan (Lin, Cheng, Shih, Chang, Chu, & Tjung, 2013) and Hong Kong, patient discharge plan provided at the time a patient finishes the inpatient clinical treatment of diseases in the medically unstable period is regarded as the most important guarantee of continuous medical service. Relevant policies and regulations (Omnibus Budget Reconciliation Act, 1986) have been formulated to ensure and promote the smooth implementation and development of the discharge plan that is offered at the time a patient ends the inpatient clinical treatment of diseases in the medically unstable period. The core of the patient discharge plan given at the time a patient

finishes the inpatient clinical treatment of diseases in the medically unstable period is to make arrangements about where the patient should go to get subsequent rehabilitation services (second stage rehabilitation, namely level II rehabilitation) (Office of the Chief Psychiatrist of Australian, 2014). In China, since patient discharge plan provided at the time a patient finishes the inpatient clinical treatment of diseases in medically unstable period is still under exploration (Department of Health of United Kingdom, 2010) , rehabilitation institutions have no standardized guidance to follow in medical techniques and are short of beds, most patients have no idea of where to get rehabilitation services after discharge (second stage rehabilitation, namely level II rehabilitation) (He, Li, & Zhao, 2013; Xu & Ma, 2013; Wang & Cheng, 2013; Shang, 2013; Wang, 2013; Wang & Zhang, 2013).

Though some patients in China have obtained good rehabilitation in the first stage and the second stage, the rehabilitation institutions that are supposed to deliver the third stage rehabilitation services are not ready and have no standard of tiered rehabilitation system to follow, these patients do not know how to do the continuing rehabilitation to restore possible functions and maintain the gained limited functions (level I rehabilitation), which will cause them lose the functions they recovered from previous stages (level III and level II rehabilitation) and fail to maintain the gained limited functions. As a result, the continuing rehabilitation to help patients constantly restore or maintain their functions stays only in theory.

In recent years, China has reached nearly the same level with developed countries in terms of clinical treatment for diseases. However, Chinese patients are still experiencing slow and unsatisfactory functional rehabilitation after the diseases are cured. As for this problem, can we introduce early rehabilitation plan (the first stage of rehabilitation, namely level III rehabilitation) at the same time of clinical treatment for diseases based on China's status quo? This can not only prevent subsequent dysfunction but also promote early functional rehabilitation for the patients. Besides, can we provide subsequent rehabilitation plans for discharged patients in need of functional training (the second stage rehabilitation, namely level II rehabilitation) at the time when they finish the disease clinical treatment in medically unstable period? By doing so, we can not only prevent patients from losing the gained function but also ensure the consistency of rehabilitation. Can we provide maintenance rehabilitation (the third stage rehabilitation, namely level I rehabilitation) for patients who are unlikely to improve the existing functional ability? By doing this, we will be able to prevent deterioration and maintain the recovered functions. The functional rehabilitation will then be in consistency.

To tackle the problem of the vague function assessment at different stages of rehabilitation in the function recovery period following the patients' completion of disease treatment, can we

formulate standardized criteria to define different stages for rehabilitation assessment? Can we work out the criteria to establish and run rehabilitation institutions to offer rehabilitation services for patients at different tiers (rehabilitation centers, rehabilitation sub-centers, rehabilitation stations)? If these plans can be positively responded and implemented, we can not only carry out standardized rehabilitation services by stages for patients and improve the running efficiency of rehabilitation institutions, but also avoid the wasting of medical resources.

Chapter2: Research Background

2.1 Relevant Study and Analysis of Rehabilitation Medicine

2.1.1 History of Rehabilitation Medicine

The appearance of the concept of rehabilitation in sync with disease treatment in Chinese medicine can be dated back to as early as 2,500 years ago when there were records about disease treatment and body building by utilizing sunlight and water, Tao Yin (special way to breathe and exercise in ancient China), various Chinese boxing, medical gymnastics, massage and acupuncture and moxibustion. For example, Yellow Emperor's Canon on Medicine, the earliest Chinese medical masterpiece which was compiled around 400B.C. emphasized the application of massage, Tao Yin, heat therapy and acupuncture to facilitate functional recovery while treating diseases like numbness, paralysis and muscle contracture (Wang, 1955). At the end of the 19thcentury, when industrialized countries began applying high frequency electric to thermal therapy, physical medicine gradually took shape. In the early 20thcentury, although an independent rehabilitation medicine discipline had not taken shape, some western countries established institutions for disabled and wounded soldiers to rehabilitate and promote their ability for employment after the First World War (Wang, 2004). During the Second World War, American physiatrist Howard A. Rusk relatively completed elucidated the concept of rehabilitation. He put forward a series of comprehensive active functional training program that required collaboration of multi disciplines and called for physical, mental and social rehabilitation (Dai, Wang, & Zhuo, 2002).The programs led to the construction of a number of rehabilitation centers in western countries and enabled rehabilitation medicine to develop into a brand new medical specialty –modern physical medicine and rehabilitation or rehabilitation medicine on the basis of the original physical medicine (Li, 2012). During the 1960s and 1980s, rehabilitation medicine enjoyed great development in empirical medicine, yet it was short of scientific evidence (He, 2000). Since the 1990s, rehabilitation medicine has been improved in terms of research methodology, and now can be regarded on the path of sound development of "evidence-based medicine". In recent years, international rehabilitation medicine community has done a good deal of researches and clinical work in aspects such as neurological rehabilitation, osteoarticular system rehabilitation, splanchnic system rehabilitation, treatment of chronic pain, pediatric rehabilitation, geriatric rehabilitation,

cancer and AIDS rehabilitation. Europe, the United States, and Japan take the lead in modern rehabilitation medicine. Currently, rehabilitation medicine shows a trend of multi-polarization in various countries (Chang, 2012; Zheng & Zheng, 2013; Dai, 2011; Cheng & Zhang, 2013; Ma & Ji, 2013), while in Europe, it shows a trend of "integration". Federation of European Academies of Medicine has "Department of Physical and Rehabilitation Medicine" with members from over 20 countries. The rehabilitation systems in different European countries may differ, but the rehabilitation medicine in Europe have similar treatment methodology and management mode due to close medical systems, academic exchanges and medical education. All these have contributed to the overall development of the rehabilitation medicine in Europe (Ding, Li, & Sun, 2009). In general hospitals centering on the treatment for acute diseases, functional rehabilitation relies mainly on specialized rehabilitation medical institutions. D Wade, a British rehabilitation expert, has put forward a new perspective of rehabilitation: a. rehabilitation should not center on some experts' theories and assumptions, and overlook the real needs of patients. It should be based on the patients' actual condition and be patient-centered, aiming at meeting patients' needs for functional recovery; b. functional training shall not stay the same forever. Instead, it should relate to the patient's activities of occupation, work and daily life. The purpose of the training shall not be only reducing clinical condition and impairments; otherwise it is not effective functional training; c. rehabilitation shall not be restricted to the 5% daytime of functional training implemented by therapists. Patients should be encouraged to try their best to do frequent functional exercises. It will be great to put patients in a skill-learning environment; d. the specific rehabilitation needs of an individual patient cannot be satisfied without collaboration of family and participation of diversified disciplines (Wade & Hewer, 1983). International community attaches great importance to the development of global rehabilitation. In order to reduce disability, it has been advocated that the special laws and regulations for the disabled should emphasize early intervention and stress that the value of rehabilitation lies in improving functions for people under all health conditions, and that rehabilitation services should be made available as close to domicile as possible (WHO & The World Bank, 2011). Detailed action plan has been formulated particularly for the disabled regarding strengthen and promote rehabilitation, adaptive training, assistive technology, aid, supporting services and community-based rehabilitation (WHO, 2014). To sum up, rehabilitation medicine has become an indispensable part of modern medicine.

2.1.2 Importance of Rehabilitation Medicine

Modern rehabilitation medicine has developed into a comprehensive discipline that studies

the psychological and physical function rehabilitation for the injured, ill and disabled patients. It aims at helping patients restore psychological and physical functions to the fullest extent, and recover living, moving and occupational abilities as much as possible to get back to normal life. Methods adopted include and not limited to physical therapy, occupational therapy, speech therapy, psychological counseling and sports therapy. As one of the four components of modern medicine, namely prophylactic medicine, clinical medicine, rehabilitation medicine and health medicine, rehabilitation medicine is a comprehensive medical discipline (Guo & Qiao, 2009). World Health Organization (WHO) regards rehabilitation medicine, clinical medicine, prophylactic medicine and health medicine as the basic functions of a modern hospital. These four disciplines are closely intertwined and interrelated with each other instead of following any one in time sequence of usage.

2.1.2.1 Relations between Rehabilitation Medicine and Prophylactic Medicine

Rehabilitation medicine involves prophylactic medicine. Its primary prevention is to prevent diseases through exercises, good habits and other positive measures to reduce the possibility of dysfunction. After diseases break out, many diseases need active intervention of rehabilitation to prevent the dysfunction from forming or worsening to disability. This is the secondary prevention of rehabilitation medicine. If dysfunction already takes place, rehabilitation training can actively intervene to prevent deterioration or further worsening. This is the tertiary prevention of rehabilitation medicine (Li & Wang, 2017).

2.1.2.2 Relations between Rehabilitation Medicine and Health Medicine

Health medicine focuses on enhancing people's own immunity to strengthen resistibility against diseases and adaptability to environmental changes via positive actions and active exercises. This is consistent with the goal and concept of rehabilitation medicine. And the two disciplines are even more consistent with each other in basic measures (Li, 2017).

2.1.2.3 Relations between Rehabilitation Medicine and Clinical Medicine

The process of rehabilitation treatment often involves clinical treatment. Moreover, on many occasions, clinical patients need simultaneous rehabilitation intervention. For instance, patients suffering from cerebral trauma, cerebral apoplexy(Fang, Li, & Yan, 2013; He, Xie, & Xu, 2013; Huang, 2013; Zha, Chen, & Tang,2013), spinal cord injury (Run & Yang, 2013), myocardial infarction (Si, 2013; Zhang, 2000; Cardiovasology Branch of Chinese Medical Association, Professional Committee of Cardiovascular Diseases of Chinese Medical Association, Professional Committee of Cardiovascular Diseases of Gerontological Society of China, 2013), pulmonary

embolism (Lu, 2013; Sheng, 2006), or bone and joint injury all need functional exercises and early ambulation to quicken functional rehabilitation and shorten hospital stays to return to society as soon as possible. To survive in large general hospitals, department of rehabilitation medicine shall actively intervene and coordinate at early stage of clinical treatment of diseases to make itself a basic unit in hospital structure. Rehabilitation medicine and clinical medicine are always closely intertwined with each other in acute and subacute stage.

2.1.3 Social Factors of the Development of Rehabilitation Medicine

As society develops, people have access to better medical techniques and enjoy longer life expectancy (Ling, 2002). However, we also see more serious aging related diseases, chronic diseases and injuries from accidents (Ling, 2002). Patients expect to restore optimal functions and improve their life quality. This is also the ultimate goal of modern rehabilitation medicine which aims at the physical and mental health of the society as a whole. As the growth of living standards is one of the major driving forces for the development of modern rehabilitation medicine, the developed countries are currently leading in rehabilitation medicine. Take the UK for instance, one of the former leading countries in Europe, reached around £20,000 GDP per capita according to the data released in 2011 (Office for Disability Issues of United Kingdom, 2011). Its rapidly developing rehabilitation medicine has become a reference for developing countries. According to China's National Bureau of Statistics, China's per capita GDP has reached 6,905 US dollars in 2013. Its nearly 7,000 US dollars has made China march into list of middle-income countries. We are experiencing a transformation from a subsistence-oriented society to a development-oriented one, with people's consuming behavior showing more concern about health. Chinese people have new expectations towards improvement in health and life quality. It is predicted that there are approximately 162.48 million people in China in urgent need of rehabilitation therapy, accounting for 12.0% of the nation's total population, and there is good chance that the number will continue to grow (Zhuo, 2011).

2.1.4 Status Quo of Rehabilitation Medicine around the Globe

The European healthcare system and the US healthcare system are currently typical representatives of the healthcare system in developed countries. Their rehabilitation medical systems are also a mirror of high level rehabilitation medical system around the globe. As Britain is relatively typical in the European system, a brief introduction to its rehabilitation medical system and that of the US will be given as follows.

2.1.4.1 Introduction to British Rehabilitation Medical System

In the UK, medical care is divided into primary and secondary care (also known as acute care including emergency and selective care). Rehabilitation medical care is classified in selective medical category. Rehabilitation treatment is implemented by rehabilitation departments or institutions under the secondary care branch. Only inpatients and the patients who are referred by General Practitioner (GP) can get rehabilitation services. For this reason, discharged patients need to have referrals made by GP to be eligible for free rehabilitation services in the rehabilitation departments of general hospitals and community rehabilitation centers provided by National Health System (NHS) since 1948. Under the guidance of the concept of physical-psychological-social medical model, the division of labor at all levels of rehabilitation settings is clear. Large comprehensive rehabilitation centers are rare in the UK. It is more common to have rehabilitation departments which offer early rehabilitation in general hospitals and specialist rehabilitation institutions with certain focus in some area of their respective specialty. In general, the rehabilitation departments of the general hospitals, the specialist rehabilitation institutions, the community rehabilitation centers, the day rehabilitation clinics and the military rehabilitation centers respectively bear different rehabilitation functions, which constitute the British tiered rehabilitation system (Xie & Wang, 2009). In order to standardize the implementation of tiered rehabilitation, British Society of Rehabilitation Medicine (BSRM) published BSRM Standards for Rehabilitation Services Mapped on to the National Service Framework for Long-Term Conditions (hereinafter referred to as BSRM standards) in 2009. It emphasizes that: a. the process management of rehabilitation should be "early rehabilitation of specialist institutions–community rehabilitation – vocational rehabilitation"; b. a suitable rehabilitation institution should be made available for every 1-3 million population; a minimum of 60 beds per million population should be arranged; the minimum size of an inpatient specialist rehabilitation unit should normally be around 20 bed; rehabilitation facilities are also required for a specialist rehabilitation unit (UK, BSRM, 2009). In the UK, rehabilitation plan is detailed and comprehensive. It fully considers the rehabilitation needs of the patients as well as their needs to adjust to normal life. Rehabilitation resources at all levels are made full use for patients, which forms a continuous rehabilitation service chain linking constitutional rehabilitation and community rehabilitation and facilitates the process of "admission – discharge – returning to home and community" (Xie & Wang, 2009).

2.1.4.2 Introduction to American Rehabilitation Medical System

The US has a sound rehabilitation system. It is very common that the concept of rehabilitation

has been implanted in the behavior of medical staff. Rehabilitation interventions happen at early stage, for example, as long as the vital signs are stable after heart or lung surgery, rehabilitation training must be implemented on the second day after surgery. The vital signs during the whole training process will be monitored by a complete set of adequate facilities (Qiu, 2015). First the medical institution conducts a comprehensive assessment of the specific condition of the patient in need of rehabilitation, the medical insurance coverage, the family's financial support intention and other relevant factors, and then it will arrange appropriate rehabilitation institutions for the patient. Rehabilitation institutions that can be referred to include emergency medical institutions, emergency rehabilitation institutions, subacute rehabilitation facilities, licensed nursing institutions, long-term nursing institutions, and rehabilitation settings at home and community levels. They are responsible for delivering rehabilitation services at different levels. Emergency medical institutions usually carry out early bedside rehabilitation; emergency rehabilitation institutions take patients with stable condition who can do 1-3 hours active rehabilitation training a day; subacute rehabilitation facilities are responsible for the patients with stable condition who can do at least 3 hours intensive rehabilitation training a day; licensed nursing institutions are in charge of the stable patients who lose self-care ability or in vegetative state; long-term nursing institutions deliver rehabilitation services to the patients who need day to day care, who lose self-care ability or in vegetative state; rehabilitation settings at home or community levels provide rehabilitation treatment for the patients who are capable of independent living and have good function recovery (Jiang, 2010).

The US has strict criteria for managing rehabilitation inpatients. As their goal of rehabilitation is for patients to return home or community after discharge, a series of function assessments will be done at the time of admission and the results will be noted in the patients' medical history, covering the expected rehabilitation training content, function improvement degree and the time needed. Compared with the function state at the time of admission, the functional improvement after rehabilitation treatment is supposed to be of practical value, sustainable and lasting. The key of rehabilitation treatment lies not only in patient centered rehabilitation, but also in the use of durable home medical devices to do rehabilitation training, and the education of patients and their families. All these measures will prepare patients for safe return to their homes or community environment (Qiu, 2015). Patients will be referred to different rehabilitation facilities after discharge in accordance with their function state. 1. Those patients who have self-care risk, no self-care ability and poorer function will be referred to specialist nursing facilities to receive rehabilitation treatment and care; 2. Those who have family support, fall risk and self-care ability will stay at home and be provided on-site service by therapists; 3. Those who have good self-care

ability and relatively good function will be arranged to receive rehabilitation treatment at day outpatient clinics (Jiang, 2010).

2.1.5 Status Quo of Rehabilitation Medicine in China

The development of rehabilitation medicine is closely related to the level of economic development. Among developing countries, the economic scale and the level of development differ greatly from one another. Although China is a developing country, it is in the leading position in terms of both economic scale and the level of development. Since other developing countries have no equivalent rehabilitation system nor accurate complete literature on development experience of rehabilitation for China to learn from, China has to explore its own way based on the experience of developed countries and its own economic and social development status. In China, different regions differ greatly in terms of economic scale and the level of development. For example, Hong Kong, Taiwan, Beijing, Shanghai and Guangzhou are comparable to the big cities in developed countries. But China's western region is still poor and backward. Despite the fact that China has promulgated national guidelines for the construction and developing of rehabilitation system, different regions have explored respectively their own way of setting up and advancing the rehabilitation system based on their conditions. In summary, although China initiated rehabilitation for people with disabilities in as early as the 1950s, such rehabilitation was only available in rehabilitation hospitals for the disabled, hospitals for disabled soldiers and military sanatoriums. There were few medical rehabilitation services being delivered elsewhere back then. After the 1980s, China's rehabilitation cause began to rise, but the development of medical rehabilitation services was extremely unbalanced(Li, 2011). China's modern rehabilitation didn't enter a new era until 2012 when Ministry of Health of the People's Republic of China [MOHC] released a guide again on the development of rehabilitation by promulgating Rehabilitation Hospital Basic Standards (2012 Edition).

2.1.5.1 Status Quo of Rehabilitation Medicine in Hong Kong

The Government of Hong Kong, the Hospital Authority and the community all attach great importance to rehabilitation. The objective of Hong Kong's rehabilitation services is to provide medical rehabilitation and full support to help persons with injury, illness and disabilities develop their physical functions and living capabilities to the fullest extent by all means including overall medical care, person-centered and the whole person rehabilitation (He, Li, & Shi, 2008). Hong Kong has successfully facilitated the improvement of the level of rehabilitation treatment of relevant clinical disciplines by launching technical training programs to cultivate rehabilitation

professionals which cover stroke rehabilitation (Chen & Tao, 2012), pediatric rehabilitation (Jia, 2015) and community rehabilitation (Chen & Lin, 2011) and so on. The measures taken also helped achieve the purpose of narrowing the gap of rehabilitation expertise level among different rehabilitation institutions. Meanwhile, the development of rehabilitation sub disciplines has been facilitated as well. In Hong Kong, medical services are mainly delivered by public hospitals. The medical expenditure keeps increasing to fit people's demand for medical services. In order to facilitate patients' recovery and shorten their length of stay in the hospital, the Government of Hong Kong attaches great importance to the input on rehabilitation system. It has offered strong support for the development of medical rehabilitation services in all aspects of talent development, equipment allocation, informatization, policy guidance and so on. In recent years, Hong Kong has established and converted a number of rehabilitation departments into general hospitals, specialized rehabilitation hospitals, day care rehabilitation centers and has improved the community rehabilitation network. An operation mode that features increasing input from the government, active participation from hospitals, full support from community and close cooperation from patients and their families has been formed in Hong Kong. All the major aspects concerning rehabilitation have been equally valued, including rehabilitation medicine education, clinical medical rehabilitation, vocational rehabilitation and social rehabilitation. Hong Kong's rehabilitation services are mainly delivered via three levels by (Pan, 2010): a. the rehabilitation department of the general hospital which sets up psychology unit, physiotherapy unit, speech therapy unit, orthopedic unit, occupational therapy unit, social service unit and etc. to address the rehabilitation needs of persons with injury, illness and disability, post-surgery patients referred by other clinical departments within the same hospital, patients with non-surgical acute diseases and patients attacked by acute exacerbation of chronic diseases. The rehabilitation department of the general hospital has a very high level of rehabilitation expertise and medical technique. It is capable of serving patients with brain trauma, paraplegia, spinal cord injury and post cardiac surgery, and instructing specialized rehabilitation hospitals and non-general hospitals on medical rehabilitation technique; b. the specialized rehabilitation hospital which mainly provides medical rehabilitation services for patients referred by local general and non-general hospitals suffering from cardio- and cerebral-vascular diseases, chronic diseases, geriatrics, psychosis. These hospitals also offer in- and out-patient medical rehabilitation services to local patients with injury and disability. Such medical settings as the newly-built Kowloon Hospital and Shatin Hospital are established and equipped with appropriate devices and personnel depending on its needs of serving dysfunctional patients, ill patients, disabled patients who require function recovery and returning home and society; c. community rehabilitation network which is managed by Hong Kong

Association of Rehabilitation Medicine rather than the Hospital Authority. Such settings are mainly engaged in providing the disabled and ill persons from within the community with ordinary physiotherapy, health education, occupational therapy, lectures, mental consultation and treatment, outdoor training and rehabilitation training for facilitating their return to society. Compared with western countries, the rehabilitation system in Hong Kong is more reasonable in terms of development speed, institution size and layout. The rehabilitation institutions in Hong Kong are advantageous in more complete functions and sound management system.

2.1.5.2 Status Quo of Rehabilitation Medicine in Shanghai

Despite the fact Shanghai has reached the average level of developed countries regarding economy and health matters, the quantity and quality of rehabilitation professionals fall far behind from actual demand and from the establishment criteria on medical rehabilitation settings set out by the National Health and Family Planning Commission of China (Zheng, Yu, & Zhang, 2013). In general, the overall comprehensive service capacity of various types of medical rehabilitation settings is seriously insufficient (Dou, Zhou, & Li, 2017). Current problems include a. the number of rehabilitation beds in rehabilitation hospitals that provide medical rehabilitation services has fitted the requirement stated in Rehabilitation Hospital Basic Standards (2012 Edition) (MOHC, 2012), but still is far from enough to satisfy the actual demand for medical rehabilitation services. The existing staffing ratio of rehabilitation professionals to beds is: 0.12 (doctor), 0.25 (physiotherapist) and 0.17 (nurse) (Dou, Zhou, & Li, 2017), which is severely in short compared to the corresponding requirements of 0.12(doctor), 0.30 (physiotherapist) and 0.30 (nurse) set out by Rehabilitation Hospital Basic Standards (2012 Edition) (MOHC, 2012). In Shanghai, like elsewhere in China, 28.24% of medical rehabilitation professionals have never received standard rehabilitation training (Dou, Zhou, & Li, 2017). Their poor academic qualifications and low work titles affect their capabilities of delivering medical services (Dou, Zhou, & Li, 2017); b. Current rehabilitation hospitals have many problems in medical rehabilitation service capacities (Dou, Zhou, & Li, 2017). For example, the efficiency and allocation of resources like beds, equipment and workforce (Dou, Zhou, & Li, 2017). All rehabilitation hospitals are challenged by severe insufficiency of rehabilitation professionals, weak rehabilitation foundation, and shortage of modern rehabilitation equipment and inadequate use of such equipment (Dou, Zhou, & Li, 2017). Insufficiency of rehabilitation professionals has restricted the exertion of medical rehabilitation capacities. Some rehabilitation hospitals are not using their resources effectively even when they have modern rehabilitation devices and are required with required number of beds due to lack of rehabilitation professionals (Dou, Zhou, & Li, 2017). Appropriate number of advanced

rehabilitation equipment and the ability to use such equipment properly are vital parts to ensure the quality of modern medical rehabilitation services (Dou, Zhou, & Li, 2017). As there are no official price standards for many modern medical rehabilitation services that are delivered using new advanced equipment, cost recovery is slow and the depreciation of equipment is fast, some rehabilitation hospitals are hesitated to buy expensive high-tech equipment (Dou, Zhou, & Li, 2017). Though some rehabilitation hospitals bought advanced rehabilitation equipment at the time of establishment for the purpose of satisfying the requirements set out in Rehabilitation Hospital Basic Standards (2012 Edition) (MOHC, 2012), they have not made effective use of these equipment (Dou, Zhou, & Li, 2017). Rehabilitation hospitals shall, based on the demand of rehabilitation services of the regions they serve, equip themselves with modern rehabilitation resources covering medical devices, beds and rehabilitation professionals according to the minimum requirement (Dou, Zhou, & Li, 2017). Then step by step, they shall make plans and buy advanced rehabilitation equipment in line with international standards to meet their needs for specialty and development plan with the aim of improving fully their medical rehabilitation capacities (Dou, Zhou, & Li, 2017); c. Smooth referral mechanism is the core of the effective operation of medical rehabilitation system. Two-way referral path ensures patients in need of medical rehabilitation can get continual complete rehabilitation services and have access to timely diagnosis and clinical treatment when they suffer from sudden changes in condition (Dou, Zhou, & Li, 2017). Rehabilitation hospitals are the center of the two-way referral path in medical rehabilitation system, playing an important role in connecting grade three general hospitals and community health care facilities in serving patients (Dou, Zhou, & Li, 2017). As early as in 2012, Shanghai formulated a guideline on referral service for medical settings titled Technical Standards of Graded Two-Way Referral of Medical Rehabilitation Services in Shanghai Municipal (SMHB, 2012). Yet until now the referral path of rehabilitation hospitals is still stuck in a dilemma where neither referred-in nor out works. A survey covering five rehabilitation hospitals in Shanghai shows that only two of them have referral contracts with other medical institutions. The number of patients they admitted via referral just totals 536 a year and the number they referred to other institutions totals only 56 a year (Dou, Zhou, & Li, 2017). The following two things are hindering the two-way referral. A. The weak foundation of insufficient beds, inadequate rehabilitation modalities and medical professionals in rehabilitation hospitals has severely hindered their capacities of admitting patients and providing medical rehabilitation services. As a result, their role in forming referral mechanism has been weakened. B. The fact that rehabilitation medical workers and patients are unaware of the importance of referral, and that rehabilitation service providers are unable to identify specific rehabilitation functions, causing the two-way referral system in vain

(Dou, Zhou, & Li, 2017). Measures like preferable economic regulations and policy guidance can lead patients to be referred among different rehabilitation institutions orderly and build a two-way referral path where patients can be referred in and out as necessary. Besides, the medical rehabilitation service providers shall improve their capacities to make the "refer in" path work and furnish them with comprehensive professional medical rehabilitation services. In addition, primary health care institutions shall improve their expertise to serve the recovery patients with basic medical rehabilitation and make the "refer out" path work.

2.1.5.3 Status Quo of Rehabilitation Medicine in Yunnan Province

The rehabilitation medicine in Yunnan Province is currently composed of three parts, namely medical rehabilitation, work related injury rehabilitation and disability rehabilitation. Work related injury rehabilitation is carried out by independent designated institutions. Disability rehabilitation is delivered by independent non-medical institutions. Medical rehabilitation falls far behind the needs of patients. It was once reported that an elderly woman who suffered from gastric perforation healed in a big grade three level A hospital but lost walking ability. Similar cases keep occurring every day in substantial amount.

In Yunnan Province, due to the undeveloped economy, low efficiency in policy implement, inappropriate concept and self-expanded discretion of medical insurance administration and managing personnel, most medical institutions just put forward the vision to carry out medical rehabilitation without action fulfilling such vision. Real medical rehabilitation is carried out in only a few general hospitals with grade three level A in Kunming City, the capital city of Yunnan Province, such as the Second Affiliated Hospital of Kunming Medical University, Yunnan Red Cross Hospital and the Third People's Hospital of Yunnan Province. Other medical institutions, including some with the word rehabilitation in their names, are mainly engaged in the rehabilitation that is based on traditional Chinese medicine, which are far from establishing rehabilitation system and network. The medical, teaching and research capacities of the rehabilitation department of the Second Affiliated Hospital of Kunming Medical University and Yunnan Red Cross Hospital are among the first class in China. While when speaking of building rehabilitation system, the requirements stipulated by the government are not met even in Kunming City. As a major grade three level A general hospital in Yunnan Province, the Rehabilitation Department of the Second Affiliated Hospital of Kunming Medical University planned to establish a rehabilitation system in which the needs of society, the hospital and patients are all satisfied. It planned to act as medical rehabilitation technique leader and instructor to integrate the medical rehabilitation resources within the region by the means of vocational education, specialty-led

training programs and business collaboration (Xiao & Zhao, 2012). However, until now the Second Affiliated Hospital of Kunming Medical University has only built referral relationship with three grade-two hospitals, both public and private, the range of which hasn't extended to community health care centers, let alone the medical rehabilitation resources in community (Xiao & Zhao, 2012). At one time, Kunming City made an attempt to explore the establishment of medical specialized rehabilitation hospitals. The Second People's Hospital of Kunming City was then converted into Yunnan Rehabilitation Hospital. Unfortunately, the Hospital still positioned itself as a general hospital featuring rehabilitation and geriatric treatment (Xiao & Zhao, 2012). As a result, it failed to make distinction between medical rehabilitation and clinical treatment, set clear development direction of specialty and characteristics or build effective referral relationship and information network with other general hospitals and specialist hospitals. The Hospital did not achieve greater development in its medical rehabilitation capacities (Xiao & Zhao, 2012). The community health care centers affiliated to the Hospital didn't develop well because their services had excessed the range and positioning supported by relevant policy (Xiao & Zhao, 2012). In the end, the conversion of the Second People's Hospital of Kunming City into Yunnan Rehabilitation Hospital failed to facilitate the development of the medical rehabilitation system in Kunming and turned out to be in vain (Xiao & Zhao, 2012). Across Yunnan Province, only hospitals at city level or equivalent in 8 out of 16 prefectures / cities have carried out medical rehabilitation.

2.1.6 Mainland China's Exploration of Tiered Rehabilitation System

The concept of 3-tier rehabilitation system in Mainland China was brought forward when Professor Hu Yongshan from Shanghai hosted the research project "Three-Stage Rehabilitation Treatment Post Cerebrovascular Diseases in China" published by the State Science and Technology Commission of China during the "The Tenth Five-year Plan" (Hu, 2002). Three stages of rehabilitation after cerebrovascular disease treatment include: early rehabilitation treatment in the emergency hospital ward, which is the first stage of rehabilitation; recovery phase rehabilitation in the rehabilitation center or general hospital rehabilitation ward, which is the second stage rehabilitation; sequelae of rehabilitation in the community level, which is the third stage rehabilitation. During his research, he proposed that "an overall network of rehabilitation medicine be established" (Hu, 2002) to ensure the smooth progress of the 3-tier rehabilitation system post cerebrovascular diseases. He hoped that while the 3-tier rehabilitation system is in operation, a database of medical and rehabilitation treatment of cerebrovascular diseases in China can be established to systematically sort out and provide a large number of clinical data on medical

rehabilitation so as to promote China's evidence-based medical work in the field of medical rehabilitation of stroke. Subsequently, Professor Hu Yongshan's team conducted a lot of intensive researches on the following subjects: Exploration on the Standardized 3-tierTreatment Model of Stroke Rehabilitation(Hu, Wu, &Jiang,2004), Standardized 3-tier Treatment for Cognition of Patients with Stroke (Wu, Hu, & Zhu, 2004), Standardized 3-tier Treatment for Neurological Function of Hemiplegia Patients with Acute Stroke (Zhu, Wu, & Hu, 2004), Analysis of Cost and Effect of the First Six-Month (Jiang, Wang, & Hu, 2004) and Early Stage (Jiang, Hu, & Wu, 2004) 3-tier Medical Rehabilitation, Standardized 3-tier Treatment for Comprehensive Function of Stroke Hemiplegia Patients (Hu, Wu, & Zhu, 2005), Standardized Comprehensive Medical Rehabilitation Plan for Stroke Hemiplegia Patients (Zhu, Hu, & Xie, 2005), The Effects of Standardized Tertiary Rehabilitation on the Quality of Life of Hemiplegic Stroke Patients (Jiang, Hu, & Wu, 2006), Motor Function of Stroke Hemiplegia Patients (Fan, Hu, & Wu, 2006), Standardized 3-tier Medical Rehabilitation (Sun, Hu, & Wu, 2007) , Neurological Impairment in Patients with Ischemic Stroke (Hu, Bai, & Cheng, 2007) and ADL Standardized 3-tier Medical Rehabilitation (Bai, Hu, & Cheng, 2007), and Standardized 3-tier Medical Rehabilitation for Comprehensive Function of Stroke Hemiplegia Patients (Nao, 2007). Meanwhile, they conducted some multicenter study on Perspective of 3-tier Medical Rehabilitation of Acute Stroke (Zhang, Li, & Bi, 2004), Improvement of Neurological Function (Nao, 2006) and Rehabilitation of Cognitive Function (Hu, 2007). Professor Hu Yongshan's team also tried to establish a database system for the rehabilitation of cerebrovascular diseases (Jiang, Hu, & Zhang, 2008) at Huashan Hospital Affiliated to Fudan University. Upon Professor Hu Yongshan's influence, Wuhan City of Hubei Province (Lu, Xing, & Mei, 2004), Beijing Municipality (Zhang, 2006; Li & Mo, 2009), Nanjing City of Jiangsu Province (Hou, Wang, & Wang, 2006), and Hefei City of Anhui Province (Li, Ni, & Han, 2007) carried out exploratory research on 3-tier medical rehabilitation for stroke. With the deepening of such research, growing attention has been drawn to the role of rehabilitation nursing in medical rehabilitation. Researchers investigated deeper on the role of rehabilitation nursing in ADL of Stroke Hemiplegia Patients (Xiao, Xu, & Ge, 2010), Function Recovery of Stroke Hemiplegia Patients (Yao, 2011), and Quality of Life of Stroke Patients (Yan, Xiong, & Gen, 2011). Although the concept of 3-tier medical rehabilitation for stroke introduced by Professor Hu Yongshan has been constantly quoted and studied by professionals in the field of stroke rehabilitation in such subjects as Rehabilitation of Limb Motor Function and ADL (Chang, 2015), Rehabilitation of Comprehensive Function of Hemiplegia Patients (Zhao, 2016), and Improvement of Neurological Function (Qi & Fang, 2017), no satisfactory outcome has been yielded yet due to absence of a complete medical rehabilitation system (Xiao & Zhao, 2012). The medical rehabilitation

professionals have been trying, but not an effective 3-tier medical rehabilitation system model has been established due to many reasons. Recently a new round of trial programs have been launched in Nanjing City of Jiangsu Province (Tao, Ha, & Wang, 2016) Yichang City of Hubei Province (Zhou, Gong, & Wu, 2017) and Shanghai Municipality (Wu, Yang, & Zheng, 2017) , under the guidance of Professor Hu Yongshan's theory of 3-tier medical rehabilitation for stroke and based on the requirements for building 3-tier medical rehabilitation system stipulated in the Guidelines on the Work of Rehabilitation Medicine in the 12th Five-Year Plan Period (Health and Medical Development, 2012 Edition) (MOHC, 2012). Meanwhile, the idea of promoting the model has also been put forward (Zhou & Wu, 2017).

2.1.7 Difficulties in the Development of Rehabilitation Medicine of Mainland China

2.1.7.1 Medical Rehabilitation Service Providers are Seriously Insufficient

Since the reform and opening up, with the rapid development of medical and health undertakings, remarkable achievements have been made in medical rehabilitation work(Chen & Li, 2015). The construction and development of rehabilitation department of all-level hospitals has been greatly promoted since the Chinese Ministry of Health proposed to "select a number of medical institutions to try out rehabilitation centers" in 1982 and stipulated that all the grade three hospitals shall establish rehabilitation department in the 1990s (Chen & Li, 2015). According to incomplete statistics, as of the end of 2009, rehabilitation department has been set up in 3,288 general hospitals, 338 specialized rehabilitation hospitals have been built and 52,047 beds have been designated for rehabilitation purpose across China (He, 2012). Despite the above notable achievements in the development of rehabilitation medicine in China, there is still a considerable gap between the medical rehabilitation services available and the actual needs. First, there is an urgent need to improve early rehabilitation and rehabilitation development capacities. At present, the rehabilitation departments with early rehabilitation intervention capabilities are mainly located in some large hospitals. Most of them, however, are too busy with their own departmental beds to consider the early rehabilitation interventions. As a result, their function in early rehabilitation interventions is not fully utilized. Specialized rehabilitation hospitals set up before 2012 are mainly under the administration of Disability Federation, Social Security System and Civil Affairs System. Scarcely any specialized rehabilitation hospital completely ruled by Medical Health System is dedicated to medical rehabilitation. The specialized rehabilitation hospitals under the administration of Disability Federation, Social Security System and Civil Affairs System are mainly engaged in rehabilitation of traditional Chinese medicine (Li, 2013), work related injury

rehabilitation (Li, Zhou, & Hu, 2012) and disability rehabilitation (Hu, 2017). Their understanding of medical rehabilitation is weak, which makes them incapable of undertaking the task of developing rehabilitation technique quickly and of delivering early rehabilitation interventions, namely level III rehabilitation, for patients at medically unstable stage. The duties they are performing are the functions expected to be performed by rehabilitation sub-centers, i.e. level II rehabilitation for patients at the stable stage. Their capacities cannot match with their grade. With the announcement of the Rehabilitation Hospital Basic Standards (2012 Edition) (MOHC,2012), more and more specialize d rehabilitation hospitals belonging to medical health system have been established since 2012. Their focus is providing medical rehabilitation services. They are capable of delivering early rehabilitation interventions, namely level III rehabilitation, for patients at medically unstable stage, and of offering level II rehabilitation for patients at the stable stage as well. However, due to various reasons the development speed of such hospitals is not satisfactory and the quantity is very small, let alone forming a system. Second, the shortage of rehabilitation professionals has already become one of the important factors restricting the rapid development of rehabilitation. Chinese rehabilitation practitioners are using all opportunities available to call for efforts to address this issue (Zhuo, 2004; Bei, Li, & Hu, 2005; Wang, Wang, & Liu, 2006; Li, 2006). Compared with the average international standard, the data released by China's State Health Planning Commission showed in terms of physiotherapists alone, the demand gap was at least 300,000 in China, not to mention the gap in rehabilitation nurses and doctors. The shortage of rehabilitation professionals has already become one of the important factors restricting the rapid development of rehabilitation (Miao, Liu, & Pan, 2016). Third, rehabilitation service system is not well developed, lacking the mechanism and path for patients to flow in different rehabilitation service providers (Wu, 2002). Fourth, the total medical rehabilitation resources are seriously inadequate. Currently the rehabilitation out-patient visits available is only a little over 20 million per year, covering merely 12.5% of patients' needs (Wu, 2002).

2.1.7.2 Shortage of Professionals in Developing Rehabilitation Medicine

At present, there is a huge gap between rehabilitation medical service and realistic demands in China, and Yunnan province is no exception. To solve this problem, we need to found grade three specialized rehabilitation hospitals under the sole administration of health system. Such hospitals are expected to undertake early rehabilitation and integrate clinical and rehabilitation expertise. Meanwhile, trainings are needed to enlarge the pool of rehabilitation professionals (Chen & Zhou, 2011; Xu & Wu, 2010). The project of "Cultivating Rehabilitation Professionals for Rehabilitation Centers" will, in accordance with Rehabilitation Hospital Basic Standards (2012 Edition) (MOHC,

2012), provide trainings for medical staff in grade three specialized rehabilitation hospitals to prepare them for six subspecialties, including Bone and Joint Rehabilitation, Neurological Rehabilitation, Spinal Cord Injury Rehabilitation, Geriatric Rehabilitation, Cardiopulmonary Rehabilitation, and Pain Rehabilitation. They are expected to be capable of clinical and rehabilitation services, teaching and research.

Rehabilitation medicine, alone with prophylactic medicine, health medicine and clinical medicine are the four major comprising parts of medicine (Dou, 2017). It plays a very important role in restoring optimal functions for children in need, the severely injured patients, the disabled people and the ill-affected patients. China's modern rehabilitation medicine has developed for over 30 years since its commencement in 1982, and has formed certain scale and reached certain level with its own features in terms of institution structuring, discipline construction, personnel cultivation and service delivery. However, with the acceleration of industrialization, the increase of chronic metabolic diseases and the aggravation of social aging (Liu, 2012), together with backward notions, cognitive limitations and insufficient experience, the development of rehabilitation medicine in China is not satisfactory and the importance of training for rehabilitation professionals is underestimated. The injured and disabled people require large amount of rehabilitation professionals to provide scientific rehabilitation service. However, at present, Yunnan Province and China as a whole are faced with a shortage of rehabilitation professionals (Fu, Zhao, & Xiang, 2012) (Zhang, 2014). According to the national survey of Chinese Association of Rehabilitation Medicine in 2009, China only has 0.4 rehabilitation professional in 100,000 people. The figure is far lower than that of the 101 members of World Confederation for Physical Therapists (WCPT), which have 8 rehabilitation professionals in 100,000 people in average, let alone that of developed countries such as America, European countries and Canada, which have 60 rehabilitation professionals in 100,000 people in average (Li, 2007; Pang, 2015). Without enough competent rehabilitation professionals, the hope of satisfying Chinese people's rehabilitation demands can only stay a dream. Therefore, it is extremely urgent to cultivate sufficient rehabilitation professionals, and the implementation of the project of "Cultivating Rehabilitation Professionals for Rehabilitation Centers" will provide sample for the fast cultivation and retaining of rehabilitation professionals.

2.1.7.3 Medical Rehabilitation Services Cannot Meet Individual Needs

Individualized rehabilitation should be a standardized program that is systematic and continuous within certain timeframe to ensure rapid rehabilitation. But if the program is not implemented within a standardized and sound system, the best rehabilitation time can be missed,

the function gains can be lost, and our goal of rapid rehabilitation will never be fulfilled. To carry out demonstrative project of three-tier rehabilitation system in Yunnan Province will make individualized rehabilitation practical. The project will provide a model for setting up standardized three-tier rehabilitation system in Yunnan Province.

2.2 Relevant Study and Analysis of Healthcare Reform

2.2.1 Analysis and Comparison of Typical Healthcare Systems Around the Globe

The UK is the cradle of publicly funded healthcare system and the allocation of health insurance. The healthcare is free in the UK, meaning that in addition to insuring all citizens, the government hires doctors and runs hospitals (Chang, 2012). People pay taxes, and then National Health Service (NHS) allocates this part of the funds to medical institutions. A person goes to a doctor and any services other than prescription drugs have already been paid. Under publicly funded healthcare system, such a huge organization has resulted in serious waste, inefficiency and a serious decline in enthusiasm of healthcare workers within NHS. "Waiting to see a doctor in the UK takes like forever" is a vivid description of its poor accessibility (Zhi, 2005).

Like its economic system, the US medical system is characterized by its highly market-oriented private medical insurance businesses that support the overall medical system, which is unique among developed countries. A highly market-oriented system must have many contradictions. For example, a poll found that most Americans called their medical system "terrible" while on the other hand, they generously praise their doctors and hospitals (Chang, 2012). With the system, a person is allowed the freedom to choose the insurance company and doctors, but the overall fairness is ignored. In order to avoid disadvantages that may affect people's preference on them, private insurance companies usually promote products that are designed for the people who are employed. As a result, it is difficult for the poor, the unemployed and the elderly to find suitable insurance products. The government was forced to intervene on medical market, enabling the elderly, the unemployed, and the poor get medical fund support from the government (Zheng & Zheng, 2013).

Unlike its economic system, Brazil's healthcare is free. Public healthcare is constitutional and is provided to its people through the National Healthcare System, known as the Unified Health System, the fund of which comes from general taxes. The system mainly offers primary healthcare. Brazil's medical system is unique in Latin American countries (Dai, 2011). Russia implements the medical insurance system that advocates personal responsibility. The government only pays for the

medical services for the unemployed and dismissed. The source of healthcare fund mainly comes from Russia's mandatory and obligatory combined medical insurance. Doctors' income largely depends on the quality and effectiveness of their services. The rights entitled to doctors are prescription and surgery. Hospitals are not allowed to make profit from drugs. The delivery of medical services and the supply of drugs should be separate systems (Cheng & Zhang, 2013). In India, basic healthcare is provided by the government through public hospitals to citizens for free. Private hospitals usually provide professional special medical services. Network of 3-tier medical services is built in both rural and urban areas. The fund of public healthcare comes from social insurance, non-taxation income and taxes of the government at all levels (Ma & Ji, 2013).

The healthcare systems in the countries above have the following problems: supervision is ineffective, public healthcare resources are seriously wasted, the public medical services funded by government are inefficient due to absence of competition, the burden of government becomes heavier when there is no strict restriction regulations and people become poor as a result of illnesses.

2.2.2 Problems of China's Current Healthcare System

China has gone through two healthcare system reforms. Now the third healthcare system reform is underway. Its path is outward and downward decentralization (Liu, 2008). Under the background of planned economy in the early days of the founding of the People's Republic of China, a healthcare system was established with the functions of public financing, administration and delivery of healthcare services from 1949 to 1979 (Liu, 2008). After the economic reform and opening up, the central government started the first reform of the healthcare system in 1985, with the core reform being the grading of financial responsibilities, adopting decentralization and profit-sharing policy and using independent accounting in healthcare providers by means of compensating the financial deficit from charging medical exams, drugs and consumable medical supplies. The reform resulted in substantial alleviation of investment from all levels of government into the healthcare field (Zhu, 2016). The second healthcare system reform started in 1997 by the Central Government. The core of it was to introduce the purchasers' mechanism and further emphasize the function of the market orientation in for medical institutions and services (Liu, 2008). At the same time, the Ministry of Social Security was set up to separate the functions of service providers and to emphasize the social functions of guaranteeing medical and health services. However, the result was that the profit-seeking behavior of hospitals increased, the public financing declined, the coverage and functions of medical insurance was seriously poor, the social

problem of "bad accessibility and unaffordable medical services" became increasingly prominent, and doctor-patient relationship became tense (Pan, 2017). The central government officially launched the third reform of the health care system in 2007, with the core of implementing a mixed system of medical service provision. The government is responsible for basic medical service of public health and public service in medical sector, encouraging private capital to enter the healthcare service industry, emphasizing fairness, stressing the establishment of referral system and tiered treatment system, further improving the three-tier network system of rural and urban healthcare services, and building a healthcare network guarantee system (Zhu, 2016).

Premier Li Keqiang said: "Healthcare reform is a worldwide challenge" (Li, 2011). Among the four basic functions that a modern hospital is equipped with, namely rehabilitation medicine, clinical medicine, preventive medicine and health medicine, the service capacity and development level of rehabilitation medicine in China falls far behind people's needs. Therefore, it is pressing to develop rehabilitation medicine rapidly. Premier Li Keqiang said that we should find a Chinese solution to work it out (Li, 2011). Through converting the hospital that I am currently working with, a grade two hospital with comprehensive medical capacities, into a rehabilitation hospital would be an effective way to deliver comprehensive medical services and improve rehabilitation expertise and develop level of rehabilitation services, two goals of medical clinical and rehabilitation integration of healthcare reform.

2.2.3 Policy Support of Rehabilitation Hospitals and Tiered Rehabilitation System

Government of China released many policies in support of rehabilitation and rehabilitation hospitals between 2012-2013, such as Notice of the General Office of the State Council on Issuing the 2012 Major Work Arrangements for Deepening the Reform of the Pharmaceutical and Healthcare System (General Office of the State Council [2012] No. 20), Several Opinions of the State Council on Promoting the Development of Health Service Industry (State Council [2013] No. 40), Notice of the General Office of the State Council on Issuing the 2013 Major Work Arrangements for Deepening the Reform of the Pharmaceutical and Healthcare System (General Office of the State Council [2013] No. 80), Notice of the Ministry of Public Health on Printing and Distributing the Guiding Opinions on Medical Rehabilitation Services during the 12th Five-Year Plan Period (Health and Medical Administration, 2012 Edition) (MOHC, 2012) which required to form tiered and staged medical rehabilitation service system, and Notice of the General Office of the Ministry of Public Health on the Establishment of Demonstration Hospital for Rehabilitation Medical Services (Level III General Hospital) of the Ministry of Health (Office of Health and

Medical Administration [2012] No. 123).

The Government of Shanghai Municipality and Health Bureau has further issued policies to give strong support to the development of rehabilitation and rehabilitation hospitals by encouraging the conversion of grade II general hospitals, such as Key Points of Medical Work in 2012 of Shanghai Municipality (Health and Medical Administration of Shanghai Municipality [2012] No. 40), and Key Points of Medical Work in 2013 of Shanghai Municipality (Health and Medical Administration of Shanghai Municipality [2013] No. 023). The Government of Shanghai Municipality and Health Bureau actively provided guidelines for grade II general hospitals converting into rehabilitation hospitals and for medical institutions improving operation efficiency in rehabilitation field. A number of general hospitals in Shanghai then were converted into rehabilitation hospitals.

Some rehabilitation hospitals converted from comprehensive form (Liu, Liu, & Jia, 2017) adopted the three-stage change process model developed by Kurt Lewin to manage the third phase of conversion: accept new behavior and maintain it, support it with any resource as necessary, and strengthen it with performance-based bonus and active measures. As a result, positive changes have taken place within the organizations of the converted hospitals. Every department has set up rehabilitation medical team and there is increasing number of clinicians of each team passing Rehabilitation Physician Qualification Examination. Besides, now every department has equipped with rehabilitation physiotherapists and nurses. These measures have made every patient feel the important role of rehabilitation. These hospitals have also stressed cultivation of rehabilitation professionals (Sheng, 2017) by following means. First, systematic instructions are offered to prepare participants for examinations of rehabilitation physician and physiotherapists. Trainings in collaboration with rehabilitation department of the grade III level A general hospitals are also open to all rehabilitation medical staff to improve professional expertise. Second, medical staff are encouraged to study in their free time to take rehabilitation qualification examinations for physicians and physiotherapists. Interpretation of examination papers are given three times a week, one hour per session, by professional instructors. After the rehabilitation training classes, the converted hospitals open tutoring classes for participants to get intensive pre-examination preparation in the way of instruction, mock exams, and past exam paper explanation. Those who pass the examinations would get bonus in the form of income and break. These measures have been proven to be positively effective.

2.3 Theoretical model for tiered rehabilitation system model in Yunnan Province, China

In the demonstrative model of standardized tiered rehabilitation system in Yunnan Province, General System Theory is adopted to build the organization structure, and Experimental Learning Theory will be adopted to build the same-quality operation efficiency management.

2.3.1 Guidance Role in Building the Organization Structure of the Demonstrative Model

Relevant Issues Concerning General System Theory's Guiding Role in Building the Organization Structure of the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province.

1. The Reason for Adopting General System Theory to Guide the Organization Structure in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

General System Theory: A business organization is an open system constituted by numerous interactional subsystems. By employing General System Theory, managerial staff can illustrate the goal, set up operational standards, evaluate the performance of an organization system, and integrate an enterprise with surrounding environmental systems to consider problems in a comprehensive way, so as to optimize the problem-solving process (Bertalanffy, 1955). The standardized tiered rehabilitation system model in Yunnan Province (Figure 2-1) shall be built in accordance with the General System Theory. The top tier is the rehabilitation center which can be the rehabilitation department in grade III general hospitals or specialized rehabilitation hospitals built in compliance with Rehabilitation Hospital Basic Standard (2012 Edition) (W.Y.Z.F. [2012] No. 17) in Yunnan Province, serving as the technical leader and responsible for delivering level III rehabilitation services to medically unstable patients. The second tier is rehabilitation sub-centers which can be the rehabilitation department in grade II general hospital or specialized rehabilitation hospital at county level, serving as the bridge and responsible for delivering level II rehabilitation services to medically stable patients. The primary tier is rehabilitation stations which can be grade I general hospital at town level or the rehabilitation division in community health centers, serving as the guarantee and responsible for delivering level I rehabilitation services to patients at recovery phase. Our aim is to build a high-quality demonstrative standardized tiered rehabilitation system that has sound and complete structure, standard management and qualified personnel.

2. Key Factors for General System Theory to Guide Organization Structure in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

a. The systematic hierarchy, unity and ideological guidance role of General System Theory

The systematic hierarchy of General System Theory emphasizes that any system is not only a component of several subsystems but also a component (subsystem) of a larger system. The system has its own specific movements at different levels. Starting from a larger system and taking into account the all the relationships that the studied system is related to makes it possible to unveil the nature of the special movements of the complex system (Bertalanffy., 1955). Therefore, when we construct the demonstrative model of standardized tiered rehabilitation system in Yunnan Province, we should not only build the tiered system (subsystem) within the model, but also analyze and build the operation relation between the model and relevant medical systems in Yunnan Province. By doing so, we can ensure that the demonstrative model of standardized tiered rehabilitation system in Yunnan Province has clear hierarchy in its structure and operation.

The unity of the General System Theory believes that although the objective material movement has hierarchy and the system movement at different hierarchies has specificity, the system movement rules at different hierarchies have a unity, and the system has organized tendencies at different hierarchies of movement. There are also system isomorphism requirements between systems (Bertalanffy, 1955). If we build the demonstrative model of standardized tiered rehabilitation system in Yunnan Province based on it, its unity will make the standardization of the model more exemplary, acceptable and practical.

The system theory of General System Theory is the basis of systemic understanding and is the basis for understanding the essential properties of the system. The core problem that the system thinking resolves is to optimize the system structure and operation based on the analysis and understanding of the system's essential attributes, and to achieve a smoother system goal (Bertalanffy, 1955). According to the guidance of the system thinking of the General System Theory, when we build the demonstrative model of standardized tiered rehabilitation system in Yunnan Province, through optimizing the model structure and operation system, we can enable patients who are deprived of functions to achieve earlier, smoother and more complete rehabilitation depending on the demonstrative model of standardized tiered rehabilitation system of Yunnan Province.

b. The integrity, isomorphism, and relevance guidance role of General System Theory

The General System Theory holds that although the system is composed of subsystems or elements, the overall performance of the system is not only the sum of the performance of each element but also greater than their sum. When dealing with system problems, we must pay attention to the factors that promote the overall function of the system, and pay attention to the factors that affect the system's structure and affect the function. The system must maximize the

functions that any element can play in the system. Once these factors leave the system as a whole, they will no longer have the maximum functionality (Bertalanffy, 1955). Therefore, while building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province, we pay special attention to the function of each composing element in the system and give all the necessary conditions it needs to affect the whole system in optimizing overall performance.

System isomorphism refers to the existence of mathematical isomorphism between mathematical models of different systems. There are two characteristics of mathematical isomorphism. Firstly, there is a one-to-one correspondence between the elements of two mathematical systems. Secondly, after the one-to-one correspondence between the elements of two mathematical systems, they can still remain unchanged in their respective systems (Bertalanffy, 1955). The mathematical isomorphism between different mathematics systems is an equivalence relation. The equivalence relation has symmetry, transitivity, and self-returnability (Bertalanffy, 1955). According to the equivalence relation, the real system can be divided into several equivalent systems. Within the same equivalence class, the systems are equivalent to each other (Bertalanffy, 1955). System isomorphism is an important theoretical basis of General System Theory and the basis of methodology (Bertalanffy, 1955). Therefore, the study of mathematical isomorphism can find common laws in the various system movements in the real world. Studying system mathematical isomorphism may involve mathematical homomorphism (Bertalanffy, 1955). The mathematical homomorphisms among different systems have no symmetry, but they are transitivity and self-returnability. Therefore, mathematical homomorphisms are only used for model simplification and classification and cannot be used to classify equivalence systems (Bertalanffy, 1955). Many complex systems cannot be quantitatively studied in mathematical form, so it is necessary to extend the concept of mathematical isomorphism to system isomorphism. Systems that have the same response to external excitations and have the same inputs and outputs are often referred to as isomorphic systems (Bertalanffy, 1955). The simplified model of the system obtained by integrating simplified systems is called a homomorphic model. When studying a system, different homomorphic models may be derived for different research purposes. The homomorphic models of systems with different structure and performance may have similar behavioral characteristics in forms (Bertalanffy, 1955). The objective basis for establishing General System Theory and transversal synthesis of various disciplines lies in the existence of the fact that there are system isomorphisms between different real systems and between different disciplines (Bertalanffy, 1955).While building the operation system of the demonstrative model of standardized tiered rehabilitation system of Yunnan Province, we pay special attention to the transversal synthesis between different clinical disciplines and optimize each clinical discipline

with General System Theory.

System relevance refers to the interaction, interdependence, and mutual relationship between the system and its subsystems, the subsystems within the system, and between the system and the environment. The system relevance reveals the nature of the complex system (Bertalanffy, 1955). This shows we should pay attention to system relevance while building the demonstrative model of standardized tiered rehabilitation system of Yunnan Province from the beginning to the end.

c. The open system guidance role of General System Theory

Open system is one of the most important basic concepts in General System Theory, as opposed to closed system. A closed system is an isolated system. There is no exchange of information, energy, or matter between the system and the outside world. Its operating rules apply to the law of entropy increase in the rmodynamics. An open system is not an isolated system. There is information, energy or material exchange between the system and the external environment. The operating law of open systems does not apply to the law of entropy increase in thermodynamics. The General System Theory uses systematic thinking to observe the real world. System opening is the characteristic of all systems in the real world. The so-called closed system (isolated system) in physics can be treated as a special case of open systems (Bertalanffy, 1955).

The system boundary is a basic element that defines the nature of a system. With a system boundary, the exchange of information, energy, or matter on the system boundary can be studied. The boundary of the open system is a flexible boundary that is permeable, while the closed system has a rigid boundary that is not penetrable. Of course, it is often very difficult for conceptual systems, ecosystems, economic systems, and social systems to determine their boundaries (Bertalanffy, 1955).

Because there is information, energy or material exchange between the environment and the open system, the movement of the open system under certain conditions can be a process of reducing the entropy, which can make the system tend to be orderly and organized. The target direction pursued by the system is the direction of systematic ordering, and ordering is also the embodiment of the purpose of the system. Having multiple objectives is often a feature of complex systems. Sometimes these objectives are even contradictory. Only through the synergy or coordination among subsystems can multiple objectives be achieved (Bertalanffy, 1955).

Because there is information, energy or material exchanges between the environment and the open system, the balance of the development system is a kind of dynamic balance, and it is a steady dynamic state; therefore, although the open system has a certain degree of automatic adjustment ability, it can only maintain the systematic stability in a certain degree. The open system has the multi-path or equal-end polarity of the system development, which means that the

open system can reach the same final state through different ways and starting from different conditions. Various social systems can also adopt multiple development paths and aim at different initial states to achieve the same goal. However, the realization of social systems often has certain flexibility and there is no designated optimal solution. The process of reducing the entropy of an open system under certain conditions is the evolution of the system, which leads to an increase in the degree of ordering or organization of the system. The system gradually develops from a low level to a high level, and the internal structure of the system becomes more complicated and refined, and functions become more perfect. The important model of the biological evolution process on the earth is a typical example of the evolution of open systems (Bertalanffy, 1955).

Using the open system of General System Theory to guide the building of the demonstrative model of standardized tiered rehabilitation system in Yunnan Province specifies that the system boundary is Yunnan and the area of rehabilitation, that the exchange of system information, energy or material can be made with other provinces and other modern clinical disciplines, that the ordering and organization direction of the system is clearly set, and that the law to continuously improve and enhance the system in the process of operation.

Figure 2-1 Theoretical Model of the Standardized Demonstrative Model of Three-tier Rehabilitation System
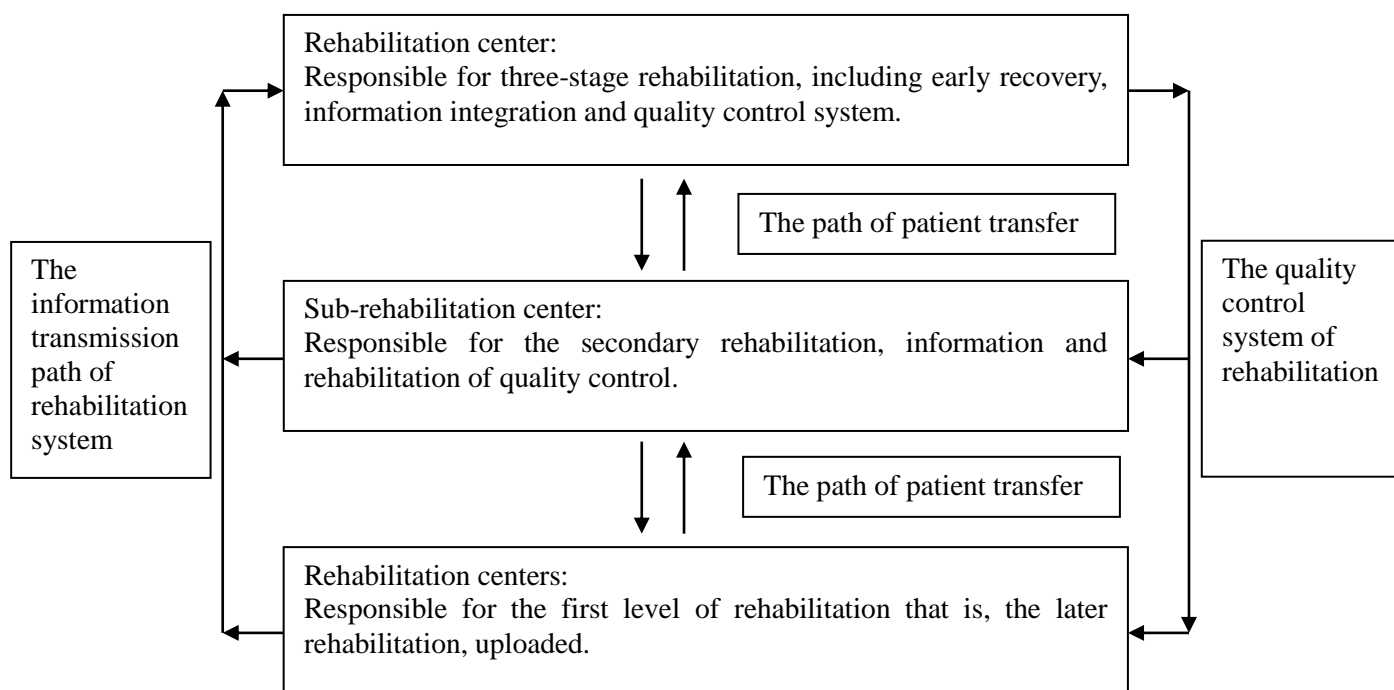
Source: Bertalanffy. (1955)

2.3.2 Guidance Role in Building the Operation the Demonstrative Model

Relevant Issues Concerning Operation Guidance Role of Experimental Learning Theory in Building the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

1. Reason to Adopt Experimental Learning Theory to Guide the Operation of Building the Demonstrative Model of Standardized Tiered Rehabilitation System of Yunnan Province

The experimental learning theory believes that the process of learning is a ring structure constituted by four adaptive learning stages, which are concrete experience, reflective observation, abstract conceptualization and active experiment (Kolb, 1984). Concrete experience refers to the step when trainees are actively involved in the training. Reflective observation refers to the step when trainees reflect on the new knowledge after the training. Abstract conceptualization refers to the step when trainees use analytical skills to conceptualize the new knowledge from the training. Trainees are supposed to be able to absorb the training contents and form logical understanding. Active experiment refers to the step when trainees apply newly learned ideas to solve concrete problems. Trainees are supposed to do logical compliance verification. The two basic dimensions, comprehension and transformation, constitute the learning process of the experimental learning theory. The comprehension dimension consists two opposite modes. One is direct comprehension from concrete experience. The other is indirect comprehension from symbolic experience. The transformation dimension also consists two opposite modes. One is to reflect on the experiences formed from inner mind. The other is to act and show experiences that can be externally observed. Both comprehension and transformation are indispensable dimensions of the learning process which is an ongoing alternating circle. Experimental Learning Theory (Figure 2-2) is employed to as a guidance for delivering same-quality training for personnel in the standardized tiered rehabilitation system and improve the operation efficiency of the system and its institution members.

The experimental learning theory stresses that individual learning is not as efficient as group learning. Group learning recommends open environment and is strongly against viewing learning as isolated and closed behavior. Free communication among trainees communicate is advocated in group learning, especially sharing and inspiring (Kolb, 1984).. It is because trainees of different notions are gathered together that diversified ideas are presented to enable the increase and enriching knowledge (Kolb, 1984). Such group learning as a training mode is an adequate way to generate and spread new knowledge in the standardized tiered rehabilitation system in Yunnan

Province (Kolb, 1984).

2. Key Factors of Using Experimental Learning Theory to Guide the Operation of Building the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

In order to build an energetic, exemplary and attractive standardized tiered rehabilitation system in Yunnan Province, it is extremely important to make full use of the elements of personnel cultivation for Diverging, Assimilating, Converging, and Accommodating style talents as defined in the Experimental Learning Theory.

a. Diverging. The Diverging style's dominant learning abilities are Concrete Experience (CE) and Reflective Observation (RO). People with this learning style are best at viewing concrete situations from many different points of view. It is labeled "Diverging" because a person with it performs better in situations that call for generation of ideas, such as a "brainstorming" session. People with a Diverging learning style have broad cultural interests and like to gather information. Research shows that they are interested in people, tend to be imaginative and emotional, have broad cultural interests, and tend to specialize in the arts. In formal learning situations, people with the Diverging style prefer to work in groups, listening with an open mind and receiving personalized feedback (Kolb, 1984,1999a,1999b). This shows that cultivating the Diverging style talent plays an important role in the promotion vitality of building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province.

b. Assimilating. The Assimilating style's dominant learning abilities are Abstract Conceptualization (AC) and Reflective Observation (RO). People with this learning style are best at understanding a wide range of information and putting into concise, logical form. Individuals with an Assimilating style are less focused on people and more interested in ideas and abstract concepts. Generally, people with this style find it more important that a theory have logical soundness than practical value. The Assimilating learning style is important for effectiveness in information and science careers. In formal learning situations, people with this style prefer readings, lectures, exploring analytical models, and having time to think things through (Kolb, 1984, 1999a, 1999b). This shows that cultivating the Assimilating talent plays a vital role in the standardization of building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province.

c. Converging. The Converging style's dominant learning abilities are Abstract Conceptualization (AC) and Active Experimentation (AE). People with this learning style are best at finding practical uses for ideas and theories. They have the ability to solve problems and make decisions based on finding solutions to questions or problems. Individuals with a Converging learning style prefer to deal with technical tasks and problems rather than with social issues and

interpersonal issues. These learning skills are important for effectiveness in specialist and technology careers. In formal learning situations, people with this style prefer to experiment with new ideas, simulations, laboratory assignments, and practical applications (Kolb, 1984, 1999a, 1999b). This shows that cultivating the Converging style talent has profound influence upon the attraction of promoting the building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province.

d. Accommodating. The Accommodating style's dominant learning abilities are Concrete Experience (CE) and Active Experimentation (AE). People with this learning style have the ability to learn from primarily "hand-on" experience. They enjoy carrying out plans and involving themselves in new and challenging experiences. Their tendency may be to act on "gut" feelings rather than on logical analysis. In solving problems, individuals with an Accommodating learning style rely more heavily on people for information than on their own technical analysis. This learning style is important for effectiveness in action-oriented careers such as marketing or sales. In formal learning situations, people with the Accommodating learning style prefer to work with others to get assignments done, to set goals, to do field work, and to test out different approaches to completing a project (Kolb, 1984, 1999a, 1999b). This shows that cultivating the Accommodating style talent is very important in the exemplary promotion of building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province.

Figure 2-2 The Experiential Leaning Cycle and Basic Learning Styles
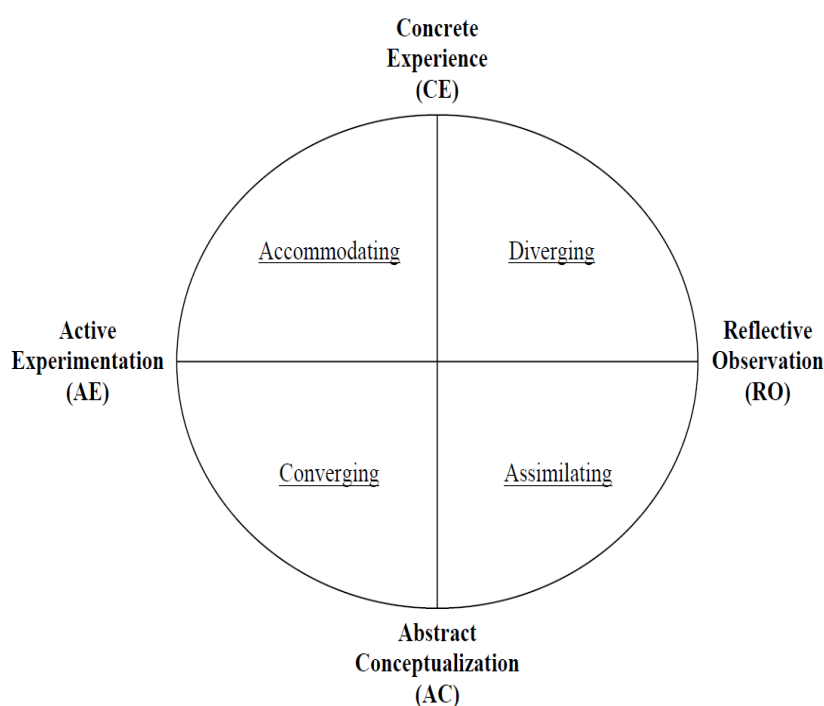
Source: Kolb. (1984)

Chapter 3: Research Methodology

3.1 Research Subject

The demonstrative model of standardized tiered rehabilitation system is to be built in Yunnan Province based on different needs of patients who are at different stages, namely the medically unstable stage in need of level III rehabilitation (early rehabilitation), the medically stable stage in need of level II rehabilitation (mid stage rehabilitation), and the recovery stage in need of level I rehabilitation (late stage rehabilitation). Then the parameters in relation to the tiered rehabilitation system and all its members will be collected and analyzed.

3.2 Research Contents

The long-term and short-term objectives of building the standardized tiered rehabilitation system model in Yunnan Province include: set up the rehabilitation center which is responsible for delivering level III or early rehabilitation services in sync with disease clinical treatment to medically unstable patients. Medically unstable is defined as a state of worsening or fluctuating clinical symptoms, signs and lab examination data, and important vital signs like blood pressure, breath, pulse, temperature and pain are abnormal; set up the rehabilitation sub-center which is responsible for delivering level II or mid stage rehabilitation services to medically stable patients. Medically stable is defined as a state of relatively normal or mildly changing clinical symptoms, signs and lab examination data, and important vital signs like blood pressure, breath, pulse, temperature and pain are in a relatively normal range; set up the rehabilitation station which is responsible for delivering level I or late stage rehabilitation services to patients at recovery phase. Recovery phase is defined as a state of continuously normal or non-abnormal changes detected in clinical symptoms, signs and lab examination data, and important vital signs like blood pressure, breath, pulse, temperature and pain are constantly found to be normal and requires no emergency rescue. The following tools and procedures will be adopted to collect, count and analyze the data generated from the research in order to achieve the research objectives.

3.2.1 Build Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

The following criteria will be observed while selecting medical institutions to join in the system: the rehabilitation center should be either the rehabilitation department of a grade III general hospital or a standard specialized rehabilitation hospital set up in compliance with Rehabilitation Hospital Basic Standard (2012 Edition) (MOHC, 2012); the rehabilitation sub-center should either be the rehabilitation department of a grade II general hospital or a specialized rehabilitation hospital located in a county or its equivalency; the rehabilitation station should either be a grade I general hospital or community health center located in a town. To be qualified, leaders of all the medical institutions shall fit the following conditions: the department director shall be active and innovative, and the hospital president shall be supportive and eager to develop its rehabilitation field. Selected medical institutions will be sorted and changed from two aspects of organization structure and operation to form the demonstrative model of standardized tiered rehabilitation system in Yunnan Province.

3.2.1.1 Organization Structure Construction of the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Two medical settings will be selected to build as the rehabilitation center. One is the rehabilitation department of a grade III general hospital, and the other is a standard specialized rehabilitation hospital set up in compliance with Rehabilitation Hospital Basic Standard (2012 Edition) (MOHC, 2012). They are supposed to uniformly set up the following units: physical training room , occupational therapy room, speech therapy room, assessment room, training & assessment room for heart & lung functions, traditional Chinese rehabilitation room, hearing rehabilitation room, children's training area, hyperbaric oxygen therapy room, and a senior physical factor therapy room that is equipped with shockwave, transcranial magnetic stimulation, bio feedback, microwave, laser, intermediate frequency, ultrasound, intermittent pneumatic compression and infrared therapeutic devices. Four medical settings will be selected from either the rehabilitation department of a grade II general hospital or a local specialized rehabilitation hospital to build as the rehabilitation sub-centers. They are supposed to uniformly set up the following units: physical training room, occupational therapy room, speech therapy room, assessment room, traditional Chinese rehabilitation room, and a standard physical factor therapy room that is equipped with bio feedback, microwave, laser, intermediate frequency, ultrasound, intermittent pneumatic compression and infrared therapeutic devices. Six medical settings will be

selected from either grade I general hospital or rehabilitation division of community health center at town level. They are supposed to uniformly set up the following units: assessment room, traditional Chinese rehabilitation room, and a primary physical factor therapy room that is equipped with intermediate frequency, ultrasound, intermittent pneumatic compression and infrared therapeutic devices.

3.2.1.2 Operation Construction of the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

First of all, we will interview the medical institutions selected to join in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province to learn about their current rehabilitation conditions.

Interview subject: The research is carried out in a total of 12 units (2rehab center, 4 sub-centers and 6 stations) that are included in the tiered rehabilitation system model of Yunnan Province. The interview subject will be three hundred people in the hospital managerial personnel and healthcare personnel. The interview is scheduled to be conducted in Oct. 2016 and Jun. 2017.

Interview methodology: qualitative, semi-open interview will be carried out in the form of group interview and key informant interview.

Interview contents: first of all, rehabilitation work report should be done by relevant units included in the tiered rehabilitation system model of Yunnan Province. The effects, problems and future plans will be discussed. Then meetings will be held at each unit to talk with staff of Rehab Department and relevant departments and learn about the unit. The following interview outline is made to serve the main tasks of the tiered rehabilitation system model. The interview consists of 25 questions of 9 areas. See figure 1 for details. (See appendix 1)

(1) How do you interpret the definition of rehabilitation and rehabilitation medicine now? Where did you get the information? How did you interpret the definition of rehabilitation and rehabilitation medicine before?

(2) What do you know about the connotation of the tiered rehabilitation system model of Yunnan Province? Where did you get the information?

(3) What do you think about the function positioning of the tiered rehabilitation system of Yunnan Province? What do you think about its feasibility now? What did you think about its feasibility before?

(4) How to tier rehabilitation services? What do you think about its feasibility now? What did you think about its feasibility before?

(5) What do you think about the change of benefits brought to patients by the tiered

rehabilitation system of Yunnan Province?

(6) What do you think about the change of rehabilitation resource utility brought by the tiered rehabilitation system of Yunnan Province?

(7) How to build cooperation relations between Rehab Department and other departments within the hospital? What do you think about its feasibility now? What did you think about its feasibility before?

(8) How to build cooperation relations among medical institutions, or between medical institutions and non-medical institutions? What do you think about its feasibility now? What did you think about its feasibility before?

(9) What is the effect of policies?

Interview Questionnaire for Personnel in the Tiered Rehabilitation System of Yunnan Province was distributed to a total of 180 persons in two rehabilitation centers and four rehabilitation sub-centers. The data were analyzed via spss statistical software, using principal component analysis, KMO sampling adequacy test, principal component analysis and covariance analysis. The results showed that the scale's homogeneity reliability was 0.965 Cronbach's α coefficient, split-half reliability coefficient was 0.903, and content validity index (CVI) was 0.894, greater than the recommended value of 0.8. The structural validity KMO (MSA) value is 0.901, which exceeds the recommended value of 0.6, indicating that the interview questionnaire design is reliable and effective.

Based on interview results, we will formulate training plans tailored to each medical institution. When different medical institutions are evaluated to be fit in the same training program, the rule of same quality standard applies. All their staff will be trained about modern medical rehabilitation concept. All the rehabilitation physicians, nurses and physiotherapists will be trained on professional rehabilitation knowledge. The medical rehabilitation work carried out in every medical institution member will be instructed and monitored under the same quality standard. Regular instruction, supervision and analysis of the implementation of the operation standards will be conducted in the medical institutions of the demonstrative model of standardized tiered rehabilitation system in Yunnan Province.

3.2.2 Design the Evaluation Method of Operation Efficiency of the Demonstrative Model of Standardized Tiered Rehabilitation System

Invented by Likert (R. A. Likert) in 1932, Likert scale (PSC, 2017) is advantageous for its wide range of measurements, good credibility the increases with mounting number of questions,

plenty of categories that can be measured, and accurate results. One distinguished characteristics of Likert scale is that the value between every attitude option of survey or questionnaire is assumed to have no difference, that the value of the survey or questionnaire items is equal, and that different levels of responses to the statements of the survey or questionnaire will be reflected. Thus every attitude option of survey or item of questionnaire shall serve for the purpose of evaluating the same subject or incident. A sum of attitude options of a survey or questionnaire is deemed to be a sub-scale of the whole. And every attitude option shall reflect the extent of agreement or disagreement as much as possible. These features of Likert scale make it an ideal approach to measure the degree of trainees' satisfaction towards the training effects and patients' satisfaction towards the medical rehabilitation services they receive. Such questionnaires can accurately tell the operation efficiency of the demonstrative model of tiered rehabilitation system. According to the requirements of Likert scale, we start with collecting relevant materials regarding the training effects and patients' satisfaction. Then we design the questionnaire statements or survey attitude options which are presented in a pro (positive) or con (negative) way. Respondents will then be given 5-point Likert scale. Before composing the scale, we will select the subject, plan relevant statements or attitude description, and express them in pro (positive) or con (negative) way. The we will give the questionnaire or survey to some typical trainees and patients within the demonstrative model of standardized tiered rehabilitation system and ask them to tell us their select the options that best describe their attitude. Usually 5 points are assigned to the "strongly disagree" option and 1 point is assigned to the "strongly agree" option in negative statement. While in positive statement, the stronger a respondent disagrees, the less he or she will be scored. By summing up scores of all items in a questionnaire or survey, we acquire the total score of the attitude of the respondents. Finally, we will rank the total score in the order from high to low, calculate the difference between the top 25% and the bottom 25%, and obtain the average attitude score which can accurately reflect the discrimination of each statement of a questionnaire or survey attitude option. The statement or attitude options with low discrimination ability will be eliminated.

3.3 Research Process

1. Questionnaires are designed using Likert scale to measure patients' satisfaction towards rehabilitation services in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province(See appendix 2) . "Rehabilitation Patients and Families Satisfaction Questionnaire" was distributed to a total of 600 persons in two rehabilitation centers and four

rehabilitation sub-centers. The data were analyzed via spss statistical software, using principal component analysis, KMO sampling adequacy test, principal component analysis and covariance analysis. The results showed that the scale's homogeneity reliability was 0.972 Cronbach's α coefficient, split-half reliability coefficient was 0.905, and content validity index (CVI) was 0.903, greater than the recommended value of 0.8. The structural validity KMO (MSA) value is 0.907, which exceeds the recommended value of 0.6, indicating that the questionnaire design is reliable and effective. The scale was used to investigate a total of 900 rehabilitation patients and their family members in twelve medical institutions under the tiered rehabilitation system in Yunnan Province, including two rehabilitation centers, four rehabilitation sub-centers and six rehabilitation stations.

The trainees' satisfaction towards training in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province (See appendix 3). Rehabilitation Training Satisfaction Questionnaire was distributed to a total of 180 persons in two rehabilitation centers and four rehabilitation sub-centers. The data were analyzed via spss statistical software, using principal component analysis, KMO sampling adequacy test, principal component analysis and covariance analysis. The results showed that the scale's homogeneity reliability was 0.936 Cronbach's α coefficient, split-half reliability coefficient was 0.906, and content validity index (CVI) was 0.912, greater than the recommended value of 0.8. The structural validity KMO (MSA) value is 0.869, which exceeds the recommended value of 0.6, indicating that the questionnaire design is reliable and effective. The scale was used to investigate a total of 300 rehabilitation trainees in twelve medical institutions under the tiered rehabilitation system in Yunnan Province, including two rehabilitation centers, four rehabilitation sub-centers and six rehabilitation stations.

2. Flow Chart of Building the Demonstrative Model of Standardized Tiered Rehabilitation System :List what data needs to be collected, sort the data based on expected providers (Human Resource Dept., Medical Affairs Depts., Finance Dept., Admin Dept. and Equipment Dept.,) send out the sorted checklists, expected providers submit data according to the checklist, gather all the data, make statistical process of the data, analyze the statistical results. See Figure 3-1 for details of the flow chart of the research process of the demonstrative model of tiered rehabilitation system.

Figure 3-1 Flow Chart of Building the Demonstrative Model of Standardized Tiered Rehabilitation System

The standardization demonstration model about rehabilitation of three-level system

Normal data

Administration center

Construction of standardized quality control process of rehabilitation centre

The hardware building of Rehabilitation centre

Rehabilitation centre personnel training

Normal data

Collecting the three-level system of rehabilitation standardized ,scaling evaluation of the number

To veriry abnormal data

Construction of standardized quality control process of next level rehabilitation center

The hardware building of next level rehabilitation center

Collecting the next level rehabilitation center standardized ,scaling evaluation of the number

The next level rehabilitation center personnel training

Construction of standardized quality control process of of the matrix rehabilitation centers

The dardware building of the matrix rehabilitation centers

Collecting the matrix rehabilitation centers standardized ,scaling evaluation of the number

the matrix rehabilitation centers personnel training

Explanation:
Rehabilitation centre:rehabilitation department in the three-stage General Hospital,professional Rehabilitaion Hospital
The next level rehabilitation center:community health service centers

The matrix rehabilitation:community health health service station and home of respect for the aged's infirmary

3.4 Choose Indicators for Evaluating the Operation Efficiency of the Medical Institutions of Standardized Tiered Rehabilitation System

The operation efficiency of the medical institutions of standardized tiered rehabilitation system can be reflected via collecting and analyzing the following data: a. passing rate of hardware equipment for rehabilitation; b. passing rate of rehabilitation personnel allocation; c. passing rate of service capacity (including categories of rehabilitation services, delivery process and satisfaction degree); d. rehabilitation revenue increase rate; e. service acceptance increase rate (including personnel input, equipment equipped and service provided); f. financing increase rate at rehabilitation units; g. personnel income increase rate at rehabilitation units.

3.5 Validate the Accuracy and Feasibility of Building the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province.

The model had been discussed by expert team many times earlier and been modified accordingly. Yunnan Provincial Expert Committee of Building Tiered Rehabilitation System Model in Yunnan Province was formed on 21 May2016. The following six distinguished experts were appointed committee members: Professor Yin Yong(Director of Rehabilitation Department of the Forth Affiliated Hospital of Kunming Medical University, Chairman of Yunnan Society of Physical Medicine and Rehabilitation, Ph. D. Supervisor), Professor Yao Liqing(Director of Rehabilitation Department of the Second Affiliated Hospital of Kunming Medical University, Chairwoman of Yunnan Society of Community Rehabilitation, Ph. D. Supervisor),Professor Chen Zukun(President of the Hospital of Acupuncture and Massage Rehabilitation School of Yunnan University of TCM, Graduate Supervisor), Professor Ye Bin(President of Kunming St. John's Hospital, Chairman of Rehabilitation Society of Yunnan Private Hospital Association, Graduate Supervisor), Professor Han Bin(Director of Rehabilitation Department of Kunming General Hospital of Chengdu Military Area Command), Professor Zhong Wei(Director of Adult Rehabilitation Department of Yunnan Disabled Rehabilitation Center). The expert committee is mainly responsible for drafting, discussing, validating, confirming and modifying Standards of Expert Team Discussions on Building Tiered Rehabilitation System Model in Yunnan Province. On the day of its establishment, the expert committee discussed, validated and confirmed the Hardware Equipment List and the Examination and Acceptance Check Form of Tiered Rehabilitation Institutions, Personnel

Allocation Criteria of Tiered Rehabilitation Institutions, and Evaluation Criteria for Rehabilitation Service Capacity of Tiered Rehabilitation Institutions. The expert committee also discussed, validated and confirmed the Indicators of the Inspection Expert Team for Evaluating the Operation Efficiency of the Medical Institutions of Standardized Tiered Rehabilitation System, which consists 12 indicators under 7 categories, including: a. passing rate of hardware equipment for rehabilitation of tiered rehabilitation institutions; b. passing rate of rehabilitation personnel allocationof tiered rehabilitation institutions; c. passing rate of service capacityof tiered rehabilitation institutions (including categories of disease-oriented rehabilitation services, delivery process and satisfaction degree); d. rehabilitation revenue increase rate; e. service acceptance increase rate (including personnel input, equipment equipped and service provided); f. financing increase rate at rehabilitation units; g. personnel income increase rate at rehabilitation units.

Chinese Expert Committee of Building Tiered Rehabilitation System Model in Yunnan Province was formed on 16 July2016. The following six nationally renowned experts were appointed members of the expert committee: Professor Yan Tiebin(Director of Rehabilitation Department of the Second Affiliated Hospital of Sun Yat-Sen University, Guangdong Association of Rehabilitation Medicine, Ph. D. Supervisor),Professor Zheng Jiejiao(Director of Rehabilitation Department of Huadong Hospital Affiliated to Fudan University, Executive Vice President of Shanghai Association of Rehabilitation Medicine, Ph. D. Supervisor),Professor Jiang Hong(Vice President of Southern Medical University, Ph. D. Supervisor), Professor AoLijuan(Dean of Rehabilitation School of Kunming Medical University, Ph. D. Supervisor),Professor Wu Yi(Director of Rehabilitation Department of Huashan Hospital Affiliated to Fudan University, Chairman of Shanghai Society of Physical Medicine and Rehabilitation, Ph. D. Supervisor),Professor Ye Bin(President of Kunming St. John's Hospital, Executive Chairman of Rehabilitation Committee of Yunnan Society of Combination of Chinese and Western Medicine, Graduate Supervisor). The national expert committee is mainly responsible for discussing and validating the Standards of Expert Team Discussions on Building Tiered Rehabilitation System Model in Yunnan Province, and the Indicators of the Inspection Expert Team for Evaluating the Operation Efficiency of the Medical Institutions of Standardized Tiered Rehabilitation System formulated by Yunnan provincial expert committee. On the day of its establishment, the national expert committee, after discussion and validation, concluded that the standards and indicators worked out by Yunnan provincial expert committee were reasonably designed with strong feasibility and were appropriate for regional trial in Yunnan Province.

On 10 December 2016, Yunnan provincial expert committee met again and discussed on the problems occurred in the implementation of the Standards of Expert Team Discussions on Building

Tiered Rehabilitation System Model in Yunnan Province and the Indicators of the Inspection Expert Team for Evaluating the Operation Efficiency of the Medical Institutions of Standardized Tiered Rehabilitation System. The committee worked out solutions to these problems, which facilitated the project of building tiered rehabilitation system model in Yunnan Province. The experts agreed to build the demonstrative model of standardized tiered system in Yunnan Province first. They also agreed on the design of three tiers of the system and the expected functions of the rehab medical institutions of different tiers. Considering the problems that we are facing in developing rehab in Yunnan Province, the experts suggested that a little change be made to the model to achieve better demonstrative effect when it is implemented. That is, to change rehab sub-center to be grade II medical institution and change rehab station to be grade I medical institution. By doing this, a better exemplary effect of the system will be achieved at the time of implementation. The model then was changed accordingly at the meeting.

When the Convention of Rehabilitation Committee of the Association of Yunnan Private Hospitals was held in Baoshan City, Yunnan Province on 9 December 2017, a total of 35 experts attended the convention and the following experts of them were invited to preside the convention again: Professor Hu Zhong, Director of Rehabilitation Department of the First Hospital Affiliated to Kunming Medical University, Vice Chairman of Yunnan Rehabilitation Society; Professor Li Jia, President of Yunnan BaoshanAnli Hospital; Professor Chen Youyan, Executive Vice President of Kunming St. John's Rehabilitation Hospital; Director Zou Jianwen, Director of Rehabilitation Department of Kaiyuan Workers' Hospital in Honghe Prefecture of Yunnan Province; Director Dong Qining, Director of Rehabilitation Department of XuanweiYunfeng Hospital of Yunnan Province; Director Yang Ligang, Vice President of Yunnan BaoshanAnli Hospital. Six professors (Hu Zhong, Li Jia, Chen Youyan, Zou Jianwen and Dong Qining) out of 35 presenting experts were invited to be the core members of the focus group, and the rest of 29 experts to preside the meeting. The aim is to validate the accuracy and feasibility of building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province again.

At the beginning, the project researcher elaborated the background and construction criteria (including hardware equipment, personnel allocation and service scope) of building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province, the gains and obstacles in its implementation. Then experts gave their opinions. The results of the discussions are as follows:

(1) All the experts agreed on the analysis of Ye Bin, the project researcher, about the background of building the Three-tier Rehabilitation System Model in Yunnan Province. And they all agreed that the rehabilitation in Yunnan is facing the following problems:

a. Some rehab medical institutions have high level rehab techniques but poor management system in Yunnan;

b. Patients in Yunnan Province are eager to get effective tiered rehab system, but the existing rehab service is slow and ineffective;

c. In the implementation of tiered rehab, referral among different tier is disconnected;

d. Medical insurance payment bureau and patients do not understand the huge cost difference between the early timely accurate rehab and the delayed forced long-term rehab, which has resulted in economic burden.

(2) The experts agreed on and appreciated the following three aspects benefits from the implementation of building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province, including: 1) The standards of rehab at different stages have clarified the recovery degree of physical functions after disease clinical treatment; 2) The standardized construction (standardized hardware equipment, standardized personnel allocation and standardized rehabilitation service) of tiered rehab medical institutions, namely rehab center, rehab sub-center and rehab station, has realized standardized rehab treatment for patients at different stages; 3) The standardized construction of tiered rehab medical institutions, namely rehab center, rehab sub-center and rehab station, and standardized rehab have saved medical cost.

Finally, the experts all agreed that the design and conception of building the demonstrative model of standardized tiered system in Yunnan Province is accurate. At present, Chinese government attaches great importance to the development of rehabilitation medicine and many significant documents have been formulated to facilitate its development. In Yunnan Province, the provincial Human Resources and Social Security Department, the jurisdictive organ of the medical insurance payment bureau, added 21 payable rehab services to its catalogue in 2017, expanding from the original 8payable rehab services. All these favorable policies provide reliable guarantees for building the demonstrative model of standardized tiered rehabilitation model in Yunnan Province, suggesting that building the demonstrative model of standardized tiered rehabilitation model in Yunnan Province feasible. All the presiding experts are willing to provide full support for the implementation of building the demonstrative model of standardized tiered rehabilitation model in Yunnan Province.

3.6 Standards of Expert Team Discussions on Building the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

3.6.1. The Hardware Equipment List and the Examination and Acceptance Check Form for the Rehabilitation Center. (See : Table 3-1, Table 3-2)

Table 3-1 Examination and Acceptance Check Form of Rehabilitation Equipment in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Examinee (Rehabilitation Institution):

Rehabilitation Department of Yunnan St. John's Hospital ( )

Kunming St. John's Rehabilitation Hospital ( )

Supplier:	Date of Supply	(date, month, year)
Department User:		Person in Charge (Keeper):
Exterior appearance inspection		
1. Is the Appearance of equipment intact? Yes No		
2. Are the equipment and accessories complete as specified in the packing list? Yes No		
3. Is the equipment surface smooth and intact? Yes No		
4. Are the accessories complete as specified in the appendix of the product manual? Yes No		
5. Other things that to be specified:		
Operation inspection		
1. Read the product manual carefully. Master the procedures and requirements to operate the equipment. Yes No		
2. According to usage requirement, power on the equipment. Make sure that the voltage and power meet the requirements of the equipment. Yes No		
3. Check each of the technical specification of the equipment and compare them with the technical specifications stated in the product manual. Make sure inspections are made to see whether the name of the specification, equipment checking result and technical indicators are qualified. Yes No		
See: Table 3-2		

Notes: 1. Yunnan St. John's Hospital is a grade three general hospital. Kunming St. John's Rehabilitation is a grade two specialized rehabilitation hospital. The examined rehabilitation institution should tick ( ) and put institution stamp there.

    2. This form is made out into duplicate with the examiner and the examinee holding one respectively.

Table 3-2 Hardware Equipment List of the Rehabilitation Institution Engaged in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province.

Name of Equipment	Quantity	Model
Physical Therapy Bed	6 units	Green
Electric Lift Physiotherapy Bed	1 unit	LA268-2
Physiotherapist's Chair	4 units	Blue
Mobile Parallel Bar (Adjustable)	1 unit	Green BX-7
Electric Standing Training Bed	5 units	LA268-5
Posture Correction Mirror	1 set	YQ9
Elastic Training Belt	1 set	
Sandbag Series	1 set	
Wall Rally	1 set	
Wedge Pad	3 units	
Forearm Rotation Training Device	1 set	YS-5
Rehabilitation Training Mat	2 sets	
Mobile Sling Training Grid with Physical Therapy Bed	1 set	Blue YO-3
Wall Bars (with Shoulder Ladder)	1 set	YQ-1
Quadriceps Training Chair	1 unit	Green YX-2
Upper Extremity Training Chair	1 unit	YS-16
Hip Joint Training Chair	1 set	YX-19
Bobath Ball (85cm)	1 unit	Blue
Deluxe Training Bike (Magnetic Driven)	2 units	YX-12C
Hand Training Bike	1 unit	YS-17
Weight Bearing Treadmill for Rehabilitation Purpose	1 unit	BX-14/19
Interactive Walker	1 unit	White
Underarm Crutch, Elbow Crutch, Hand Crutch (1)	1 pair of each	White (one crutch)
Posture Correction Chair for Cerebral Palsy Children	2 units	0
Children's Balance Training Bar	1 set	0
Children's Walk Training Stairs	1 set	0
Children's Stand Training Table	2 set	0
High Back Chair	2 units	0
Children's Trojan	2 units	0
Slide	1 set	0
A Shape Swing	1 set	0
Tunnel	1 set	0
Single Wood Balance Beam for Sensory Integration Training	1 set	0
Big Gyro	1 unit	0

Trampoline	1 unit	0
Wooden Box Chair for Children's Posture Correction	20 units	0
Children's Adjustable Carpentry Board and Accessories	1 set	0
VitalStim Dysphagia Therapy Device	1 unit	
Speech and Cognition Training Cards	5 sets	0
Balance Trails	1 set	0
Children's Balance and Tactile Training Board	1 set	0
Hooping Ball	2 units	0
Peanut Ball	1 unit	0
Recumbent Cross Trainer	2 units	T4
Balance Board with Handle	1 set	
CPM for Lower Extremity	2 units	JX-C1
Dumbbell Series	1 set	18 pieces
Stand Training Table for Four	1 unit	YX-18A
Hand Function Training Devices Package Box	1 set	6 pieces of accessories
Occupational Therapy Table (Adjustable)	2 sets	
Elastic Hand Training Device	1 unit	Blue
Occupational Therapy Training Device Package Cabinet	1 unit	12 pieces of accessories
Angle Ruler	1 set	(White) 5 pieces of accessories
Foam Roller	1 unit	610X200
Adjustable Carpentry Board and Accessories	1 set	4 pieces of accessories
Neuromuscular Electrical Stimulator	4 units	QL/N-IV
Medium Frequency Pulse Electrical Treatment Device	3 units	ZP-100DIIA
Biofeedback Device	4 units	WOND2000FO()
Laser Treatment Device	2 units	HJZ-2
Air Pressure Therapy Device	3 units	QL/IPC-C1
Chest Wall Oscillation Devices	1 unit	YSQO1B
Speech and Cognition Rehabilitation System	1 unit	CP-11
Upper Extremity Rehabilitation Robot	1unit	Moto-Reo
Lower Extremity Rehabilitation Robot	1 unit	Auto-Ambu1
Lower Extremity Rehabilitation Robot (domestic manufacturer)	1 unit	Flexbot
3D Gait Analysis and Assessment System	1 unit	Gai-twatch
Digital Occupational Therapy Assessment and Training System	1 unit	Flextable
Upper Extremity Motion Control Assessment and Training System	1 unit	BF-II100
Posture Control Assessment and Training System	1 unit	BF-FP100
Virtual Reality Interactive Assessment and Training System	1 unit	Biomaster
Wax Machine	1 unit	DK-LL-IV
Exercise Cardiopulmonary and Air Metabolism Analysis System	1 unit	MasterScre

Deep Inspiratory Muscle Trainer	2 units	K5
Inspection Team's Opinion Signature: day/month/year		
Examiner's Opinion Signature: day/month/year		

3.6.2 The Hardware Equipment List and the Examination and Acceptance Check Form for the Rehabilitation Sub-Center. (See : Table 3-3, Table 3-4)

Table 3-3 Examination and Acceptance Check Form of Rehabilitation Equipment in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Examinee (Rehabilitation Institution):

Rehabilitation Department of BaoshanAnliHospital ( )
Rehabilitation Department of AnningDingli Hospital ( )
Rehabilitation Department of LuquanZhongai Hospital ( )
Rehabilitation Department of Shilin County TCM Hospital ( )

Supplier:		Date of Supply	(date, month, year)
Department User:			Person in Charge (Keeper):
Exterior appearance inspection			
1. Is the Appearance of equipment intact? Yes No			
2. Are the equipment and accessories complete as specified in the packing list? Yes No			
3. Is the equipment surface smooth and intact? Yes No			
4. Are the accessories complete as specified in the appendix of the product manual? Yes No			
5. Other things that to be specified:			
Operation inspection			
1. Read the product manual carefully. Master the procedures and requirements to operate the equipment. Yes No			
2. According to usage requirement, power on the equipment. Make sure that the voltage and power meet the requirements of the equipment. Yes No			
3. Check each of the technical specification of the equipment and compare them with the technical specifications stated in the product manual. Make sure inspections are made to see whether the name of the specification, equipment checking result and technical indicators are qualified. Yes No			
See: Table 3-4			

Notes: 1. Rehabilitation Department of BaoshanAnli Hospital, Rehabilitation Department of AnningDingli Hospital,and Rehabilitation Department of LuquanZhongai Hospital are grade two general hospitals. Rehabilitation Department of Shilin County TCM Hospital is a grade two general TCM hospital. The examined rehabilitation institution should tick ( ) and put institution stamp there.

2. This form is made out into duplicate with the examiner and the examinee holding one respectively.

Table 3-4 Hardware Equipment List of the Rehabilitation Institution Engaged in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Name of Equipment	Quantity	Model
Physical Therapy Bed	1unit	Blue
Physiotherapist Chair	2 units	Blue
Mobile Parallel Bar (Adjustable)	1 set	Deep Green
Electric Standing Training Bed	1 unit	Blue (Ankle Joint Adjustable) KH-DZC
Posture Correction Mirror	1 set	Blue
Elastic Training Belt	1 set	2belts (purple, blue)
Sandbag Series	1 set	0.5 /0.75/1/1.5/2/2.5kg, one pair for each weight
Mobile Sling Training Grid with Physical Therapy Bed	1 set	Blue
Wall Bars (with Shoulder Ladder)	1 set	Blue
Quadriceps Training Chair	1unit	Blue HK-JZY
Bobath Ball (85cm)	1 unit	Yellow
Deluxe Training Bike (Magnetic Driven)	1 unit	P-GLC-E
Weight Bearing Treadmill for Rehabilitation Purpose	1 unit	B-JZB-B2 (two sets of sling rope)
Interactive Walker	1 unit	White
Underarm Crutch, Elbow Crutch, Hand Crutch (1)	1 pair of each	White (one crutch)
Recumbent Cross Trainer	1 unit	0
Dumbbell Series	1 set (18 pieces)	KH-YL Two pieces of 5-pound weight, four pieces of4, 3, 2, 1 pound weight respectively
Stand Training Table for Four	1 unit	Blue HK-ZLJ-O2
Hand Function Training Devices Package Box	1 set	6 pieces of accessories
Occupational Therapy Table (Adjustable)	2 sets	Yellow KH-OT
Elastic Hand Training Device	1 unit	Blue
Occupational Therapy Training Device Package Cabinet	1 unit	12 pieces of accessories
Angle Ruler	1 set	(White) 5 pieces of accessories
Adjustable Carpentry Board and Accessories	1 set	4 pieces of accessories KH-MBF
Biofeedback Device	1 unit	WOND2000FO
Inspection Team's Opinion Signature: day/month/year		
Examiner's Opinion Signature: day/month/year		

3.6.3 The Hardware Equipment List and the Examination and Acceptance Check Form for the Rehabilitation Station. (See : Table 3-5, Table 3-6)

Table 3-5 Examination and Acceptance Check Form of Rehabilitation Equipment in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Examinee (Rehabilitation Institution):
Rehabilitation Department of Banqiao Health Center of Baoshan City ( )
Rehabilitation Department of Hongxi Health Center of Mile City ( )
Rehabilitation Department of LuquanZhongaiXiuping Hospital ( )
Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County ( )
Rehabilitation Department of Shilin Community Health Center of Shilin County ( )
Daba Community Service Station of Vacation Resort of Kunming Xishan District ( )

Supplier:	Date of Supply	(date, month, year)
Department User:		Person in Charge (Keeper):
Exterior appearance inspection		
1. Is the Appearance of equipment intact? Yes No		
2. Are the equipment and accessories complete as specified in the packing list? Yes No		
3. Is the equipment surface smooth and intact? Yes No		
4. Are the accessories complete as specified in the appendix of the product manual? Yes No		
5. Other things that to be specified:		
Operation inspection		
1. Read the product manual carefully. Master the procedures and requirements to operate the equipment. Yes No		
2. According to usage requirement, power on the equipment. Make sure that the voltage and power meet the requirements of the equipment. Yes No		
3. Check each of the technical specification of the equipment and compare them with the technical specifications stated in the product manual. Make sure inspections are made to see whether the name of the specification, equipment checking result and technical indicators are qualified. Yes No		
See: Table 3-6		

Notes: 1. Rehabilitation Department of Banqiao Health Center of Baoshan City, Rehabilitation Department of Hongxi Health Center of Mile City, Rehabilitation Department of LuquanZhongaiXiuping Hospital, Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County，   Rehabilitation Department of Shilin Community Health Center of Shilin County and Daba Community Service Station of Vacation Resort   of Kunming Xishan District are grade one general hospital. The examined rehabilitation institution should tick ( ) and put institution stamp there.
        2. This form is made out into duplicate with the examiner and the examinee holding one respectively.

Table 3-6 Hardware Equipment List of the Rehabilitation Institution Engaged in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Name of Equipment	Quantity	Model
Computer Controlled Medium Frequency Electrical Treatment Device	2 units	Model BA2008－II (160713005, 160717024)
Ultrasound Therapy Device	1 unit	838 A-H-O-S (Standard) (A-802796)
Air Pressure Massage Device	2 units	Q/HAMJ01-2015
Infrared Treatment Device	2 units	Vertical with Small Treating Head
Dumbbell Series	1 set	KH-YL
Breathe Training Device	1 unit	CTR-203
Elastic Training Belt	1 set	2 belts (green, purple)
Sandbag Series	1 set	
Inspection Team's Opinion Signature: day/month/year		
Examiner's Opinion Signature: day/month/year		

3.7 Personnel Allocation Structure Criteria of the Rehabilitation Medical Institution in the Tiered Rehabilitation System

The personnel allocation structure criteria of the rehabilitation medical institutions, including rehabilitation centers, rehabilitation sub-centers and stations, is verified and formulated by the expert team of building demonstrative model of standardized tiered rehabilitation system in Yunnan Province as follows: A. There shall be at least 6 clinical doctors, 12 therapists and 10 nurses engaged in rehabilitation in a rehabilitation center. The ratio of clinical doctor to therapist shall reach 1:2 or above; the ratio of clinical doctor to nurse shall reach 1:2 or above. B. There shall be at least 3 clinical doctors, 6 therapists and 6 nurses engaged in rehabilitation in a rehabilitation sub-center. The ratio of clinical doctor to therapist shall reach 1:2 or above; the ratio of clinical doctor to nurse shall reach 1:2 or above. C. There shall be at least 1 clinical doctor, 2 therapists and 1 nurse engaged in rehabilitation in a rehabilitation station. The ratio of clinical doctor to therapist shall reach 1:1 or above; the ratio of clinical doctor to nurse shall reach 1:1 or above.

3.8 Evaluation Criteria of Rehabilitation Medical Institutions in the Tiered Rehabilitation System

The evaluation criteria of rehabilitation service capacity of rehabilitation centers, rehabilitation sub-centers and rehabilitation stations in the tiered rehabilitation system which is verified by the expert team in building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province is: A. Rehabilitation centers shall achieve notable improvement after receiving rehabilitation training. The rehabilitation specialties that rehabilitation centers provide shall cover at least any five specialties chosen from cardiac rehabilitation, pulmonary rehabilitation, intensive care rehabilitation, spine and spinal cord rehabilitation, bone and joint rehabilitation, pain rehabilitation, wounds rehabilitation, pediatric rehabilitation and geriatric rehabilitation, and compulsory neurological rehabilitation. Rehabilitation service shall be delivered based on disease category in unified rehabilitation path. The satisfaction score of rehabilitation patients shall not be below 95 points. B. Rehabilitation sub-centers shall achieve notable improvement after receiving rehabilitation training. The rehabilitation specialties that rehabilitation sub-centers provide shall cover at least any three specialties chosen from cardiac rehabilitation, pulmonary rehabilitation, spine and spinal cord rehabilitation, bone and joint rehabilitation, pain rehabilitation, wounds rehabilitation, pediatric rehabilitation and geriatric rehabilitation, and the compulsory neurological rehabilitation. Rehabilitation service shall be delivered based on disease category in unified rehabilitation path. The satisfaction score of rehabilitation patients shall not be below 90 points. C. Rehabilitation stations shall achieve notable improvement after receiving rehabilitation training. The rehabilitation specialties that rehabilitation stations provide shall cover at least any two specialties chosen from cardiac rehabilitation, pulmonary rehabilitation, spine and spinal cord rehabilitation, bone and joint rehabilitation, pain rehabilitation, wounds rehabilitation, pediatric rehabilitation and geriatric rehabilitation, and compulsory neurological rehabilitation. Rehabilitation service shall be delivered based on disease category in unified rehabilitation path. The satisfaction score of rehabilitation patients shall not be below 85 points.

3.9 Process Data

Use EXCEL 2003 and SPSS 15.0 to run one-way ANOVA and matched t-test of the data to process the data.

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Chapter 4: Results

According to the requirements of the final opinion resulting from the many times experts discussions on building the demonstrative model of standardized tiered system in Yunnan Province, and based on the principle of achieving the goal of standardized tiered rehabilitation treatment for patients, the examination and acceptance check are conducted on standardized construction (standardized hardware equipment, standardized personnel allocation and standardized rehabilitation service) of all the rehabilitation institutions that are engaged in the system, including rehabilitation centers, rehabilitation sub-centers and rehabilitation stations.

4.1 Passing Rate of Hardware Equipment in Rehabilitation Institutions of Different Tiers

The examination and acceptance check of each member are conducted in accordance with the hardware equipment list and the examination and acceptance check form designed as per standards of expert team discussions on building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province.

4.1.1 Passing Result of Rehabilitation Institution's Hardware Equipment of the Rehabilitation Centers

Through careful examination, the inspection expert team concludes that the hardware equipment and operating passing rate in the Rehabilitation Department of Yunnan St. John Hospital and Kunming St. John's Rehabilitation Hospital is 100%.

4.1.2 Passing Result of Rehabilitation Institution's Hardware Equipment of the Rehabilitation Sub-Centers

Through careful examination, the inspection expert team concludes that the hardware equipment and operating passing rate in the four examinees, namely Rehabilitation Department of Baoshan Anli Hospital, Rehabilitation Department of Anning Dingli Hospital, Rehabilitation Department of Luquan Zhongai Hospital and Rehabilitation Department of Shilin County TCM

Hospital is 100%.

4.1.3 Passing Result of Rehabilitation Institution's Hardware Equipment of the Rehabilitation Stations

Through careful examination, the inspection expert team concludes that the hardware equipment and operating passing rate in the six examinees, namely Rehabilitation Department of Banqiao Health Center of Baoshan City, Rehabilitation Department of Hongxi Health Center of Mile City, Rehabilitation Department of Luquan Zhongai Xiuping Hospital, Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County and Rehabilitation Department of Shilin Community Health Center of Shilin Countyis 100%.

4.2 Personnel Allocation Passing Rate of Rehabilitation Medical Institutions in the Tiered Rehabilitation System

The rehabilitation personnel allocation criteria of each rehabilitation medical institution in the tiered rehabilitation system is composed of personnel allocation structure criteria and personnel training goal. The personnel allocation structure criteria of the rehabilitation medical institutions, including rehabilitation centers, rehabilitation sub-centers and stations, is verified and formulated by the expert team of building demonstrative model of standardized tiered rehabilitation system in Yunnan Province. The personnel training goal is designed based on requirements for the rehabilitation concept, rehabilitation techniques and rehabilitation service capacity of the rehabilitation personnel of rehabilitation medical institutions in the tiered rehabilitation system, adopting Experiential Learning Theory as guidance. The examination and acceptance of personnel allocation passing rate of each rehabilitation medical institution in the tiered rehabilitation system is conducted in accordance with the personnel allocation structure criteria and personnel training goal.

The statistics consist three parts: the rehabilitation personnel allocation condition before the rehabilitation medical institutions, including rehabilitation center, rehabilitation sub-center and rehabilitation station, join in building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province (abbreviation: before join in the model), the rehabilitation personnel allocation condition in the first year of inclusion to building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province (abbreviation: first year), and the rehabilitation personnel allocation condition in the second year of inclusion to building the

demonstrative model of standardized tiered rehabilitation system in Yunnan Province (abbreviation: second year). The statistics of each part are then formed by data of five aspects: number of rehabilitation doctor (abbreviation: doctor), number of rehabilitation therapist (abbreviation: therapist), number of rehabilitation nurse (abbreviation: nurse), the ratio of rehabilitation doctor to rehabilitation therapist (abbreviation: doctor: therapist ratio), and the ration of rehabilitation doctor to rehabilitation nurse (abbreviation: doctor : nurse ratio). The statistics of the second year of inclusion to building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province is used to check whether the rehabilitation medical institution has reached the indicator of rehabilitation personnel allocation criteria. The change of the statistics of the three parts over the years of inclusion to building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province is used to check the continuing concern of the rehabilitation medical institutions made to their rehabilitation personnel allocation.

4.2.1 Passing Condition of Personnel Allocation in Rehabilitation Centers

The statistics of the second year after Yunnan St. John's Hospital joining in building the demonstrative model of standardized tiered system in Yunnan Province show that it has 100% reached the rehabilitation personnel allocation criteria of rehabilitation center which is verified and formulated by the expert team of building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province in all the five components: number of rehabilitation doctor (abbreviation: doctor), number of rehabilitation therapist (abbreviation: therapist), number of rehabilitation nurse (abbreviation: nurse), the ratio of rehabilitation doctor to rehabilitation therapist (abbreviation: doctor : therapist ratio), and the ration of rehabilitation doctor to rehabilitation nurse (abbreviation: doctor : nurse ratio). The change of the statistics of the three parts over the years of inclusion to building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province show that Yunnan St. John's Hospital is continuously concerned about and attaches great importance to the rehabilitation personnel allocation (see Table 4-1).

The statistics of the second year after Kunming St. John's Rehabilitation Hospital joining in building the demonstrative model of standardized tiered system in Yunnan Province show that it has 100% reached the rehabilitation personnel allocation criteria of rehabilitation center which is verified and formulated by the expert team of building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province in all the five components: number of rehabilitation doctor (abbreviation: doctor), number of rehabilitation therapist (abbreviation:

therapist), number of rehabilitation nurse (abbreviation: nurse), the ratio of rehabilitation doctor to rehabilitation therapist (abbreviation: doctor : therapist ratio), and the ration of rehabilitation doctor to rehabilitation nurse (abbreviation: doctor : nurse ratio). The change of the statistics of the three parts over the years of inclusion to building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province show that Kunming St. John's Rehabilitation Hospital attaches great importance to the development of rehabilitation service and is continuously concerned about matching the number of rehabilitation personnel with rehabilitation service work load (**See:** Table 4-1).

Table 4-1 Rehabilitation Personnel Allocation Form of Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Personnel Allocation in Rehabilitation Centers   Unit: person

Year	Center 1			Center 2		
	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse
Before join in the model	0	0	0	0	0	0
Doctor: Therapist Ratio		0 ： 0			0 ： 0	
Doctor: Nurse Ratio		0 ： 0			0 ： 0	
First Year	5	6	8	5	8	10
Doctor: Therapist Ratio		1 ： 1. 2			1： 1. 6	
Doctor: Nurse Ratio		1 ： 1. 6			1 ： 2	
Second Year	10	20	22	8	18	16
Doctor: Therapist Ratio		1 ： 2			1 ： 2. 25	
Doctor: Nurse Ratio		1 ： 2. 2			1 ： 2	

Notes: Center 1 stands for Yunnan St. John's Hospital. Center 2 stands for Kunming St. John's Rehabilitation Hospital.

4.2.2 Passing Condition of Personnel Allocation in Rehabilitation Sub-centers

The statistics of the second year after the inclusion of four rehabilitation sub-centers, namely Rehabilitation Department of Luquan County Zhongai Hospital, Rehabilitation Department of Shilin County TCM Hospital, Rehabilitation Department of Baoshan Anli Hospital, and Rehabilitation Department of Anning City Dingli Hospital, into the demonstrative model of standardized tiered system in Yunnan Province show that they have 100% reached the rehabilitation personnel allocation criteria of rehabilitation sub-center which is verified and formulated by the expert team of building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province in all the five components: number of rehabilitation doctor (abbreviation: doctor), number of rehabilitation therapist (abbreviation: therapist), number of rehabilitation nurse (abbreviation: nurse), the ratio of rehabilitation doctor to rehabilitation

therapist (abbreviation: doctor : therapist ratio), and the ration of rehabilitation doctor to rehabilitation nurse (abbreviation: doctor : nurse ratio). The change of the statistics of the three parts over the years of inclusion to building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province show that rehabilitation sub-centers attach great importance to the development of rehabilitation service and are continuously concerned about matching the number of rehabilitation personnel with rehabilitation service work load (**See** Table 4-2)

4.2.3 Passing Condition of Personnel Allocation in Rehabilitation Stations

The statistics of the second year after the inclusion of six rehabilitation stations, namely Rehabilitation Department of Banqiao Health Center of Baoshan City, Rehabilitation Department of Hongxi Health Center of Mile City, Rehabilitation Department of Zhangai Xiuping Hospital of Luquan County, Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County, Rehabilitation Department of Shili Community Health Center of Shilin County, and Daba Community Service Station of Vacation Resort of Kunming Xishan District, into the demonstrative model of standardized tiered system in Yunnan Province show that they have 100% reached the rehabilitation personnel allocation criteria of rehabilitation station which is verified and formulated by the expert team of building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province in all the five components: number of rehabilitation doctor (abbreviation: doctor), number of rehabilitation therapist (abbreviation: therapist), number of rehabilitation nurse (abbreviation: nurse), the ratio of rehabilitation doctor to rehabilitation therapist (abbreviation: doctor : therapist ratio), and the ration of rehabilitation doctor to rehabilitation nurse (abbreviation: doctor : nurse ratio). The change of the statistics of the three parts over the years of inclusion to building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province show that rehabilitation stations attach great importance to the development of rehabilitation service and are continuously concerned about matching the number of rehabilitation personnel with rehabilitation service work load (See: Table 4-3).

Table 4-2 Rehabilitation Personnel Allocation Form of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Personnel Allocation in Rehabilitation Sub-centers　　　　Unit: person

Year	Sub-center 1			Sub-center 2			Sub-center 3			Sub-center 4		
	Doctor	Therapist	Nurse	Doctor		Doctor	Therapist	Nurse	Doctor		Doctor	Therapist
Before join in the model	0	0	0	0	0	0	3	3	4	2	3	3
Doctor: Therapist Ratio	0 ： 0			0 ： 0			1 ： 1			1 ： 1.5		
Doctor: Nurse Ratio	0 ： 0			0 ： 0			1 ： 1.33			1 ： 1.5		
First Year	3	3	1 ： 1.33			6	4	7	8	3	6	6
Doctor: Therapist Ratio	1 ： 1			1 ： 1.33			1 ： 1.75			1 ： 2		
Doctor: Nurse Ratio	1 ： 1.67			1: 2			1 ： 2			1 ： 2		
Second Year	5	12	1 ： 2			10	6	16	12	5	12	10
Doctor: Therapist Ratio	1 ： 2.4			1 ： 2			1 ： 2.67			1 ： 2.4		
Doctor: Nurse Ratio	1 ： 2			1 ： 2			1 ： 2			1 ： 2		

Notes: Sub-center 1 stands for Rehabilitation Department of Luquan County Zhongai Hospital. Sub-center 2 stands for Rehabilitation Department of Shilin County TCM Hospital. Sub-center 3 stands for Rehabilitation Department of Baoshan Anli Hospital. Sub-center 4 stands for Rehabilitation Department of Anning City Dingli Hospital.

4.3 Passing Rate of Rehabilitation Service Capacity Evaluation of the Medical Institutions in Tiered Rehabilitation System

The evaluation indicators of rehabilitation service capacity of each rehabilitation medical institution in the tiered rehabilitation system is composed of rehabilitation training effect evaluation criteria, rehabilitation specialties criteria, rehabilitation service procedures criteria, and rehabilitation patients and families' satisfaction criteria. The evaluation indicators of rehabilitation service capacity of rehabilitation centers, rehabilitation sub-centers and rehabilitation stations in the tiered rehabilitation system are verified by the expert team of building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province. The goal of rehabilitation service capacity evaluation is to

see how the construction objective which is formulated based on General System Theory is fulfilled in terms of the concept change of rehabilitation personnel after rehabilitation training, rehabilitation specialty extension, and rehabilitation patients' satisfaction of rehabilitation medical institutions in the tiered rehabilitation system. The examination and acceptance of passing rate of rehabilitation service capacity of each rehabilitation medical institution in the tiered rehabilitation system in accordance with rehabilitation service capacity evaluation criteria and construction objective.

Table 4-3: Rehabilitation Personnel Allocation Form of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Personnel Allocation in Rehabilitation Stations   Unit: person

Year	Station 1			Station 2			Station 3			Station 4			Station 5			Station 6		
	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse	Doctor	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse	Doctor
Before join in the model	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Doctor:Therapist Ratio	0 : 0			0 : 0			0 : 0			0 : 0			0 : 0			0 : 0		
Doctor:Nurse Ratio	0 : 0			0 : 0			0 : 0			0 : 0			0 : 0			0 : 0		
First Year	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Doctor:Therapist Ratio	1 : 1			1 : 1			1 : 1			1 : 1			1 : 1			1 : 1		
Doctor:Nurse Ratio	1 : 1			1 : 1			1 : 1			1 : 1			1 : 1			1 : 1		
Second Year	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Doctor:Therapist Ratio	1 : 1			1 : 1			1 : 1			1 : 1			1 : 1			1 : 1		
Doctor:Nurse Ratio	1 : 1			1 : 1			1 : 1			1 : 1			1 : 1			1 : 1		

Notes: Station 1 stands for Rehabilitation Department of Banqiao Health Center of Baoshan City. Station 2 stands for Rehabilitation Department of Hongxi Health Center of Mile City. Station 3 stands for Rehabilitation Department of Zhangai Xiuping Hospital of Luquan County. Station 4 stands for Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County. Station 5 stands for Rehabilitation Department of Shili Community Health Center of Shilin County. Station 6 stands for Daba Community Service Station of Vacation Resort   of Kunming Xishan District.

Evaluation is conducted in four aspects to examine the rehabilitation service capacity of rehabilitation centers, rehabilitation sub-centers and rehabilitation stations in the tiered rehabilitation system, including rehabilitation training effect evaluation (composed of two Figures, namely evaluation Figure of rehabilitation personnel training satisfaction of medical institutions in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province and evaluation Figure of rehabilitation personnel understanding questionnaire of medical institutions in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province), rehabilitation specialty evaluation, rehabilitation service procedure evaluation, and rehabilitation patients and families' satisfaction evaluation (shown via evaluation Figure of rehabilitation patients and families satisfaction of medical institutions in demonstrative model of standardized tiered rehabilitation system in Yunnan Province. Each of the four aspects includes two sets of data, namely the first year's rehabilitation personnel allocation condition of the medical institutions in demonstrative model of standardized tiered rehabilitation system in Yunnan Province (referred to as first year) and the second year's rehabilitation personnel allocation condition of the medical institutions in demonstrative model of standardized tiered rehabilitation system in Yunnan Province (referred to as second year).

Evaluation Figure of rehabilitation personnel training satisfaction of medical institutions in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province can clearly show the specific training demand and improvement effect of every medical institution included in building the model. Evaluation Figure of rehabilitation personnel understanding questionnaire of medical institutions in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province can clearly show the existing problems of rehabilitation concept change of the personnel of every medical institution included in building the model, and provide rapid detail support for the medical institution included in the model to continuously improve its personnel's understanding about rehabilitation. Evaluation Figure of rehabilitation patients and families satisfaction of medical institutions in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province can clearly show highlights and existing problems of the rehabilitation services provided by every medical institution included in the model, and provide rapid detail support for the medical institution included in the model to continuously improve rehabilitation patients satisfaction and explore the way to share and promote rehabilitation service highlights. Therefore, brief accurate design of Figure is very critical.

(1). To facilitate the Figure, the training contents, listed along the horizontal axis, of the evaluation Figure of rehabilitation personnel training satisfaction of medical institutions in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province is

represented in short by serial number. The corresponding relation is as described in Table 4-4.

Table 4-4 The Corresponding Relation Between Rehabilitation Training Satisfaction Contents and the Serial Number

No.	Contents
Training 1	The rehabilitation training has clear objectives.
Training 2	The training content is appropriately planned.
Training 3	The training content is practical.
Training 4	The instructors are good.
Training 5	The training content is well organized.
Training 6	The training content is important.
Training 7	The training content is feasible.
Training 8	The training content includes relevant theories.
Training 9	The training content is relevant to your work.
Training 10	The training combines theory and practice.
Training 11	The training materials are helpful with your learning.
Training 12	The design of discussion is appropriate.
Training 13	The design of homework is appropriate.
Training 14	The design of practice is appropriate.
Training 15	The design of exam is appropriate.
Training 16	The training is helpful.
Training 17	The classroom atmosphere is properly built.
Training 18	Questions are answered briefly, clearly and accurately.
Training 19	The training improves your rehabilitation expertise.
Training 20	Continuous training plans are provided.

(2). To facilitate the Figure, the personnel rehabilitation questionnaire contents, listed along the horizontal axis, of the evaluation Figure of rehabilitation personnel understanding questionnaire of medical institutions in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province is represented in short by serial number. The corresponding relation is as described in Table 4-5.

Table 4-5 The Corresponding Relation Between Personnel Rehabilitation Questionnaire Contents and the Serial Number

No.	Contents
Questionnaire 1	In the past, what was your understanding about the feasibility of the tiered rehabilitation of the tiered rehabilitation system?
Questionnaire 2	In the past, what was your opinion on the feasibility of the function position of the tiered rehabilitation system in Yunnan Province?
Questionnaire 3	What do you think about the change of benefits that the tiered rehabilitation system in Yunnan Province bring to patients?
Questionnaire 4	What do you think about the change of usage of rehabilitation medical resources that the tiered rehabilitation system in Yunnan Province brings?
Questionnaire 5	What do you think about establishing the cooperation between rehabilitation department and other departments within a hospital?
Questionnaire 6	Do you think the cooperation between rehabilitation department and other departments within a hospital feasible?
Questionnaire 7	What do you think about establishing the cooperation among medical institutions, and between medical and non-medical institutions?
Questionnaire 8	Do you think the cooperation among medical institutions, and between medical and non-medical institutions feasible?
Questionnaire 9	After training, what is your understanding about the feasibility of the tiered rehabilitation of the tiered rehabilitation system?
Questionnaire 10	After training, what is your opinion on the feasibility of the function position of the tiered rehabilitation system in Yunnan Province?
Questionnaire 11	After training, what do you think about establishing the cooperation between rehabilitation department and other departments within a hospital?
Questionnaire 12	After training, do you think the cooperation between rehabilitation department and other departments within a hospital feasible?
Questionnaire 13	After training, what do you think about establishing the cooperation among medical institutions, and between medical and non-medical institutions?
Questionnaire 14	After training, do you think the cooperation among medical institutions, and between medical and non-medical institutions feasible?
Questionnaire 15	To your understanding, what is the relationship between building the demonstrative project of tiered rehabilitation system and government policies?
Questionnaire 16	To your understanding, what is the relationship between promoting the tiered rehabilitation system and government policies?

(3). To facilitate the Figure, the rehabilitation patients and families satisfaction contents, listed along the horizontal axis, of the evaluation Figure of rehabilitation patients and families satisfaction of medical institutions in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province is represented in short by serial number. The corresponding relation is as described in Table 4-6.

Table 4-6 The Corresponding Relation Between Rehabilitation Patients and Families Contents and the Serial Number

No.	Contents
Satisfaction 1	The doctors check out the patient timely after admission.
Satisfaction 2	The nurses check out the patient timely after admission.
Satisfaction 3	The patient receives clinical and rehabilitation services at the same time.
Satisfaction 4	The doctors and physiotherapists explain clearly to the patient and families about the illness.
Satisfaction 5	The doctors and physiotherapists explain clearly to the patient and families about the rehabilitation plans.
Satisfaction 6	The doctors and physiotherapists explain clearly to the patient and families about the rehabilitation therapy content and purposes.
Satisfaction 7	The doctors and physiotherapists explain clearly to the patient and families about rehabilitation objectives.
Satisfaction 8	The nurses explain clearly to the patient and families about rehabilitation prognosis and contraindications.
Satisfaction 9	The nurses explain in detail about the ward environment and matters to pay attention to when the patient is admitted.
Satisfaction 10	The nurses explain in detail about the layout of rehabilitation therapy zone and matters to pay attention to when the patient is admitted.
Satisfaction 11	The physiotherapists comply with rehabilitation plans.
Satisfaction 12	The nurses give instructions on daily life and caring knowledge.
Satisfaction 13	The physiotherapists give instructions on mobility and rehabilitation knowledge.
Satisfaction 14	The rehabilitation plans are adjusted to the changes of illness and functions timely.
Satisfaction 15	Traditional Chinese rehabilitation and western rehabilitation services are provided simultaneously.
Satisfaction 16	Do you like the rehabilitation facilities in the hospital?
Satisfaction 17	Have you been provided with ongoing rehabilitation therapy?
Satisfaction 18	What do you think about the rehabilitation effect?
Satisfaction 19	What do you think about the discharge plan on rehabilitation training and advises?
Satisfaction 20	What do you think about the advises that aim at ensuring ongoing rehabilitation training?

4.3.1 Passing Condition of Rehabilitation Service Capacity of Every Medical Institution Included in Building the Model as Rehabilitation Centers

(1) As a rehabilitation center, Yunnan St. John's Hospital achieved notable improvements in (Rehabilitation Personnel rehabilitation concepts(See Figure 4-1), rehabilitation understanding (See Figure 4-2) after rehabilitation trainings; the rehabilitation services it provides cover six specialties, including cardiac rehabilitation, pulmonary rehabilitation, intensive care rehabilitation, spine and spinal cord rehabilitation, bone and joint rehabilitation, and pain rehabilitation, plus neurological

Rehabilitation .In the whole process of delivering rehabilitation service, the unified rehabilitation path standard is observed according to the type of disease. Rehabilitation patients and families' satisfaction degree is at least 95 points (See Figure 4-3). Yunnan St. John's Hospital has 100% reached the indicator of rehabilitation service capacity.

Figure 4-1 Evaluation Figure of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Yunnan St. John's Hospital   Number of samples: 30 people
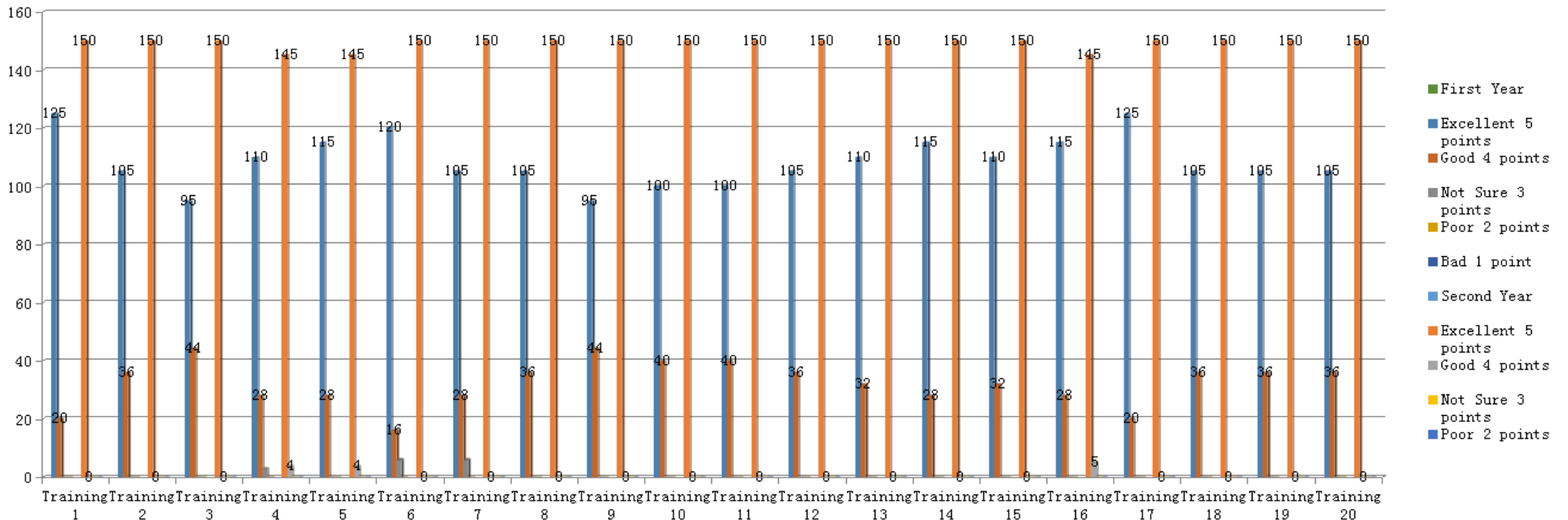
Achieved notable improvements in rehabilitation concepts after rehabilitation trainings: First year: total score 2,689 points, average score 89.6 points. Second year: total score 2,998 points, average score 99.9 points.

Figure 4-2 Evaluation Figure of Rehabilitation Personnel Understanding Questionnaire of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Yunnan St. John's Hospital　　Number of samples: 30 people

Notes: 30 distributions to sample interviewees.

Achieved notable improvements in rehabilitation understanding after rehabilitation trainings: First year: total score 2,161 points, average score 72 points. Second year: total score 2,264 points, average score 75.5 points.

Figure 4-3 Evaluation Figure of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Yunnan St. John's Hospital   Number of samples: 100 people

Notes: 100 distributions to sample patients and family members.

Rehabilitation patients and families satisfaction: First year: total score 9,304 points, average score 93.0 points. Second year: total score 9,815 points, average score 98.2 points.

(2) As a rehabilitation center, Kunming St. John's Rehabilitation Hospital achieved notable improvements in rehabilitation concepts(**See** Figure 4-4) and rehabilitation understanding(**See** Figure 4-5) after rehabilitation trainings; the rehabilitation services it provides cover nine specialties, including cardiac rehabilitation, pulmonary rehabilitation, intensive care rehabilitation, spine and spinal cord rehabilitation, bone and

joint rehabilitation, pain rehabilitation, wounds rehabilitation, pediatric rehabilitation and geriatric rehabilitation, plus neurological rehabilitation. In the whole process of delivering rehabilitation service, the unified rehabilitation path standard is observed according to the type of disease. Rehabilitation patients and families' satisfaction degree is at least 95 points (See Figure 4-6). Kunming St. John's Rehabilitation Hospital has 100% reached the indicator of rehabilitation service capacity.

Figure 4-4 Evaluation Figure of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Kunming St. John's Rehabilitation Hospital   Number of samples: 30 people
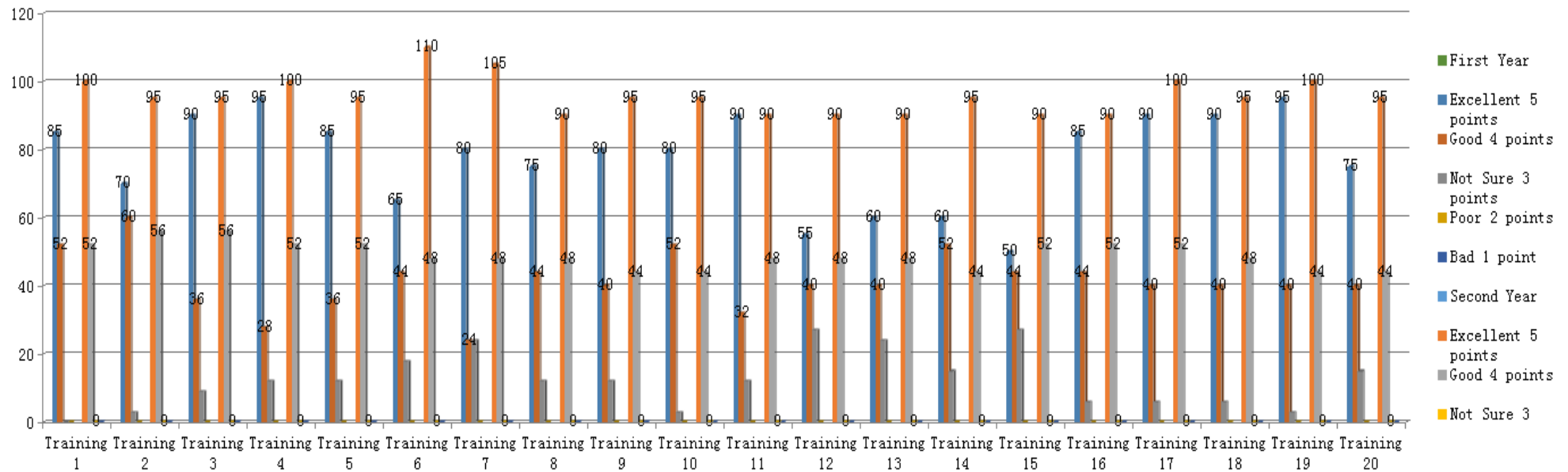
Notes: 30 distributions to sample trainees.

Achieved notable improvements in rehabilitation concepts: First year: total score 2,629 points, average score 87.6 points. Second year: total score 2,895 points, average score 96.5 points.

Figure 4-5 Evaluation Figure of Rehabilitation Personnel Understanding Questionnaire of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Kunming St. John's Rehabilitation Hospital   Number of samples: 30 people

Notes: 30 distributions to sample interviewees.

Achieved notable improvements in rehabilitation understanding: First year: total score 1,960 points, average score 65.3 points. Second year: total score 2,384 points, average score 79.5 points.

Figure 4-6 Evaluation Figure of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

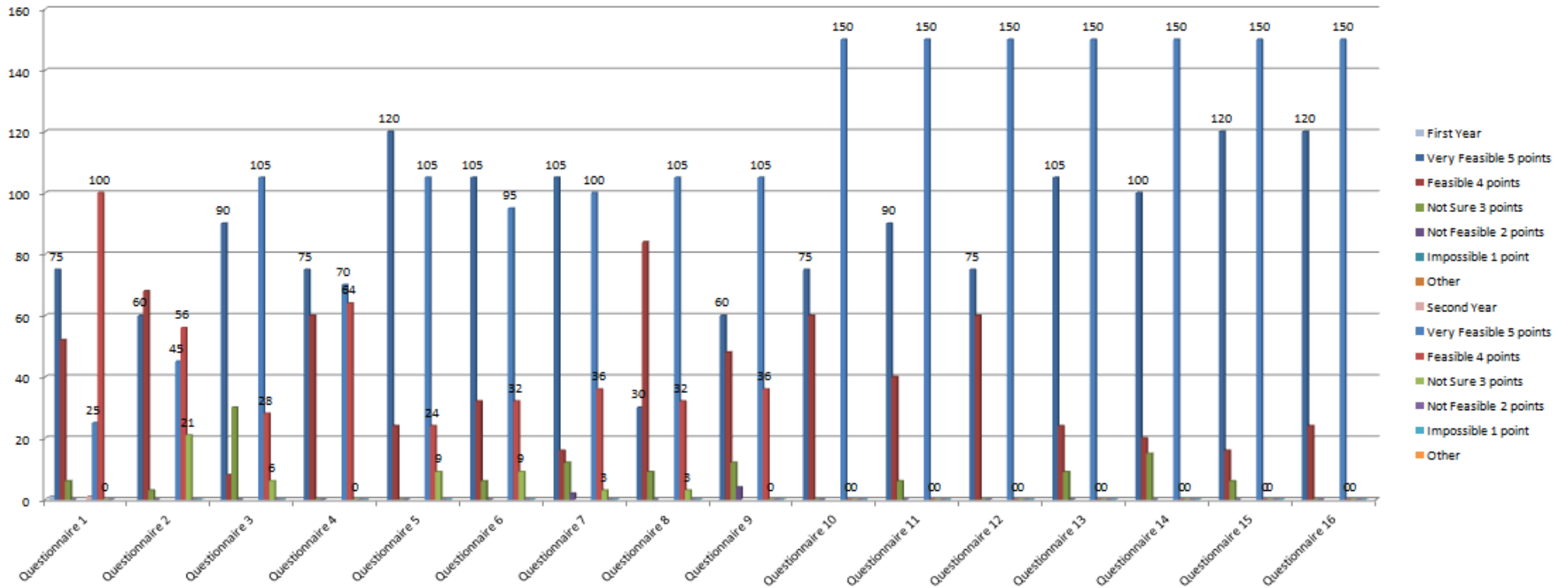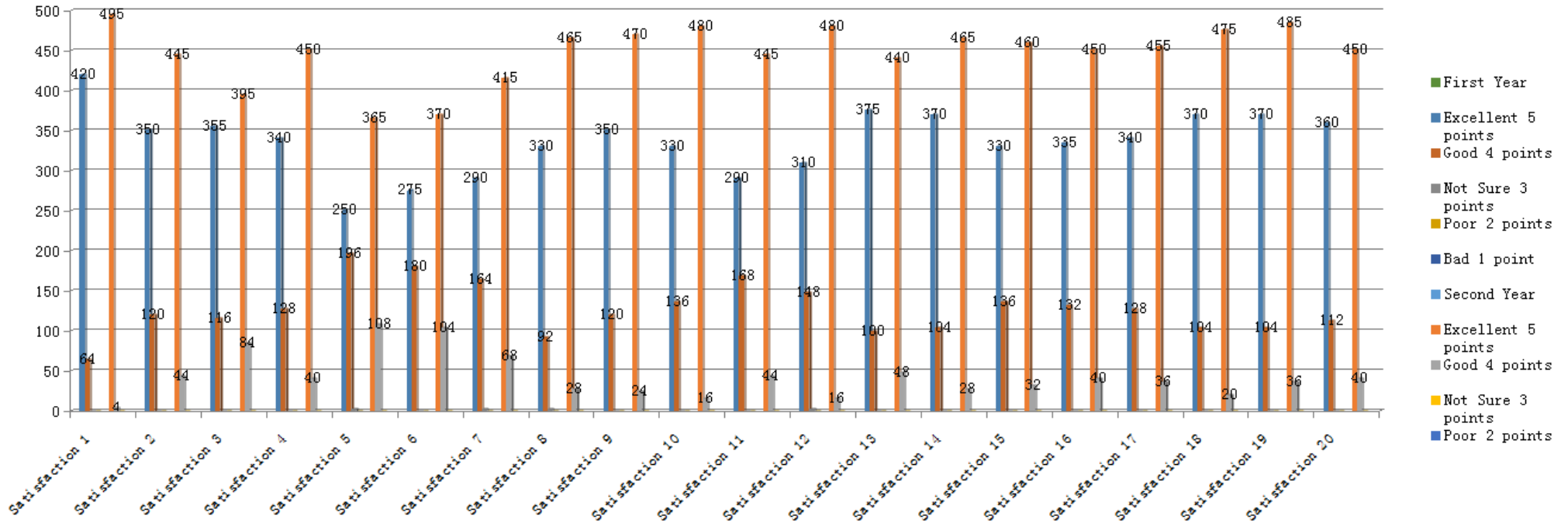Unit: Kunming St. John's Rehabilitation Hospital   Number of samples: 100 people

Notes: 100 distributions to sample patients and family members.

Rehabilitation patients and families' satisfaction degree : First year: total score 9,251 points, average score 92.5 points. Second year: total score 9,526 points, average score 95.3 points.

4.3.2 Passing Condition of Rehabilitation Service Capacity of Every Medical Institution Included in Building the Model as Rehabilitation Sub-centers

(1)   As a rehabilitation sub-center, Rehabilitation Department of Luquan County Zhongai Hospital achieved notable improvements in

rehabilitation concepts(See Figure 4-7) and rehabilitation understanding(See Figure 4-8) after rehabilitation trainings; the rehabilitation services it provides cover four specialties, including spine and spinal cord rehabilitation, bone and joint rehabilitation, geriatric rehabilitation and pain rehabilitation, plus neurological rehabilitation. In the whole process of delivering rehabilitation service, the unified rehabilitation path standard is observed according to the type of disease. Rehabilitation patients and families' satisfaction degree is at least 90 points (**See** Figure 4-9). Rehabilitation Department of Luquan County Zhongai Hospital has 100% reached the indicator of rehabilitation service capacity.

Figure 4-7 Evaluation Figure of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Luquan County Zhongai Hospital   Number of samples: 30 people

Notes: 30 distributions to sample trainees.

Achieved notable improvements in rehabilitation concepts: First year: total score 2,652 points, average score 88.4 points. Second year: total

score 2,747 points, average score 91.6 points.

Figure 4-8 Evaluation Figure of Rehabilitation Personnel Understanding Questionnaire of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Luquan County Zhongai Hospital   Number of samples: 30 people
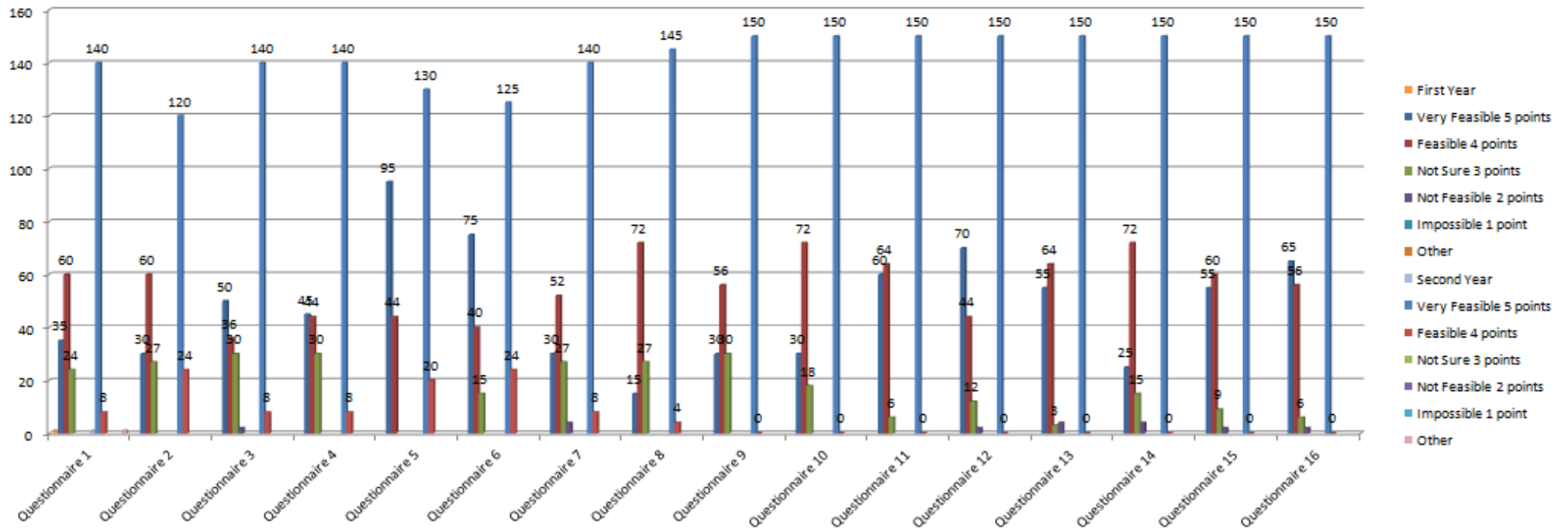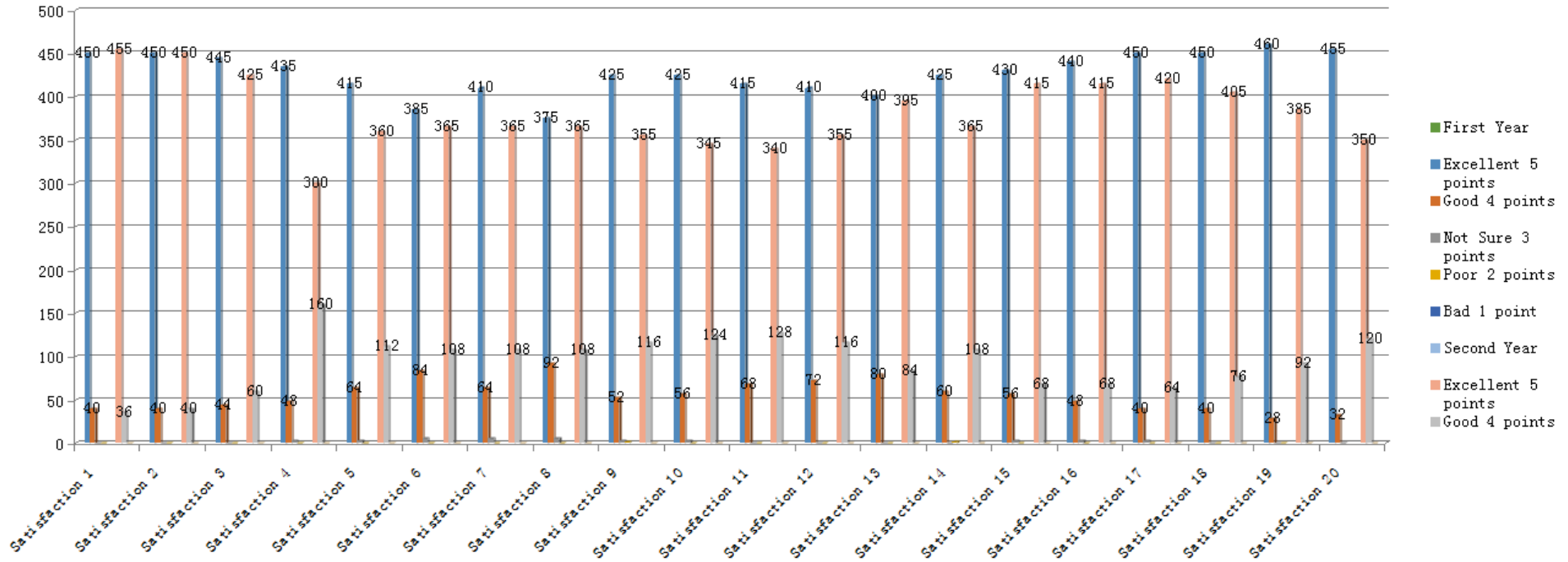

Notes: 30 distributions to sample interviewees.

Achieved notable improvements in rehabilitation understanding: First year: total score 2,052 points, average score 68.4 points. Second year: total score 2,112 points, average score 70.4 points.

Figure 4-9 Evaluation Figure of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Luquan County Zhongai Hospital   Number of samples: 100 people

Notes: 100 distributions to sample patients and family members.

Rehabilitation patients and families' satisfaction degree : First year: total score 8,975 points, average score 89.8 points. Second year: total score 9,182 points, average score 91.8 points.

(2) As a rehabilitation sub-center, Rehabilitation Department of Shilin County TCM Hospital achieved notable improvements in rehabilitation concepts(**See** Figure 4-10) and rehabilitation understanding(**See** Figure 4-11) after rehabilitation trainings;the rehabilitation services it provides cover four specialties, including spine and spinal cord rehabilitation, bone and joint rehabilitation, geriatric rehabilitation and pain

rehabilitation, plus neurological rehabilitation. In the whole process of delivering rehabilitation service, the unified rehabilitation path standard is observed according to the type of disease. Rehabilitation patients and families' satisfaction degree is at least 90 points (**See** Figure 4-12). Rehabilitation Department of Shilin County TCM Hospital has 100% reached the indicator of rehabilitation service capacity.

Figure 4-10 Evaluation Figure of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Shilin County TCM Hospital   Number of samples: 30 people

Notes: 30 distributions to sample trainees.

Achieved notable improvements in rehabilitation concepts: First year: total score 2,595 points, average score 86.5 points. Second year: total score 2,824 points, average score 94.1 points.

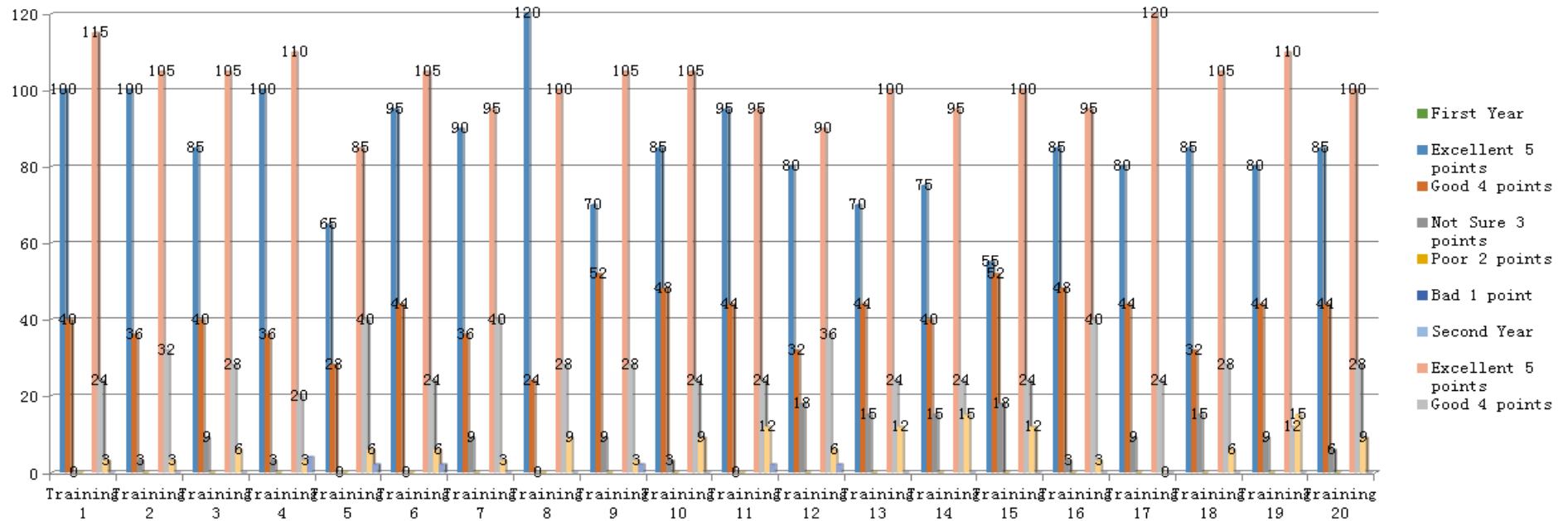Figure 4-11 Evaluation Figure of Rehabilitation Personnel Understanding Questionnaire of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Shilin County TCM Hospital   Number of samples: 30 people

Notes: 30 distributions to sample interviewees.

Achieved notable improvements in rehabilitation understanding: First year: total score 1,919 points, average score 64.0 points. Second year: total score 2,138 points, average score 71.3 points.

Figure 4-12 Evaluation Figure of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

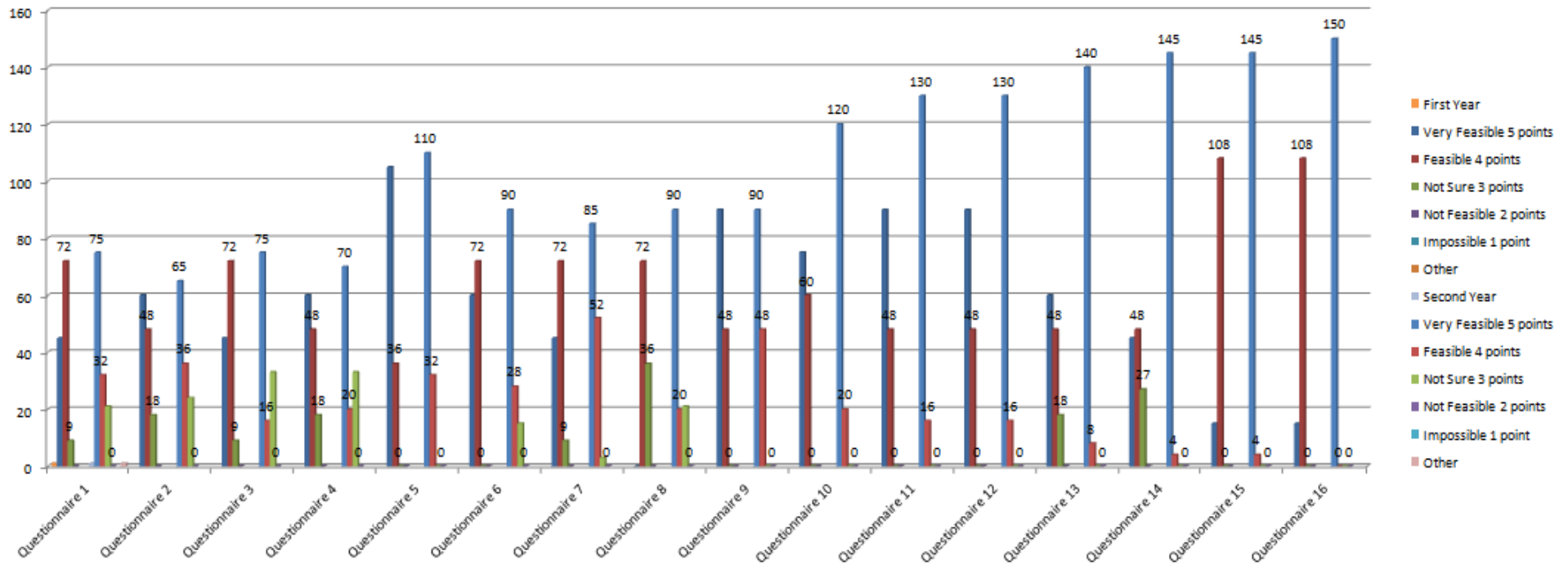Unit: Rehabilitation Department of Shilin County TCM Hospital   Number of samples: 100 people

Notes: 100 distributions to sample patients and family members.

Rehabilitation patients and families' satisfaction degree : First year: total score 9,117 points, average score 91.2 points. Second year: total score 9,440 points, average score 94.4 points.

(3) As a rehabilitation sub-center, Rehabilitation Department of Baoshan Anli Hospital achieved notable improvements in rehabilitation

concepts(**See** Figure 4-13) and rehabilitation understanding(**See** Figure 4-14) after rehabilitation trainings; the rehabilitation services it provides cover four specialties, including spine and spinal cord rehabilitation, bone and joint rehabilitation, geriatric rehabilitation and pediatric rehabilitation, plus neurological rehabilitation. In the whole process of delivering rehabilitation service, the unified rehabilitation path standard is observed according to the type of disease. Rehabilitation patients and families' satisfaction degree is at least 90 points (**See** Figure 4-15). Rehabilitation Department of Baoshan Anli Hospital has 100% reached the indicator of rehabilitation service capacity.

Figure 4-13 Evaluation Figure of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Notes: 30 distributions to sample trainees.

Achieved notable improvements in rehabilitation concepts: First year: total score 2,689 points, average score 89.6 points. Second year: total

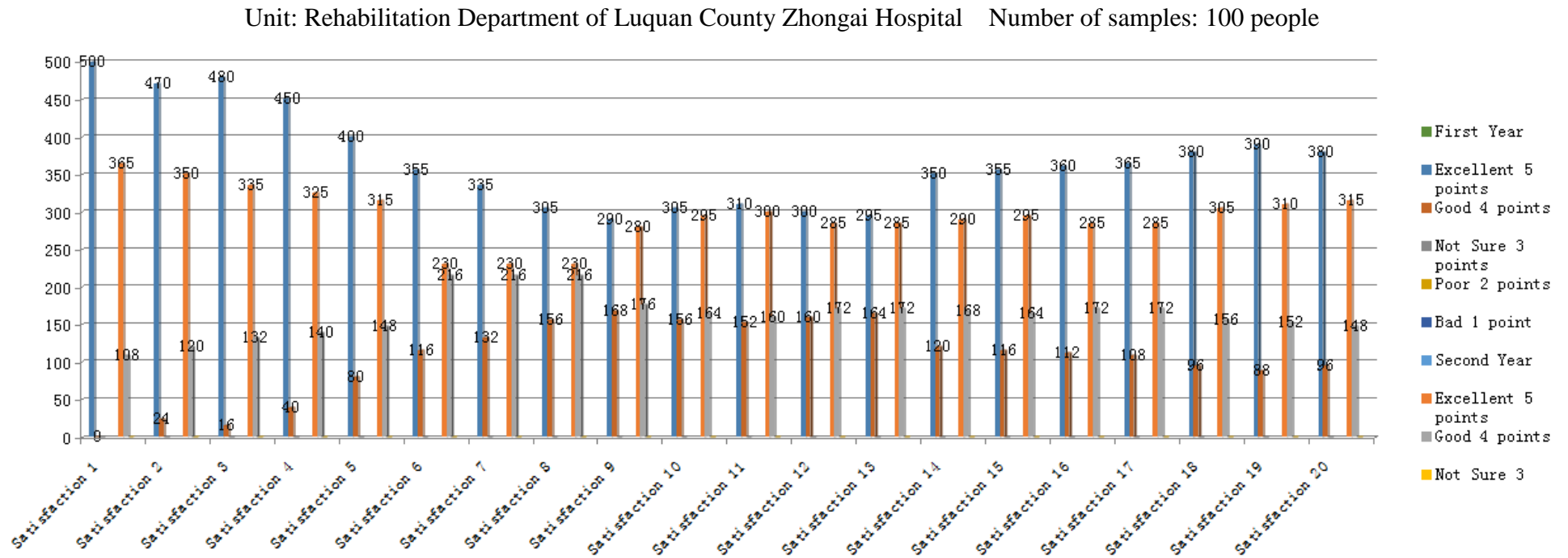score 2,870 points, average score 95.7 points.

Figure 4-14 Evaluation Figure of Rehabilitation Personnel Understanding Questionnaire of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Baoshan Anli Hospital   Number of samples: 30 people

Notes: 30 distributions to sample interviewees.

Achieved notable improvements in rehabilitation understanding: First year: total score 2,026 points, average score 67.5 points. Second year: total score 2,150 points, average score 71.7 points.

Figure 4-15 Evaluation Figure of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Baoshan Anli Hospital   Number of samples: 100 people

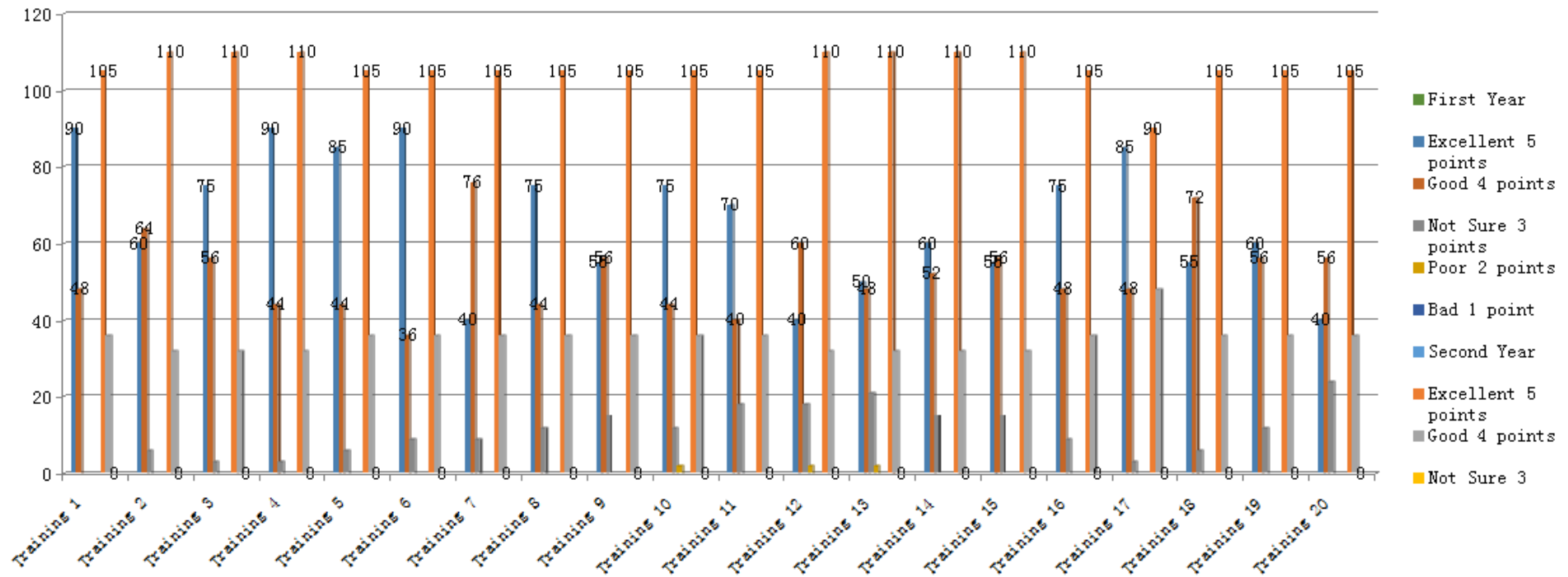Notes: 100 distributions to sample patients and family members.

Rehabilitation patients and families' satisfaction degree : First year: total score 9,251 points, average score 92.5 points. Second year: total score 9,526 points, average score 95.3 points.

(4) As a rehabilitation sub-center, Rehabilitation Department of Anning City Dingli Hospital achieved notable improvements in

rehabilitation concepts(**See** Figure 4-16) and rehabilitation understanding(**See** Figure 4-17) after rehabilitation trainings; the rehabilitation services it provides cover four specialties, including spine and spinal cord rehabilitation, bone and joint rehabilitation, pain rehabilitation and pediatric rehabilitation, plus neurological rehabilitation. In the whole process of delivering rehabilitation service, the unified rehabilitation path standard is observed according to the type of disease. Rehabilitation patients and families' satisfaction degree is at least 90 points (**See** Figure 4-18). Rehabilitation Department of Anning City Dingli Hospital has 100% reached the indicator of rehabilitation service capacity.

Figure 4-16 Evaluation Figure of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Anning City Dingli Hospital   Number of samples: 30 people
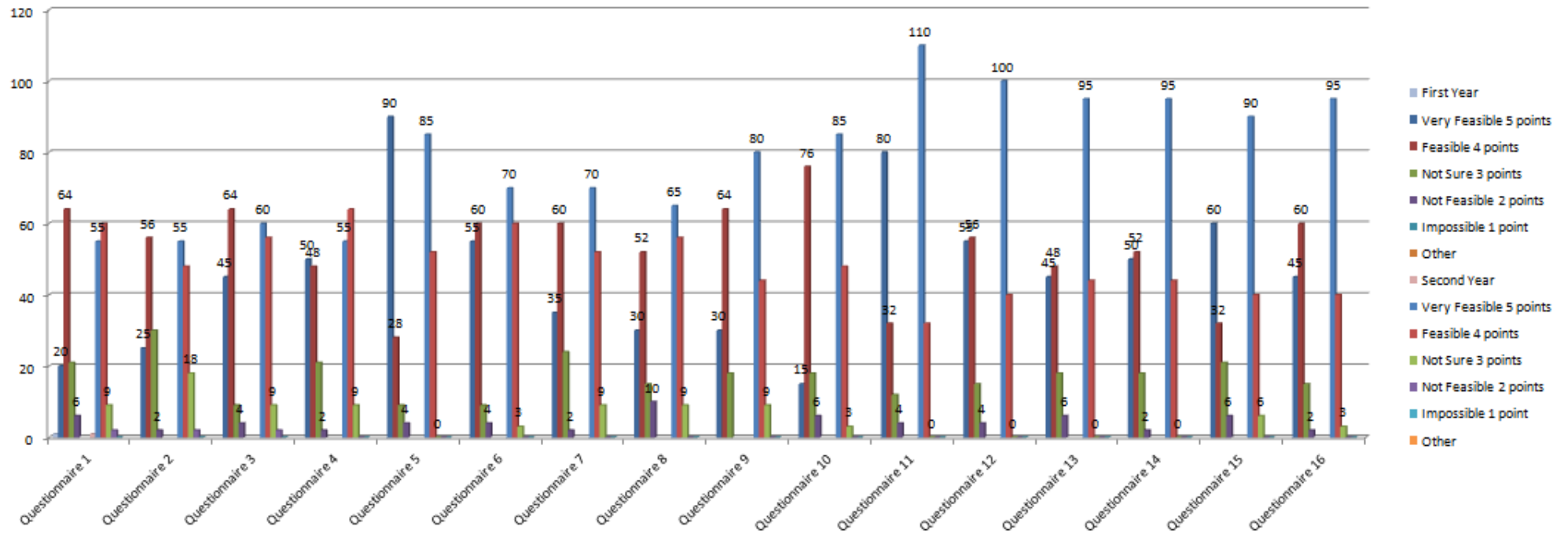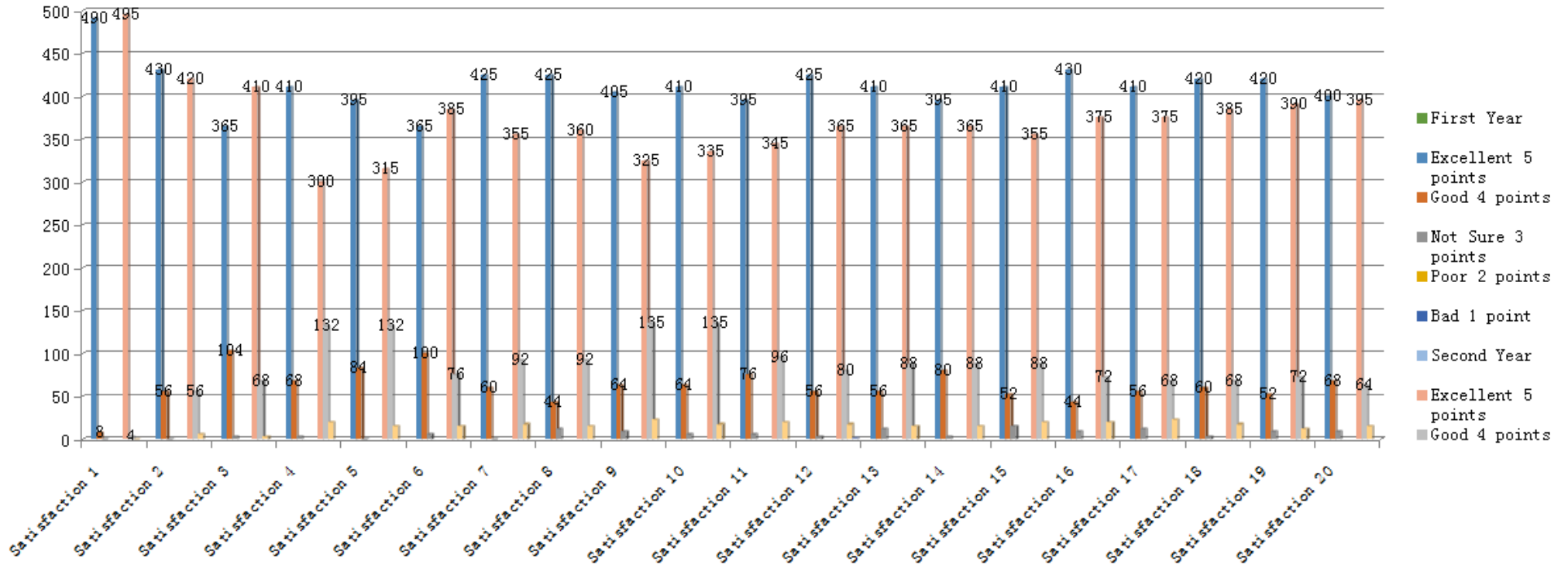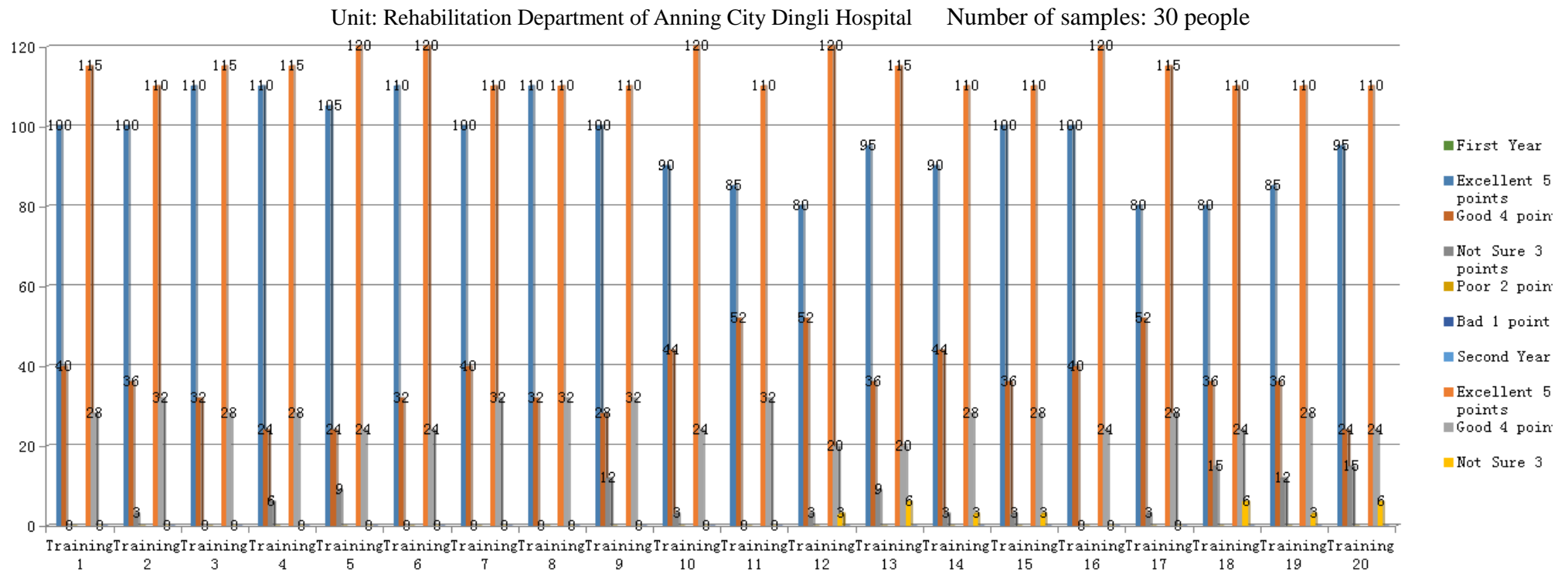

Notes: 30 distributions to sample trainees.

Achieved notable improvements in rehabilitation concepts: First year: total score 2,761 points, average score 92.0 points. Second year: total score 2,845 points, average score 94.8 points.

Figure 4-17 Evaluation Figure of Rehabilitation Personnel Understanding Questionnaire of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Anning City Dingli Hospital   Number of samples: 30 people

Notes: 30 distributions to sample interviewees.

Achieved notable improvements in rehabilitation understanding: First year: total score 1,961 points, average score 65.4 points. Second year: total score 2,148 points, average score 71.6 points.

Figure 4-18 Evaluation Figure of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Anning City Dingli Hospital   Number of samples: 100 people
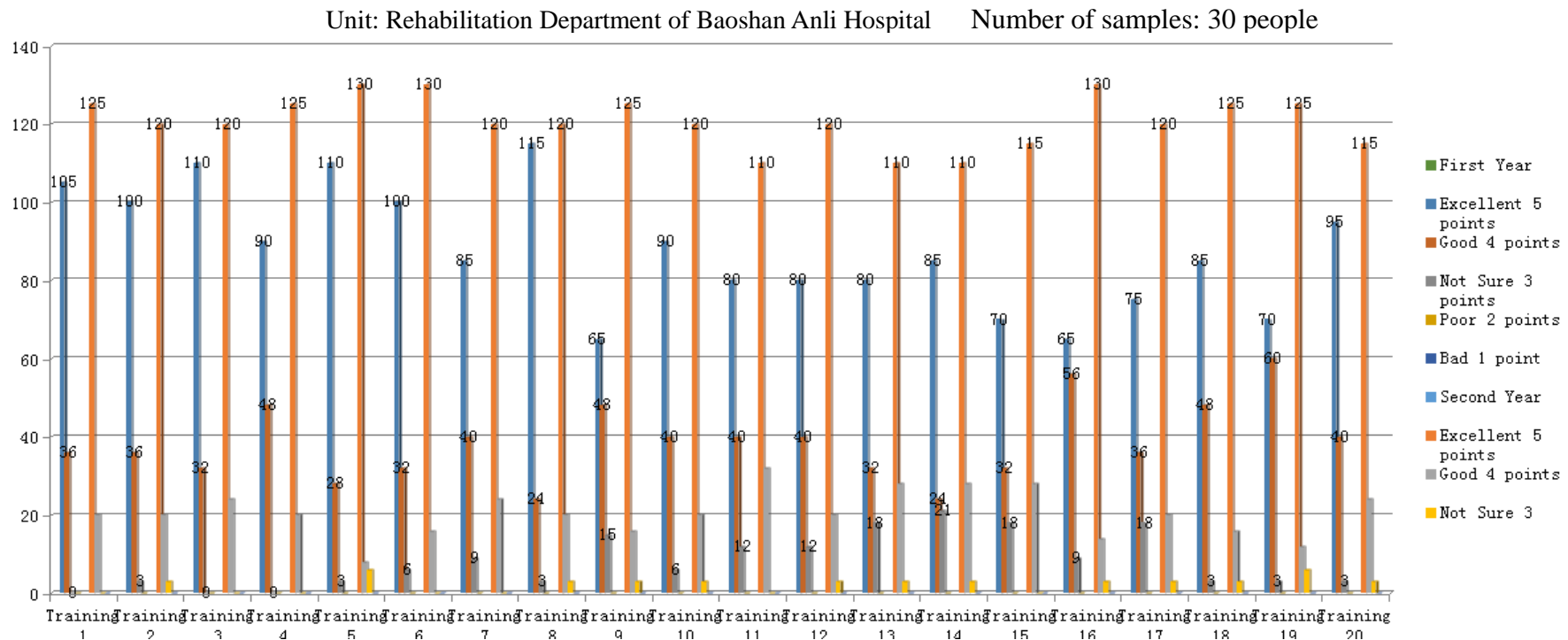

Notes: 100 distributions to sample patients and family members.

Rehabilitation patients and families' satisfaction degree : First year: total score 9,383 points, average score 93.8 points. Second year: total score 9,976 points, average score 99.8 points.

4.3.3 Passing Condition of Rehabilitation Service Capacity of Every Medical Institution Included in Building the Model as Rehabilitation Stations

(1) As a rehabilitation station, Rehabilitation Department of Banqiao Health Center of Baoshan City achieved notable improvements in

rehabilitation concepts(See Figure 4-19) and rehabilitation understanding(See Figure 4-20) after rehabilitation trainings; the rehabilitation services it provides cover two specialties, including bone and joint rehabilitation, and pain rehabilitation, plus neurological rehabilitation. In the whole process of delivering rehabilitation service, the unified rehabilitation path standard is observed according to the type of disease. Rehabilitation patients and families' satisfaction degree is at least 85 points (See Figure 4-21). Rehabilitation Department of Banqiao Health Center of Baoshan City has 100% reached the indicator of rehabilitation service capacity.

Figure 4-19 Evaluation Figure of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Banqiao Health Center of Baoshan City   Number of samples:20 people
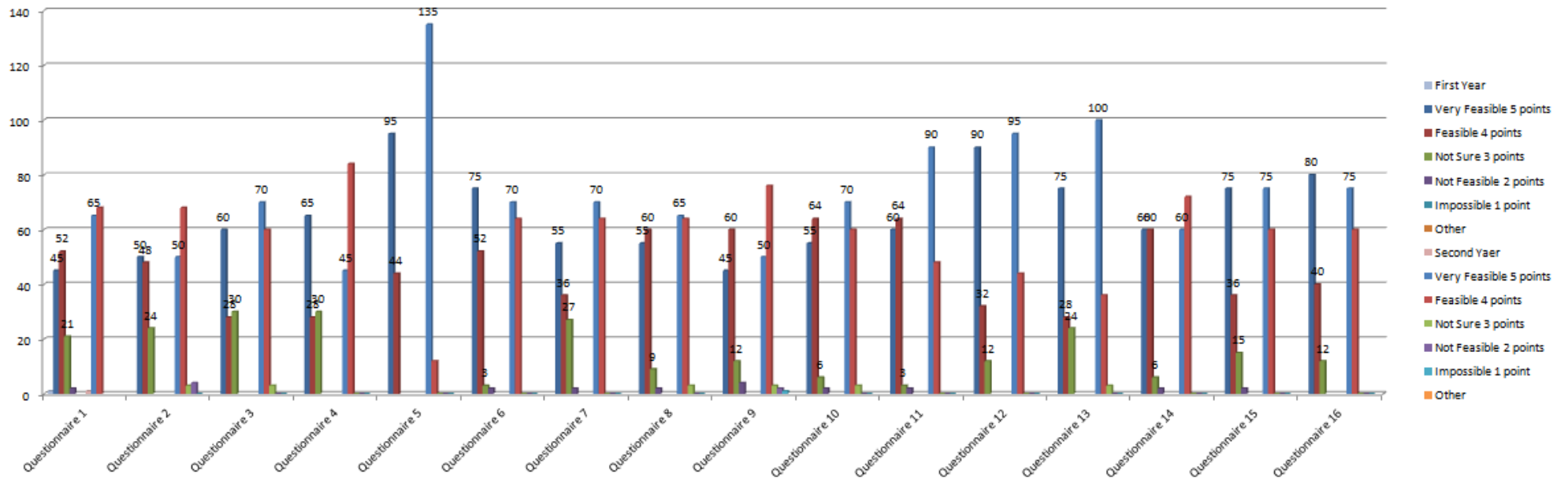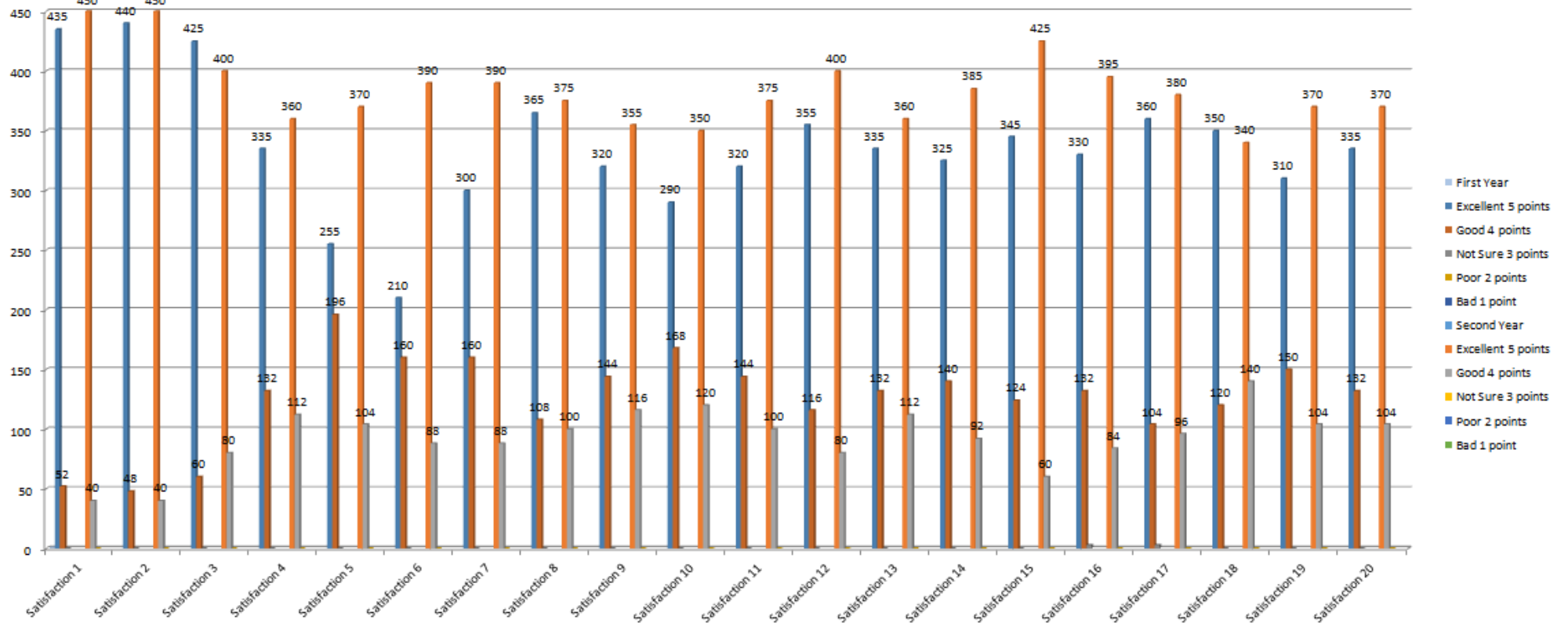

Notes: 20 distributions to sample trainees.

Achieved notable improvements in rehabilitation concepts: First year: total score 1,596 points, average score 79.8 points. Second year: total

score 1,793 points, average score 89.7 points.

Figure 4-20 Evaluation Figure of Rehabilitation Personnel Understanding Questionnaire of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Banqiao Health Center of Baoshan City   Number of samples:20 people

Notes: 30 distributions to sample interviewees.

Achieved notable improvements in rehabilitation understanding: First year: total score 2,084 points, average score 69.5 points. Second year: total score 2,220 points, average score 74.0 points.

Figure 4-21 Evaluation Figure of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Banqiao Health Center of Baoshan City　　Number of samples:50 people
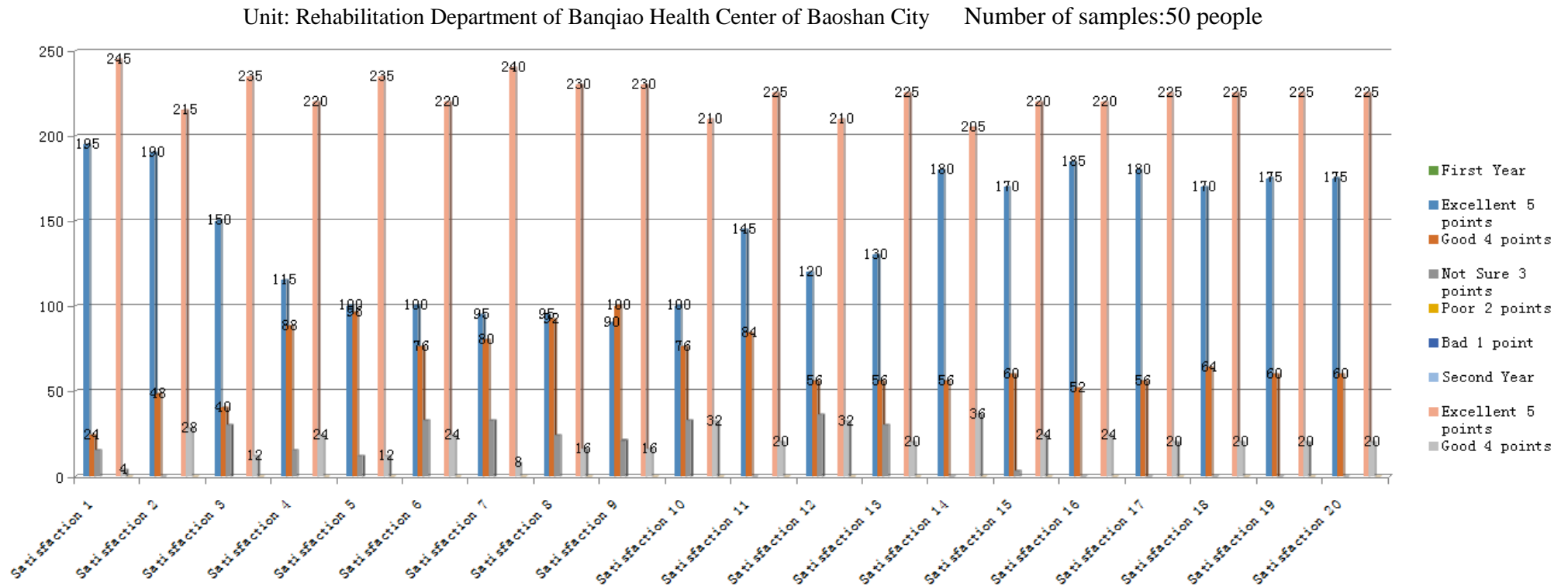
Notes: 50 distributions to sample patients and family members.

Rehabilitation patients and families' satisfaction degree: First year: total score 4,469 points, average score 89.4 points. Second year: total score 4,652 points, average score 93.0 points.

(2) As a rehabilitation station, Rehabilitation Department of Hongxi Health Center of Mile City achieved notable improvements in rehabilitation concepts(**See** Figure 4-22) and rehabilitation understanding(**See** Figure 4-23) after rehabilitation trainings; the rehabilitation services it provides cover two specialties, including bone and joint rehabilitation, and geriatric rehabilitation, plus neurological rehabilitation. In

the whole process of delivering rehabilitation service, the unified rehabilitation path standard is observed according to the type of disease. Rehabilitation patients and families' satisfaction degree is at least 85 points (**See** Figure 4-24). Rehabilitation Department of Hongxi Health Center of Mile City has 100% reached the indicator of rehabilitation service capacity.

Figure 4-22 Evaluation Figure of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan
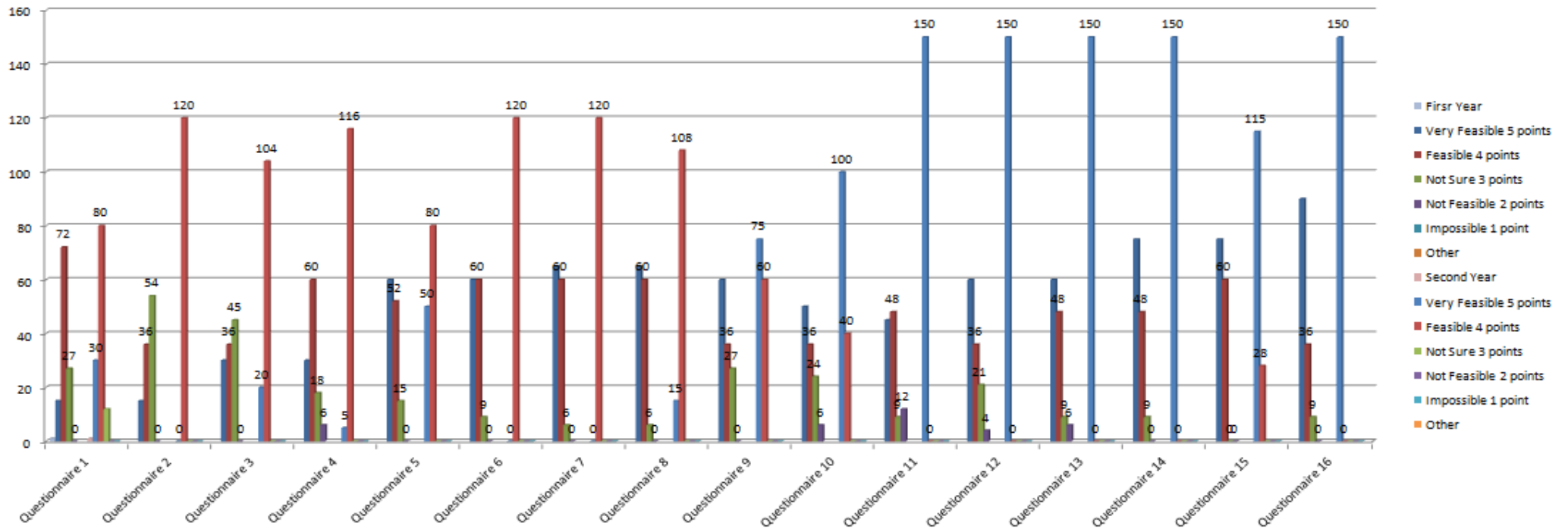
Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Hongxi Health Center of Mile City   Number of samples:20 people
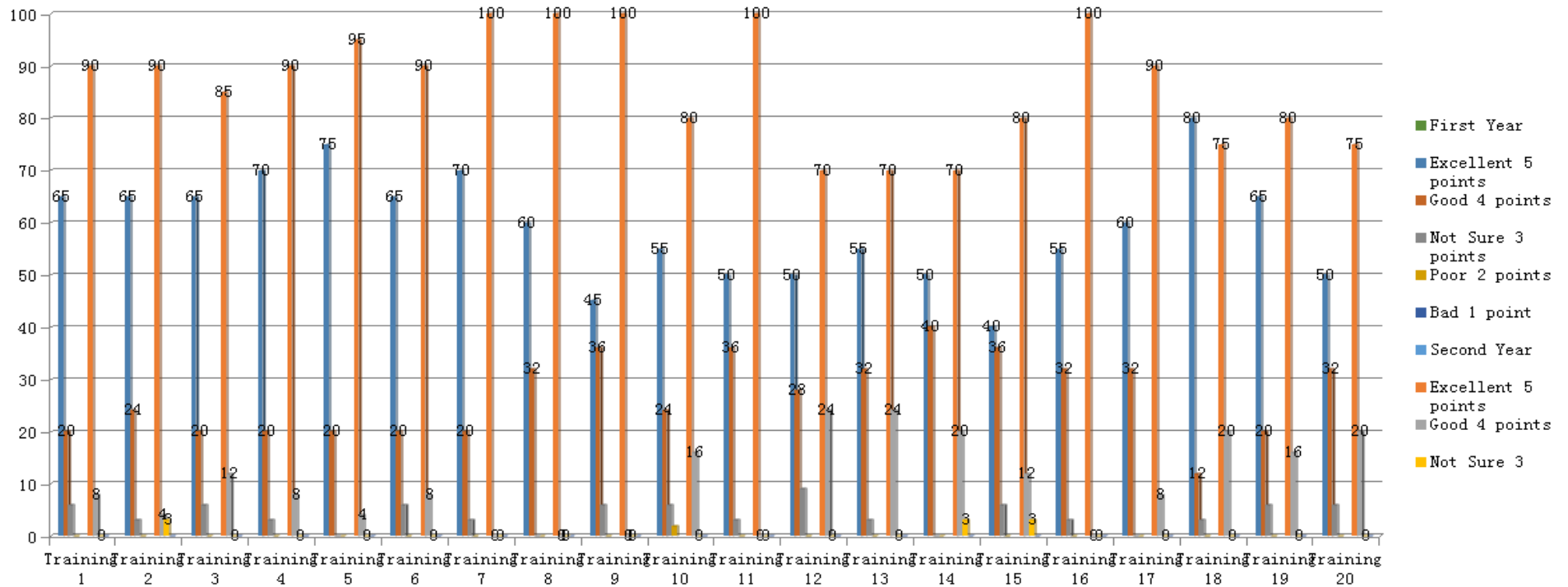
Notes: 20 distributions to sample trainees.

Achieved notable improvements in rehabilitation concepts: First year: total score 1,806 points, average score 90.0 points. Second year: total score 1,943 points, average score 97.2 points.

Figure 4-23 Evaluation Figure of Rehabilitation Personnel Understanding Questionnaire of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Hongxi Health Center of Mile City   Number of samples:20 people
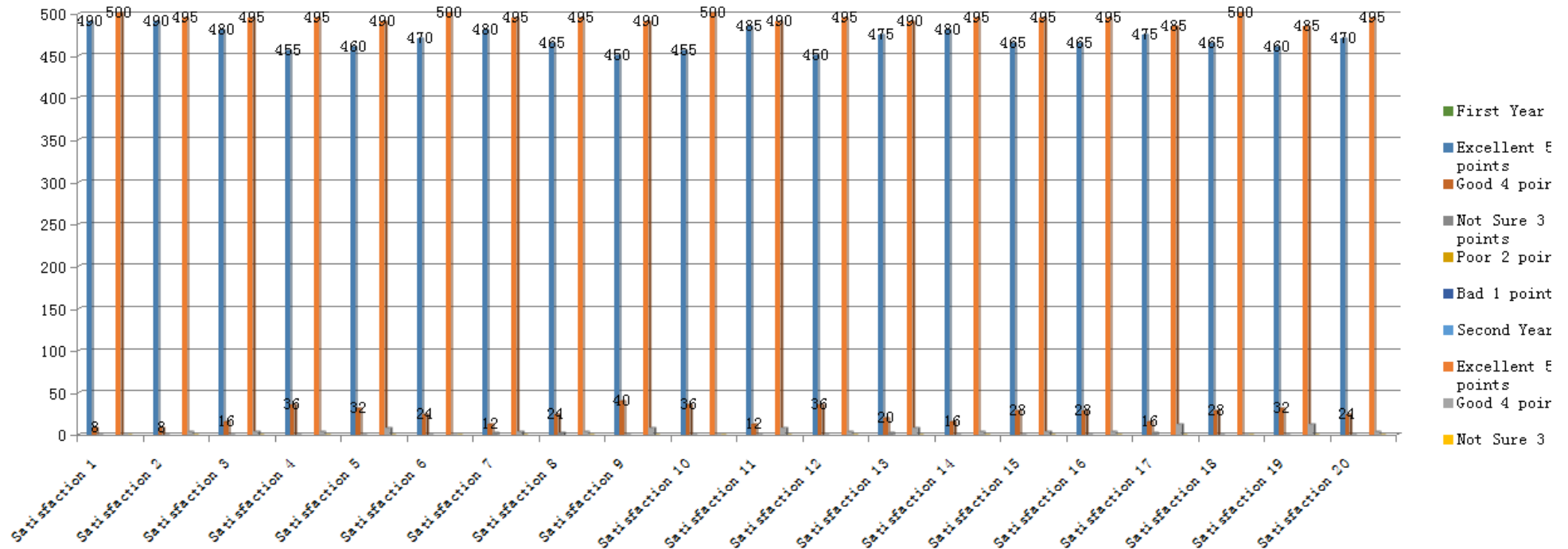

Notes: 30 distributions to sample interviewees.

Achieved notable improvements in rehabilitation understanding: First year: total score 2,048 points, average score 68.3 points. Second year: total score 2,246 points, average score 74.9 points.

Figure 4-24 Evaluation Figure of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Hongxi Health Center of Mile City   Number of samples:50 people

Notes: 50 distributions to sample patients and family members.

Rehabilitation patients and families' satisfaction degree: First year: total score 4,713 points, average score 94.3 points. Second year: total score 4,975points, average score 99.5 points.
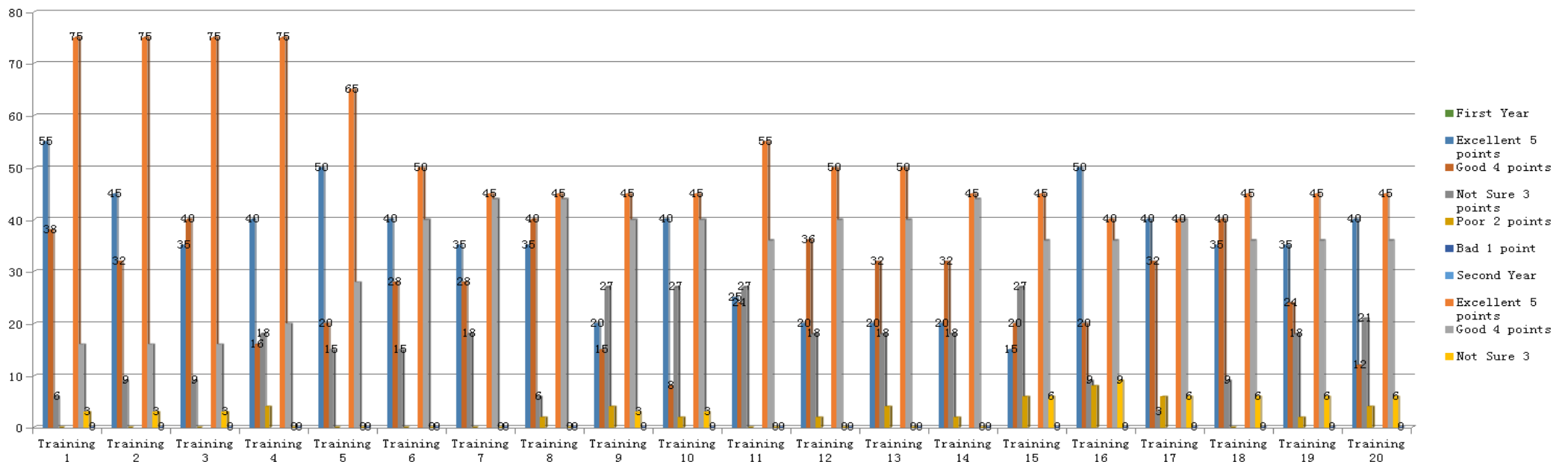
(3) As a rehabilitation station, Rehabilitation Department of Zhongai Xiuping Hospital of Luquan County achieved notable improvements in rehabilitation concepts(**See** Figure 4-25) and rehabilitation understanding(**See** Figure 4-26) after rehabilitation trainings; the rehabilitation services it provides cover three specialties, including spine and spinal cord rehabilitation, bone and joint rehabilitation, and pain rehabilitation,

plus neurological rehabilitation. In the whole process of delivering rehabilitation service, the unified rehabilitation path standard is observed according to the type of disease. Rehabilitation patients and families' satisfaction degree is at least 85 points (**See** Figure 4-27). Rehabilitation Department of Zhongai Xiuping Hospital of Luquan County has 100% reached the indicator of rehabilitation service capacity.

Figure 4-25 Evaluation Figure of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Zhongai Xiuping Hospital of Luquan County　　Number of samples:20 people
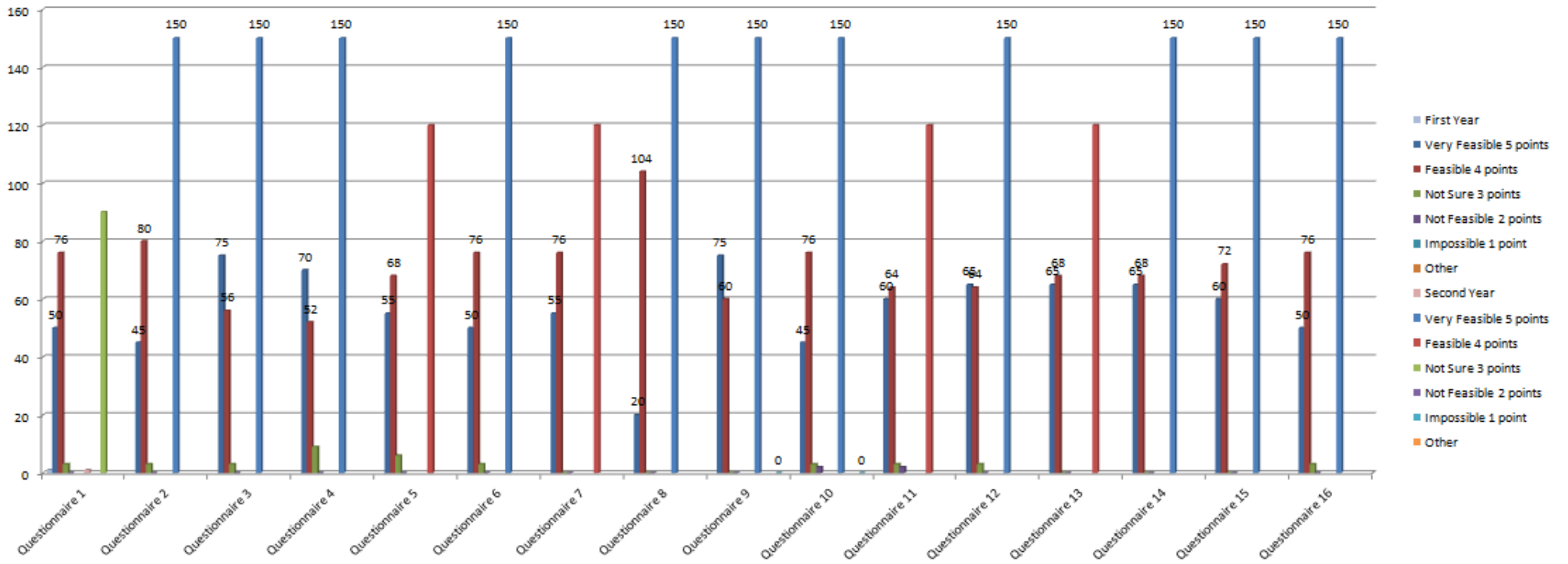

Notes: 20 distributions to sample trainees.

Achieved notable improvements in rehabilitation concepts: First year: total score 1,783 points, average score 89.2 points. Second year: total score 1,910 points, average score 95.5 points.

Figure 4-26 Evaluation Figure of Rehabilitation Personnel Understanding Questionnaire of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Zhongai Xiuping Hospital of Luquan County   Number of samples:20 people

Notes: 30 distributions to sample interviewees.

Achieved notable improvements in rehabilitation understanding: First year: total score 1,961 points, average score 65.4 points. Second year: total score 2,148 points, average score 71.6 points.

Figure 4-27 Evaluation Figure of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Zhongai Xiuping Hospital of Luquan County   Number of samples:50 people

Notes: 50 distributions to sample patients and family members.

Rehabilitation patients and families' satisfaction degree : First year: total score 4,874 points, average score 97.5 points. Second year: total score 4,990 points, average score 99.8 points.

(4.) As a rehabilitation station, Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County achieved notable improvements in rehabilitation concepts(See Figure 4-28) and rehabilitation understanding(See Figure 4-29) after rehabilitation trainings; the rehabilitation services it provides cover two specialties, including pain rehabilitation, and geriatric rehabilitation, plus neurological rehabilitation.

In the whole process of delivering rehabilitation service, the unified rehabilitation path standard is observed according to the type of disease. Rehabilitation patients and families' satisfaction degree is at least 85 points (See Figure 4-30). Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County has 100% reached the indicator of rehabilitation service capacity.

Figure 4-28 Evaluation Figure of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County   Number of samples:20 people
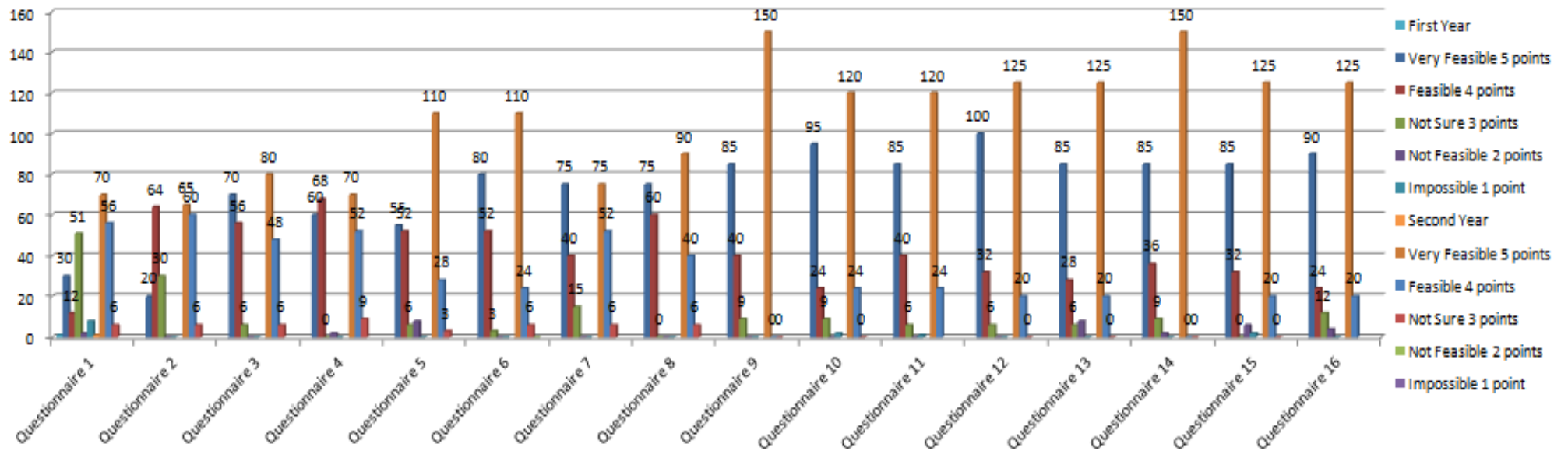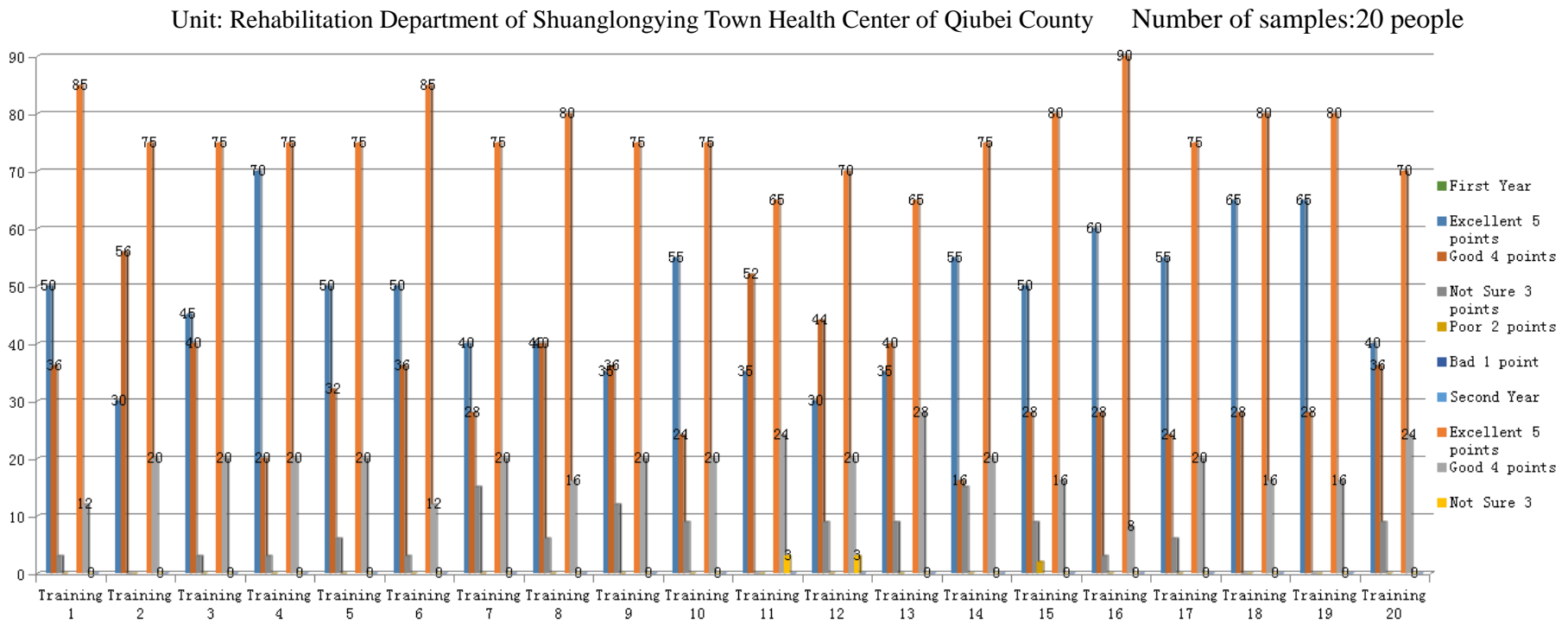

Notes: 20 distributions to sample trainees.

Achieved notable improvements in rehabilitation concepts: First year: total score 1,749 points, average score 87.5 points. Second year: total score 1,903 points, average score 95.2 points.

Figure 4-29 Evaluation Figure of Rehabilitation Personnel Understanding Questionnaire of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County   Number of samples:20 people
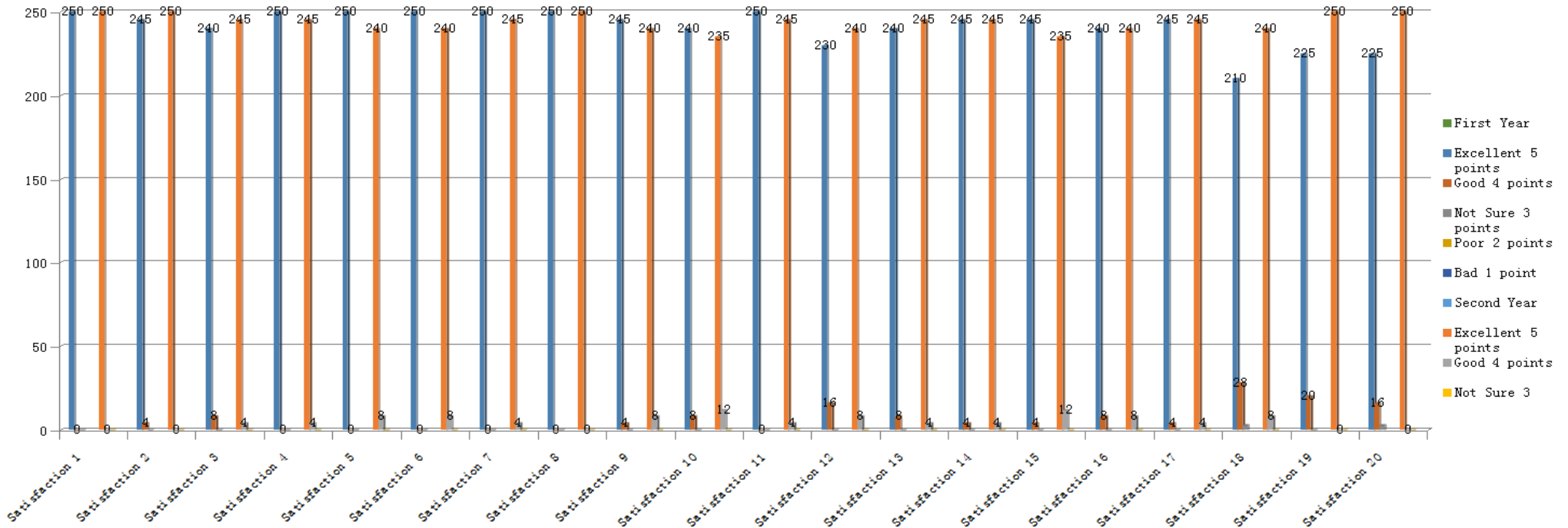

Notes: 30 distributions to sample interviewees.

Achieved notable improvements in rehabilitation understanding: First year: total score 2,045 points, average score 68.2 points. Second year: total score 2,199 points, average score 73.3 points.

Figure 4-30 Evaluation Figure of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County　Number of samples:50 people

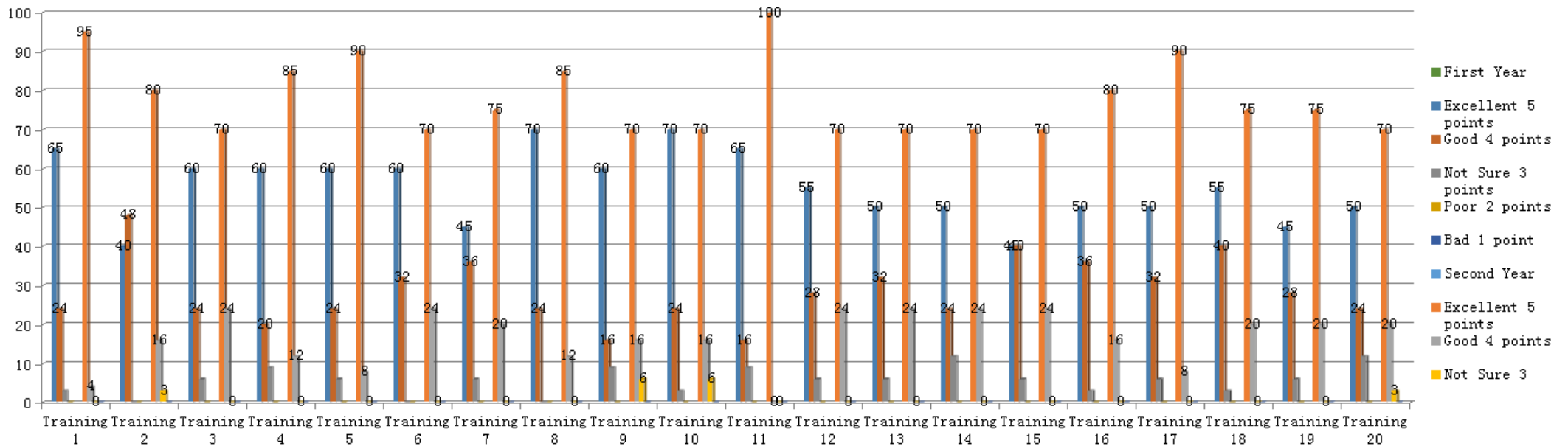Notes: 50 distributions to sample patients and family members.

Rehabilitation patients and families' satisfaction degree : First year: total score 4,527 points, average score 90.5 points. Second year: total score 4,920 points, average score 98.4 points.

(5) As a rehabilitation station, Rehabilitation Department of Shili Community Health Center of Shilin County achieved notable

improvements in rehabilitation concepts(**See** Figure 4-31) and rehabilitation understanding(**See** Figure 4-32) after rehabilitation trainings; the rehabilitation services it provides cover two specialties, including bone and joint rehabilitation, and geriatric rehabilitation, plus neurological rehabilitation. In the whole process of delivering rehabilitation service, the unified rehabilitation path standard is observed according to the type of disease. Rehabilitation patients and families' satisfaction degree is at least 85 points (**See** Figure 4-33). Rehabilitation Department of Shili Community Health Center of Shilin County has 100% reached the indicator of rehabilitation service capacity.

Figure 4-31 Evaluation Figure of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Shili Community Health Center of Shilin County   Number of samples:20 people
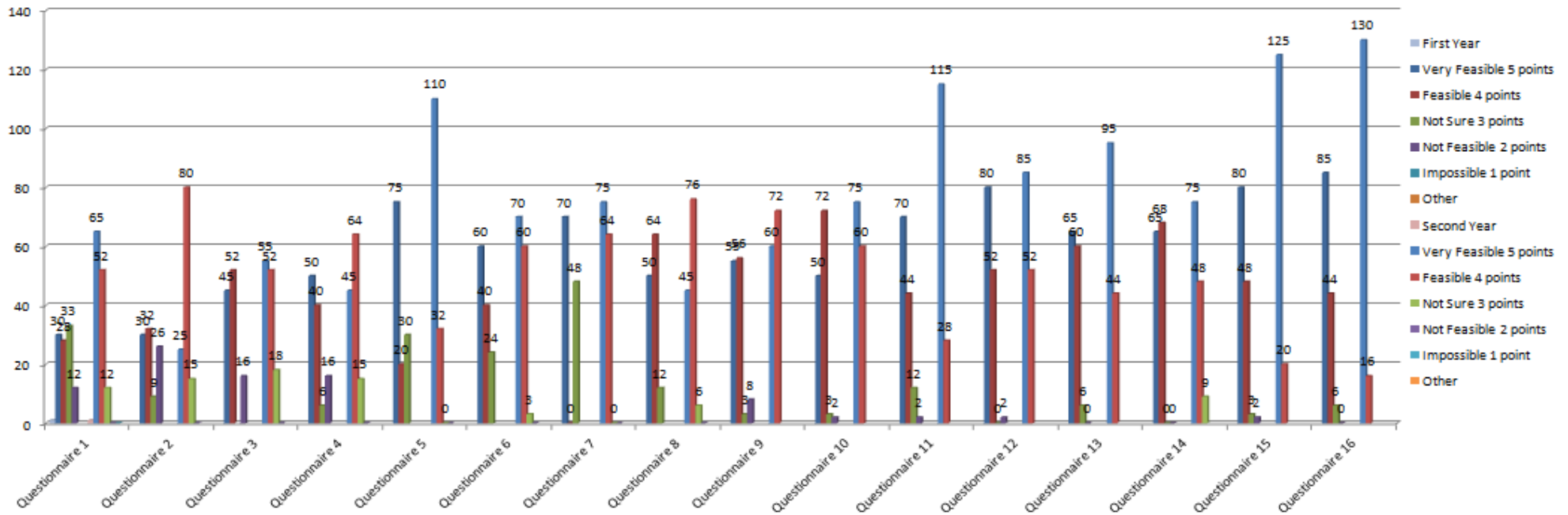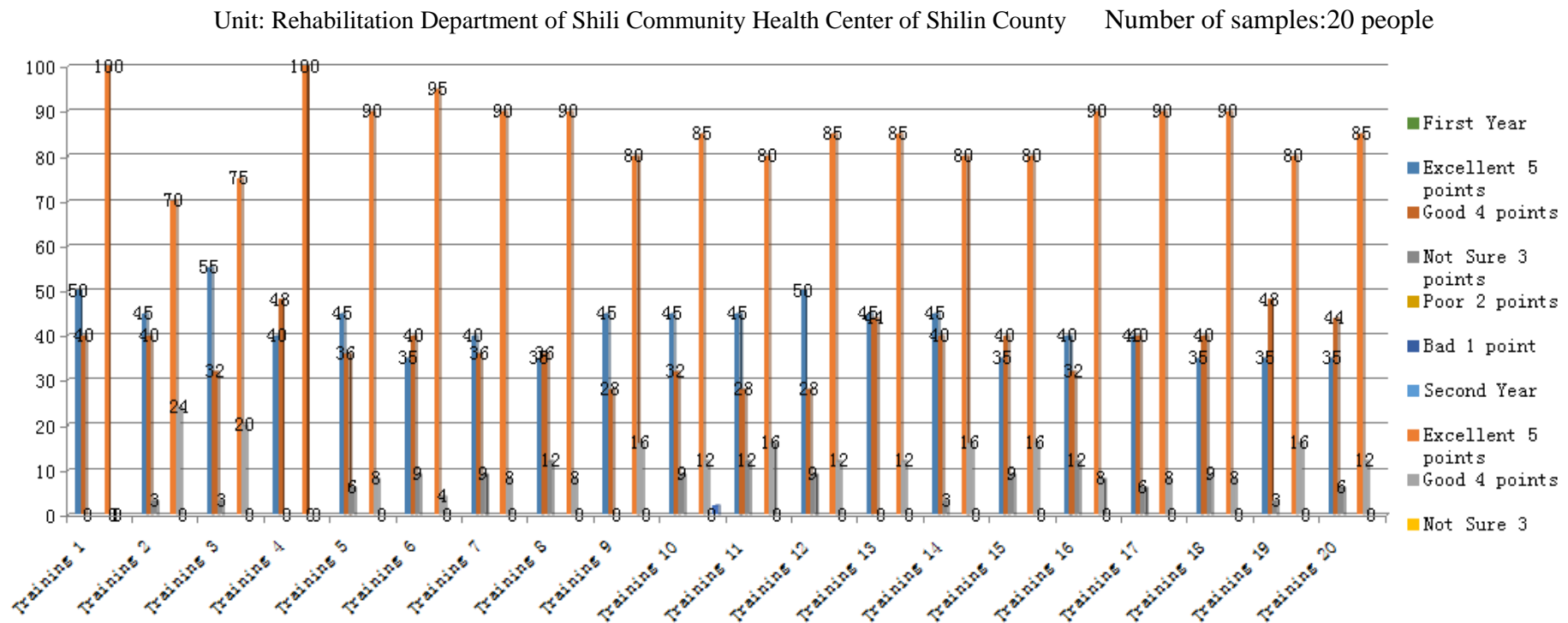

Notes: 20 distributions to sample trainees.

Achieved notable improvements in rehabilitation concepts: First year: total score 1,712 points, average score 85.6 points. Second year: total score 1,946 points, average score 97.3 points.

Figure 4-32: Evaluation Figure of Rehabilitation Personnel Understanding Questionnaire of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Shili Community Health Center of Shilin County   Number of samples:20 people
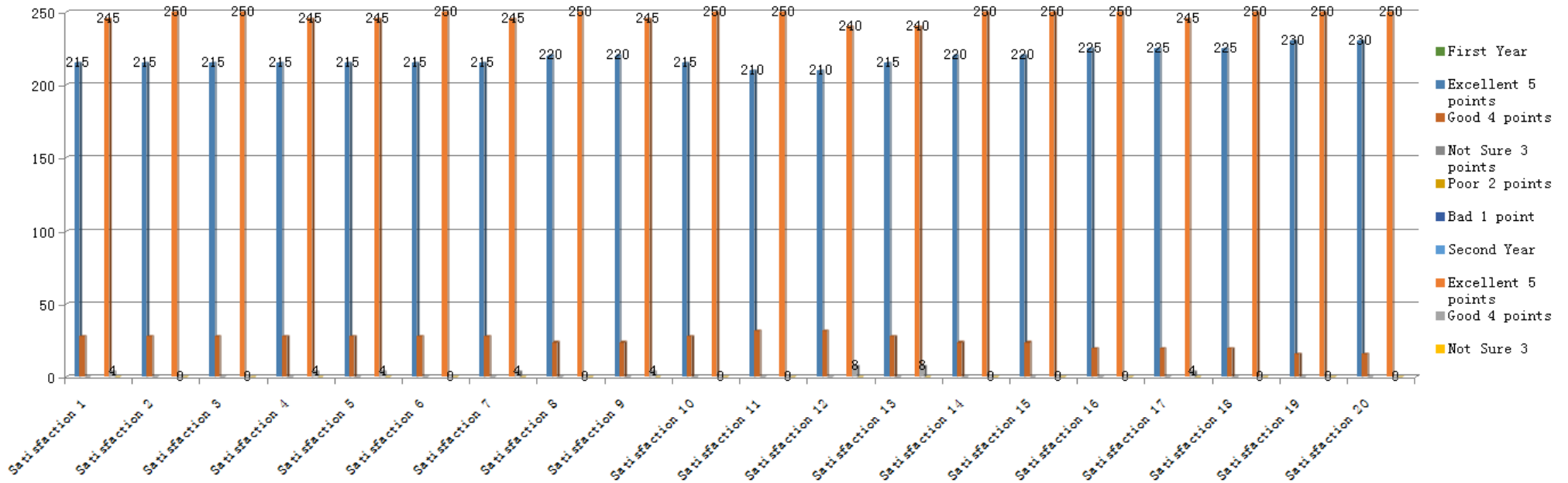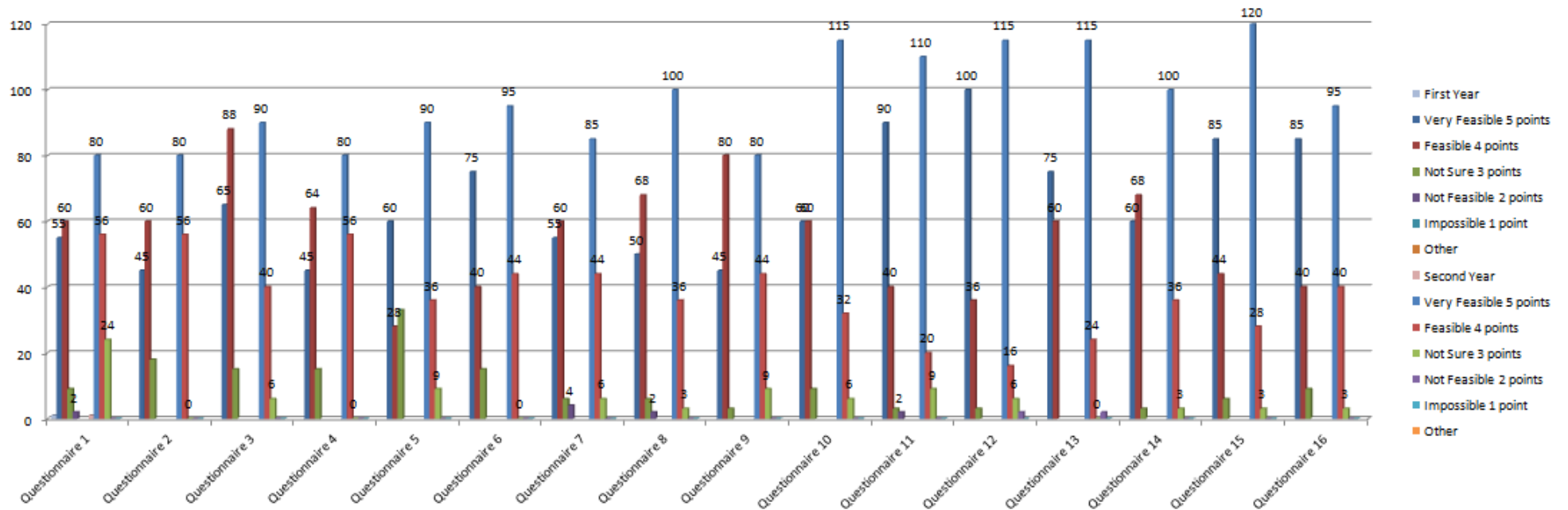

Notes: 30 distributions to sample interviewees.

Achieved notable improvements in rehabilitation understanding: First year: total score 2,109 points, average score 70.3 points. Second year:

total score 2,249 points, average score 75.0 points.

Figure 4-33 Evaluation Figure of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Rehabilitation Department of Shili Community Health Center of Shilin County　Number of samples:50 people
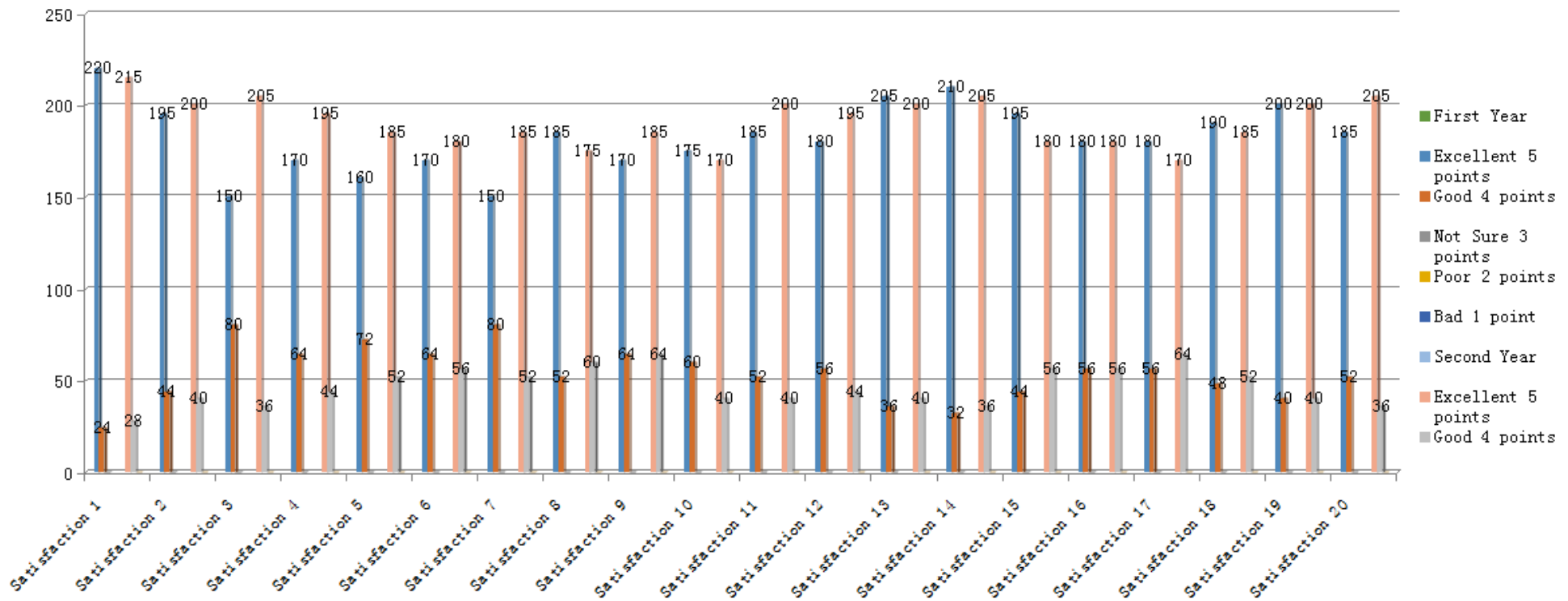
Notes: 50 distributions to sample patients and family members.

Rehabilitation patients and families' satisfaction degree : First year: total score 4,511 points, average score 90.2 points. Second year: total score 4,751 points, average score 95.0 points.

6. As a rehabilitation station, Daba Community Service Station of Vacation Resort of Kunming Xishan District achieved notable improvements in rehabilitation concepts(**See** Figure 4-34) and rehabilitation understanding(**See** Figure 4-35) after rehabilitation trainings; the rehabilitation services it provides cover two specialties, including pain rehabilitation, and geriatric rehabilitation, plus neurological rehabilitation. In the whole process of delivering rehabilitation service, the unified rehabilitation path standard is observed according to the type of disease. Rehabilitation patients and families' satisfaction degree is at least 85 points (**See** Figure 4-36). Daba Community Service Station of Vacation Resort of Kunming Xishan Districthas 100% reached the indicator of rehabilitation service capacity.

Figure 4-34 Evaluation Figure of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Daba Community Service Station of Vacation Resort of Kunming Xishan District   Number of samples:20 people
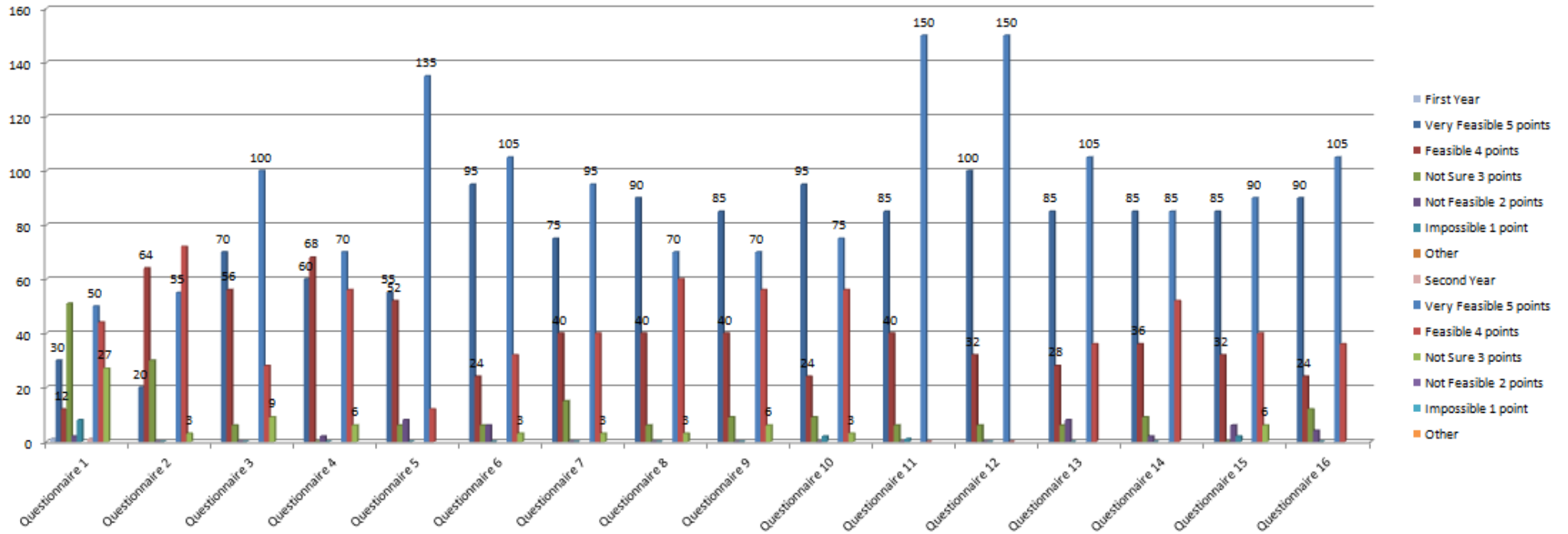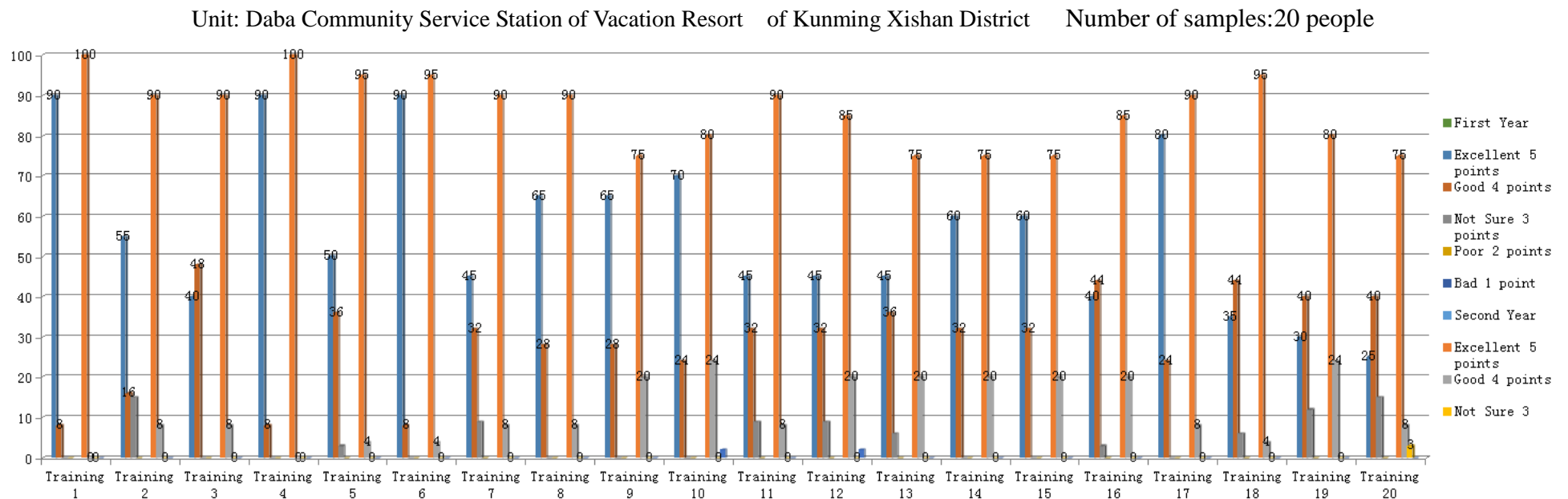

Notes: 20 distributions to sample trainees.

Achieved notable improvements in rehabilitation concepts: First year: total score 1,804 points, average score 90.2 points. Second year: total

score 1,973 points, average score 98.7 points.

Figure 4-35 Evaluation Figure of Rehabilitation Personnel Understanding Questionnaire of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Daba Community Service Station of Vacation Resort   of Kunming Xishan District   Number of samples:20 people
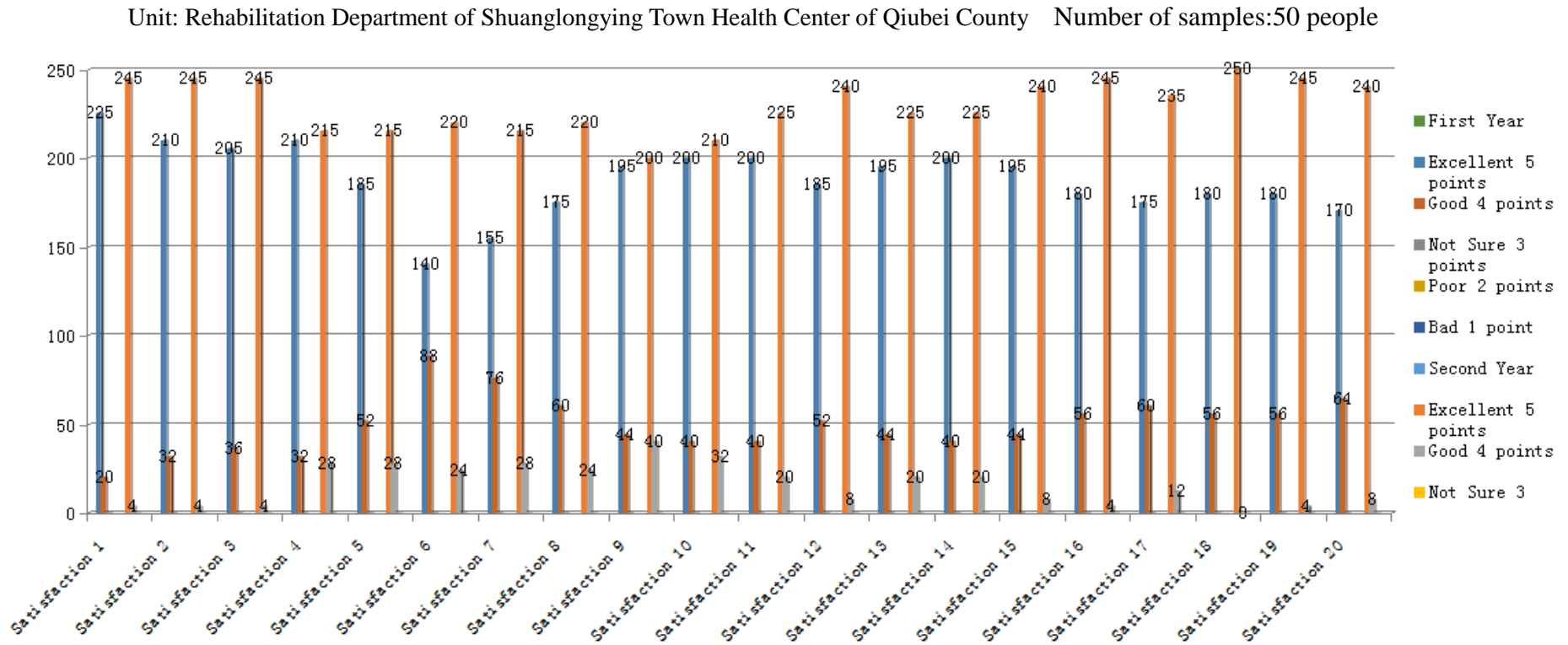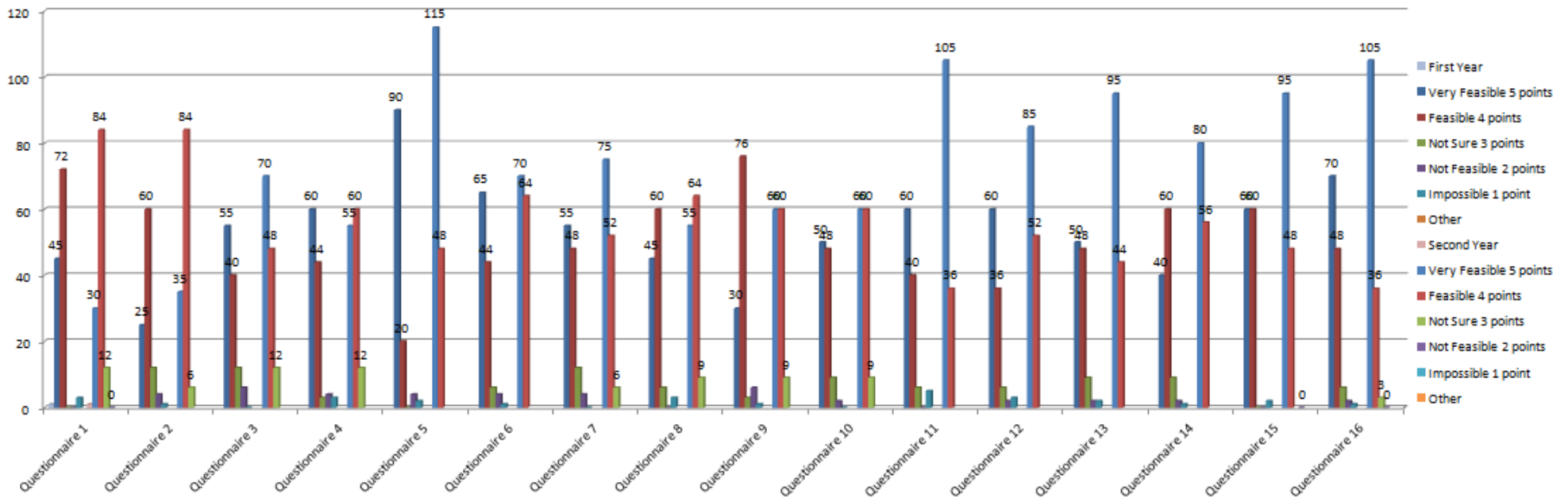

Notes: 30 distributions to sample interviewees.

Achieved notable improvements in rehabilitation understanding: First year: total score 1,833 points, average score 61.1 points. Second year: total score 2,164 points, average score 72.1 points.

Figure 4-36 Evaluation Figure of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Unit: Daba Community Service Station of Vacation Resort   of Kunming Xishan District   Number of samples:50 people
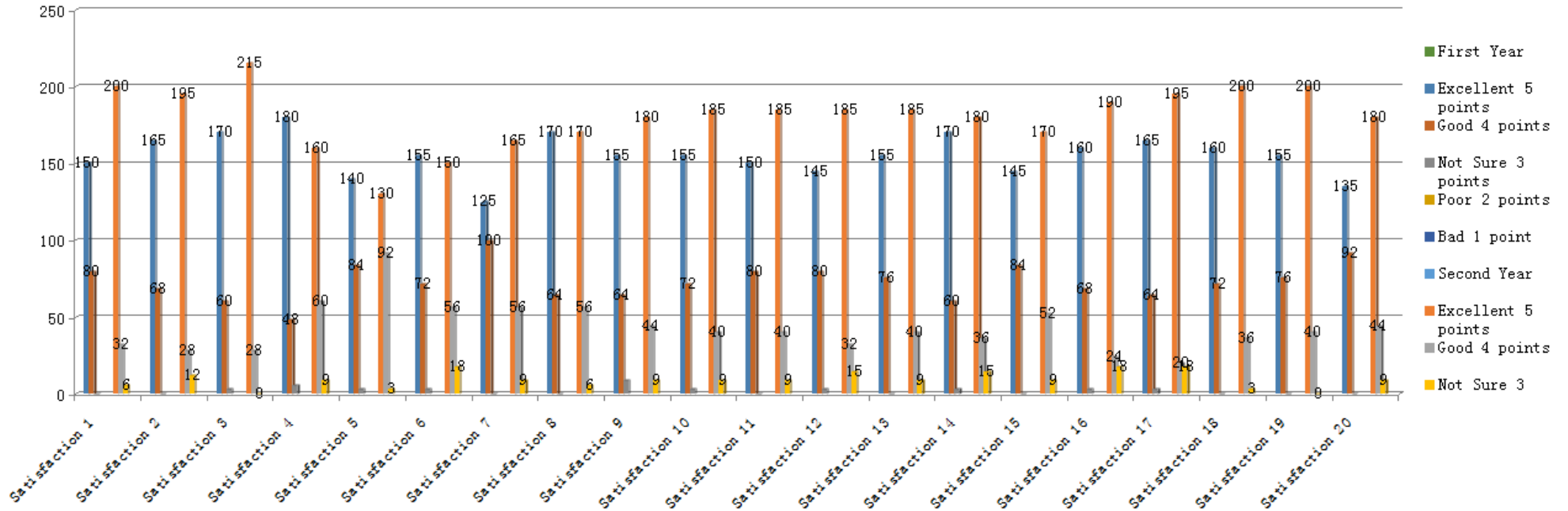
Rehabilitation patients and families' satisfaction degree : First year: total score 4,458 points, average score 89.2 points. Second year: total score 4,662 points, average score 93.2 points.

4.4 The horizontal comparison of rehabilitation training satisfaction among different rehabilitation medical institutions

The horizontal comparison of rehabilitation training satisfaction among different rehabilitation medical institutions included in building the

demonstrative model of standardized tiered rehabilitation system in Yunnan Province as rehabilitation centers, rehabilitation sub-centers and rehabilitation stations is clearly shown in the evaluation Figure of rehabilitation personnel training satisfaction of medical institutions in Yunnan tiered rehabilitation system model, which reveals the satisfaction gap and improvement direction of rehabilitation training of the same tier medical institutions included in the model (See: Figure 4-37, Figure 4-38, Figure 4-39).

Figure 4-37 Evaluation Figure of Comparison of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Category: The horizontal comparison among different rehabilitation center medical institutions

	Center 1	Center 2		
First Year	2829	2629		
Second Year	2998	2895		

Notes: Center 1 stands for Yunnan St. John's Hospital. Center 2 stands for Kunming St. John's Rehabilitation Hospital.

Figure 4-38 Evaluation Figure of Comparison of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Category: The horizontal comparison among different rehabilitation sub-center medical institutions

	Sub-center 1	Sub-center 2	Sub-center 3	Sub-center 4	
First Year	2652	2595	2689	2761	
Second Year	2747	2824	2870	2845	

Notes: Sub-center 1 stands for Rehabilitation Department of Luquan County Zhongai Hospital. Sub-center 2 stands for Rehabilitation Department of Shilin County TCM Hospital. Sub-center 3 stands for Rehabilitation Department of Baoshan Anli Hospital. Sub-center 4 stands for Rehabilitation Department of Anning City Dingli Hospital.

Figure 4-39 Evaluation Figure of Comparison of Rehabilitation Personnel Training Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Category: The horizontal comparison among different rehabilitation station medical institutions

	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6
First Year	1596	1806	1783	1749	1712	1804
Second Year	1793	1943	1910	1903	1946	1973

Notes: Station 1 stands for Rehabilitation Department of Banqiao Health Center of Baoshan City. Station 2 stands for Rehabilitation Department of Hongxi Health Center of Mile City. Station 3 stands for Rehabilitation Department of Zhongai Xiuping Hospital of Luquan County. Station 4 stands for Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County. Station 5 stands for Rehabilitation Department of Shili Community Health Center of Shilin County. Station 6 stands for Daba Community Service Station of Vacation Resort of Kunming Xishan District.

4.5 The horizontal comparison of rehabilitation understanding among different rehabilitation medical institutions

The horizontal comparison of rehabilitation understanding among different rehabilitation medical institutions included in building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province as rehabilitation centers, rehabilitation sub-centers and

rehabilitation stations is clearly shown in the evaluation Figure of rehabilitation personnel understanding questionnaire of medical institutions in Yunnan tiered rehabilitation system model, which reveals the personnel rehabilitation understanding insufficiency and improvement direction of the same tier medical institutions included in the model (See: Figure 4-40, Figure 4-41, Figure 4-42).

Figure 4-40 Evaluation Figure of Comparison of Rehabilitation Personnel Understanding of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Category: The horizontal comparison among different rehabilitation center medical institutions

	Center 1	Center 2	
First Year	2161	1960	
Second Year	2264	2384	
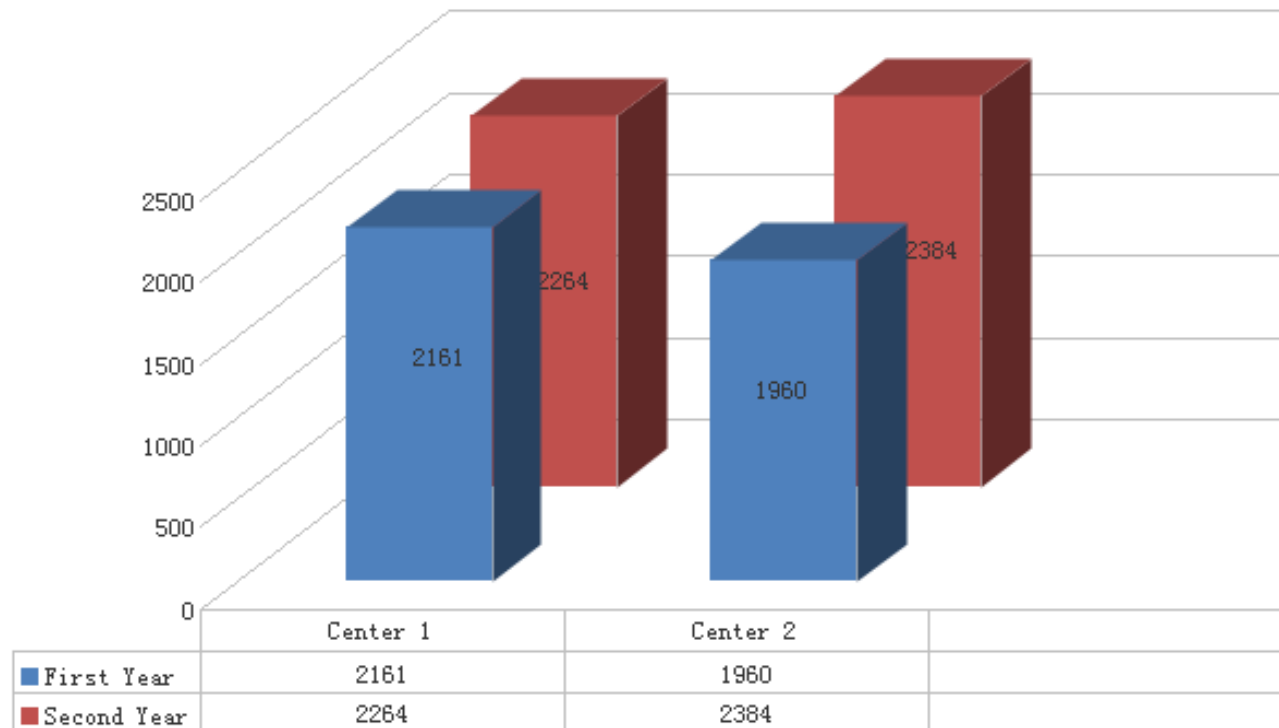
Notes: Center 1 stands for Yunnan St. John's Hospital. Center 2 stands for Kunming St. John's Rehabilitation Hospital.

Figure 4-41 Evaluation Figure of Comparison of Rehabilitation Personnel Understanding of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Category: The horizontal comparison among different rehabilitation sub-center medical institutions

	Sub-center 1	Sub-center 2	Sub-center 3	Sub-center 4
First Year	2052	1919	2026	1961
Second Year	2112	2138	2150	2148
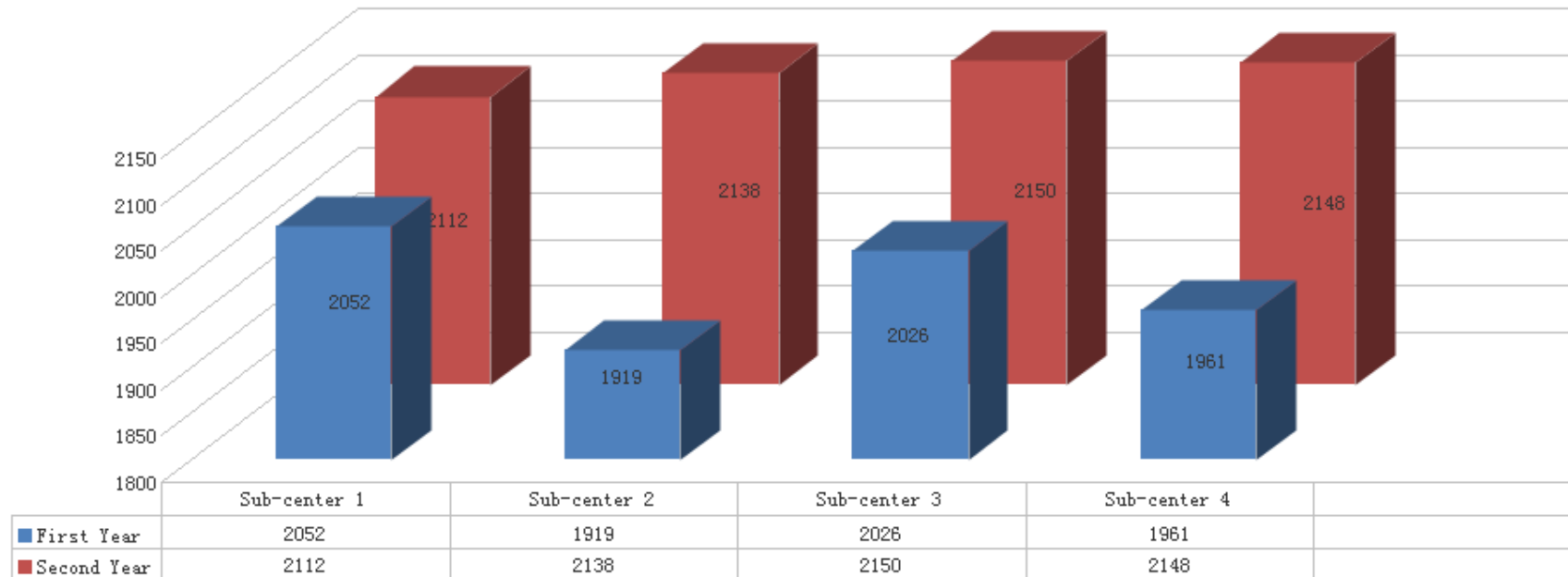
Notes: Sub-center 1 stands for Rehabilitation Department of Luquan County Zhongai Hospital. Sub-center 2 stands for Rehabilitation Department of Shilin County TCM Hospital. Sub-center 3 stands for Rehabilitation Department of Baoshan Anli Hospital. Sub-center 4 stands for Rehabilitation Department of Anning City Dingli Hospital.

Figure 4-42 Evaluation Figure of Comparison of Rehabilitation Personnel Understanding of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Category: The horizontal comparison among different rehabilitation station medical institutions

	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6
First Year	2084	2048	1961	2045	2109	1833
Second Year	2220	2246	2148	2199	2249	2164

Notes:　Station 1 stands for Rehabilitation Department of Banqiao Health Center of Baoshan City. Station 2 stands for Rehabilitation Department of Hongxi Health Center of Mile City. Station 3 stands for Rehabilitation Department of Zhongai Xiuping Hospital of Luquan County. Station 4 stands for Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County. Station 5 stands for Rehabilitation Department of Shili Community Health Center of Shilin County. Station 6 stands for Daba Community Service Station of Vacation Resort　of Kunming Xishan District.
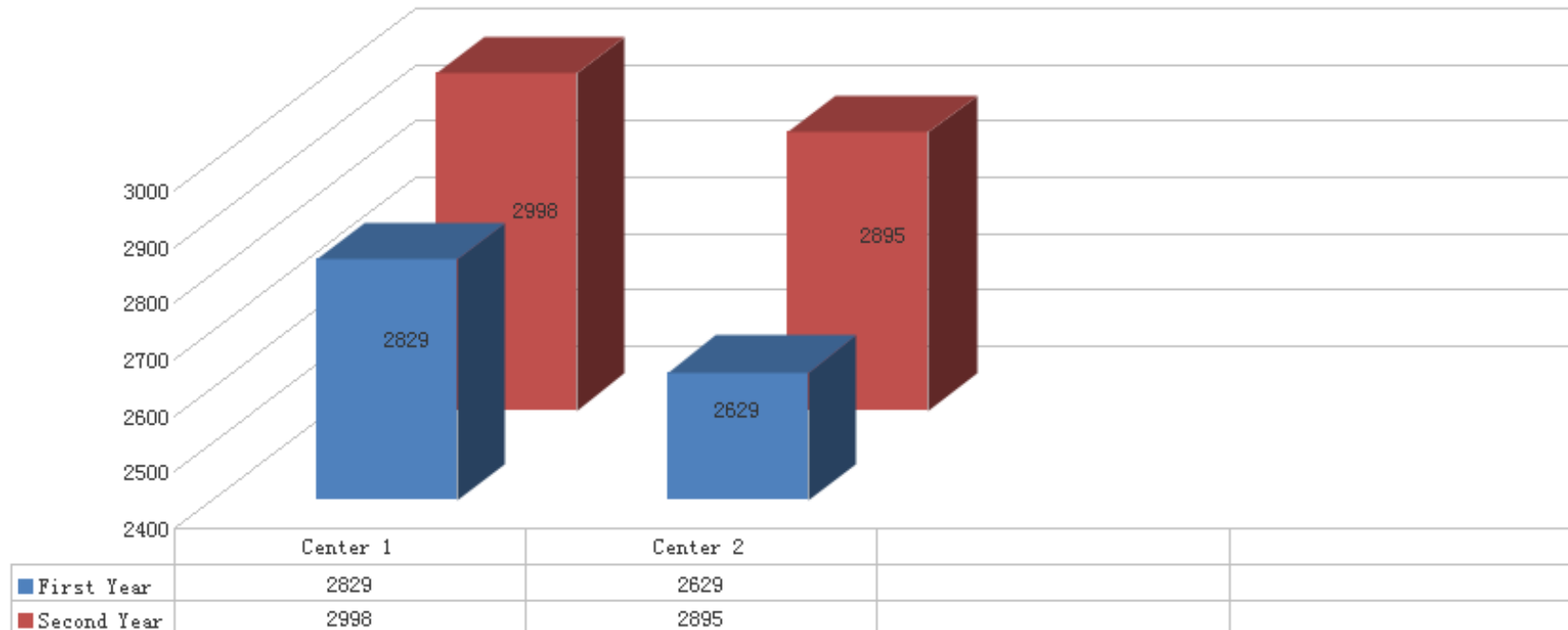
4.6 The horizontal comparison of rehabilitation patients and families satisfaction among different rehabilitation medical institutions

The horizontal comparison of rehabilitation patients and families satisfaction among different rehabilitation medical institutions included in building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province as rehabilitation centers, rehabilitation sub-centers and rehabilitation stations is clearly shown in the evaluation Figure of rehabilitation patients and families satisfaction of medical institutions in Yunnan tiered rehabilitation system model, which reveals the room to improve rehabilitation patients and families satisfaction and improvement direction of the same tier medical institutions included in the model (See: Figure 4-43, Figure 4-44, Figure 4-45).

Figure 4-43 Evaluation Figure of Comparison of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Category: The horizontal comparison among different rehabilitation center medical institutions
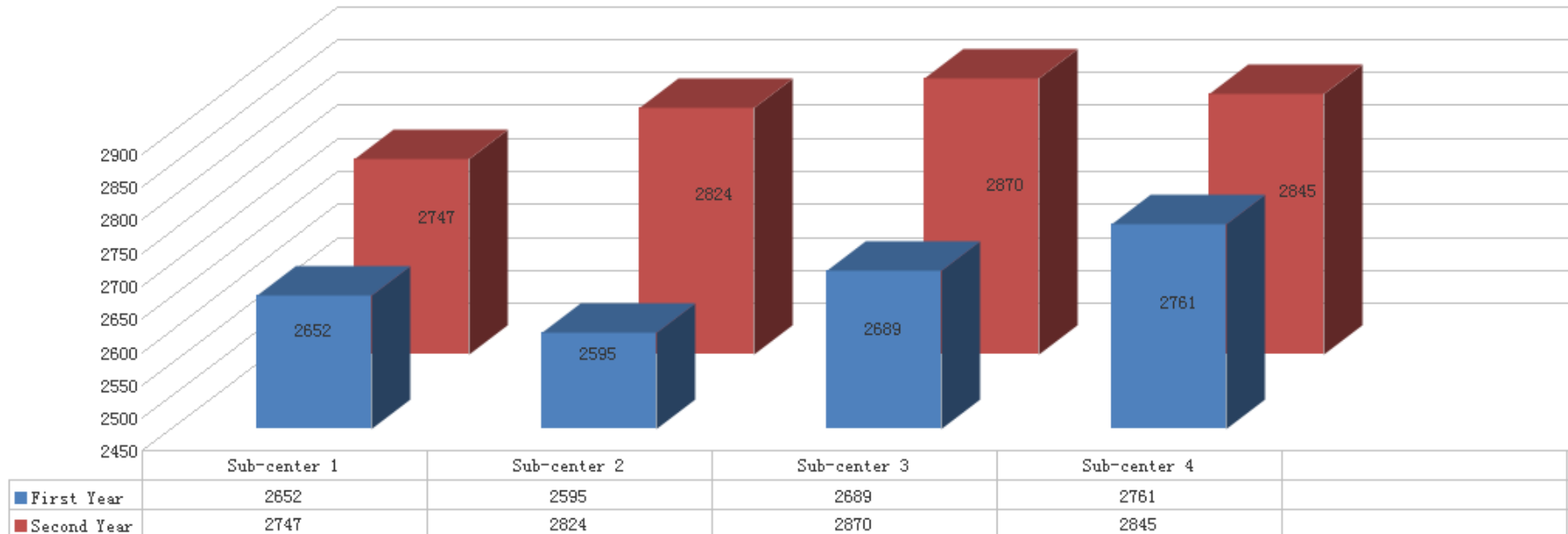

	Center 1	Center 2	
First Year	9304	9251	
Second Year	9815	9526	
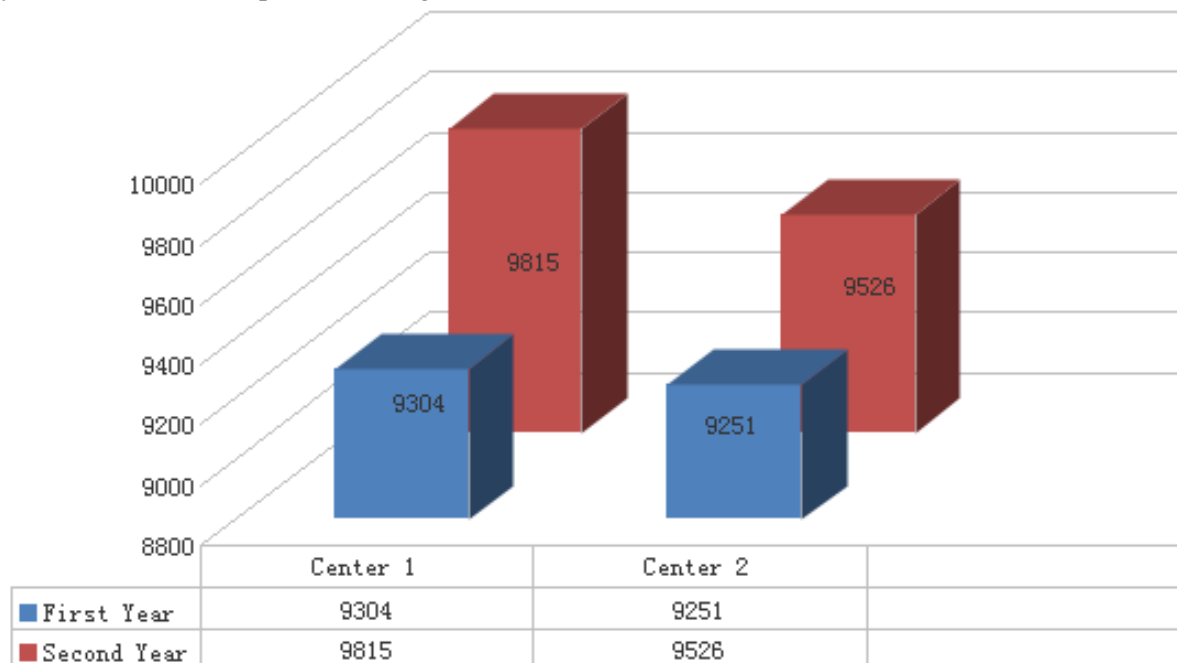
Notes: Center 1 stands for Yunnan St. John´s Hospital. Center 2 stands for Kunming St. John´s Rehabilitation Hospital.

Figure 4-44 Evaluation Figure of Comparison of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model
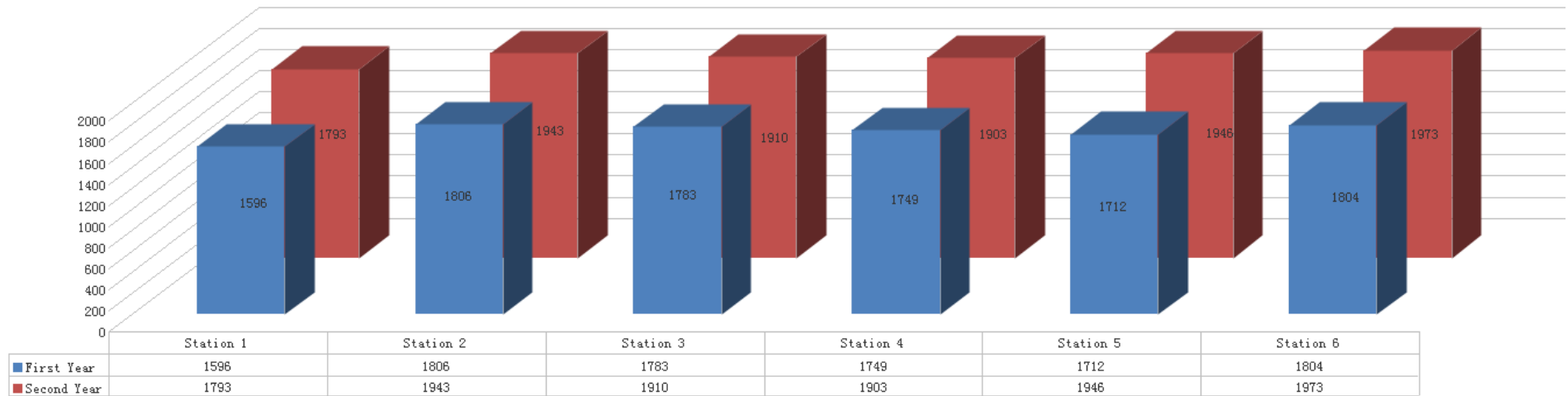
Category: The horizontal comparison among different rehabilitation sub-center medical institutions

	分中心1	分中心2	分中心3	分中心4	
■第一年度	8975	9117	8833	9383	
■第二年度	9182	9440	9550	9976	
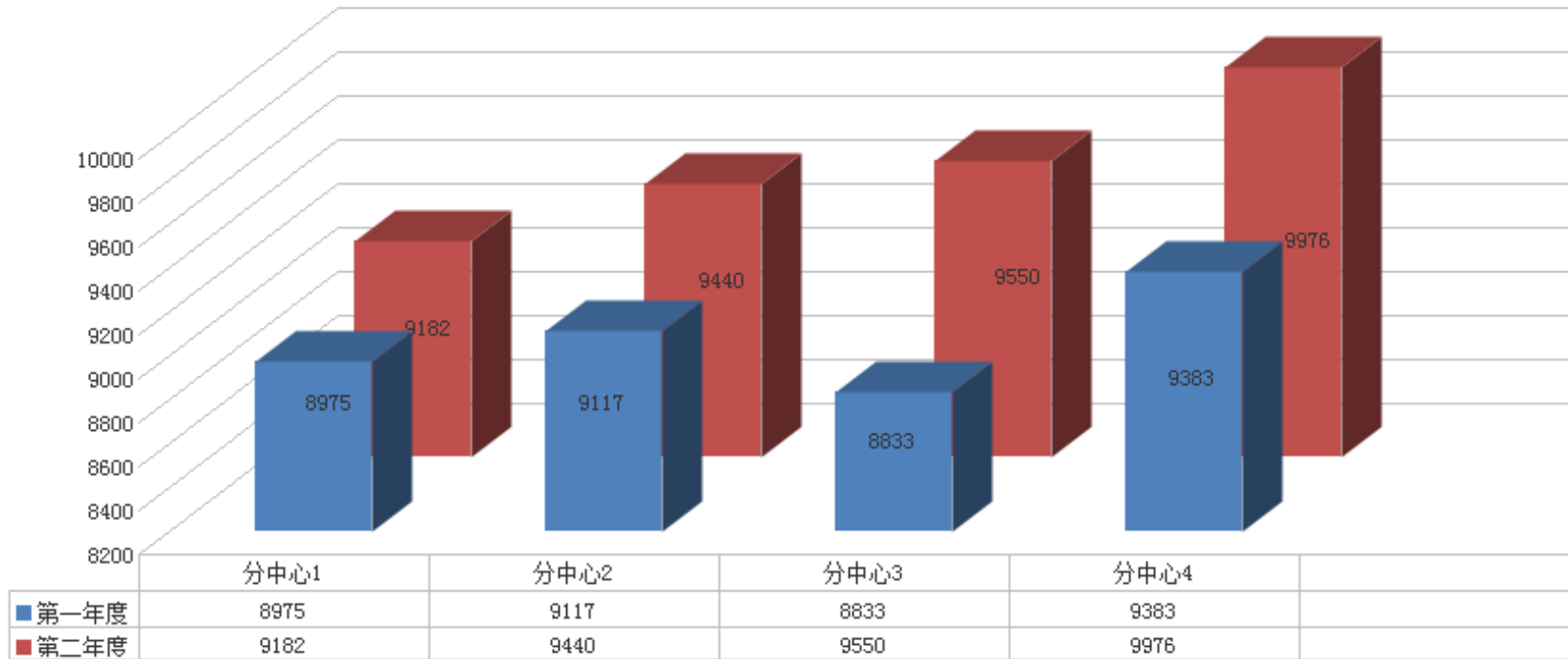
Notes: Sub-center 1 stands for Rehabilitation Department of Luquan County Zhongai Hospital. Sub-center 2 stands for Rehabilitation Department of Shilin County TCM Hospital. Sub-center 3 stands for Rehabilitation Department of Baoshan Anli Hospital. Sub-center 4 stands for Rehabilitation Department of Anning City Dingli Hospital.

Figure 4-45 Evaluation Figure of Comparison of Rehabilitation Patients and Families Satisfaction of Medical Institutions in Yunnan Tiered Rehabilitation System Model

Category: The horizontal comparison among different rehabilitation station medical institutions

	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6
First Year	4469	4713	4874	4527	4511	4458
Second Year	4652	4975	4990	4920	4751	4662

Notes: Station 1 stands for Rehabilitation Department of Banqiao Health Center of Baoshan City. Station 2 stands for Rehabilitation Department of Hongxi Health Center of Mile City. Station 3 stands for Rehabilitation Department of Zhongai Xiuping Hospital of Luquan County. Station 4 stands for Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County. Station 5 stands for Rehabilitation Department of Shili Community Health Center of Shilin County. Station 6 stands for Daba Community Service Station of Vacation Resort of Xishan Distric.

## 4.7 Rehabilitation Revenue Increase Rate of Hospitals

The revenue achievement comparison form of rehabilitation medical institutions in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province reveals that after the inclusion in building the demonstrative model of standardized tiered rehabilitation

system in Yunnan Province as rehabilitation centers, rehabilitation sub-centers, and rehabilitation stations, the rehabilitation medical institutions has achieved notable increase in terms of inpatients number, outpatient number, and rehabilitation revenue over the two years. Many of them reached more than 10% increase of all the indicators over two years, some even achieved 125% increase (**See** Table 4-7, Table 4-8, Table 4-9). This has provided passion for these medical institutions to continuously develop rehabilitation and insist integration of medical and rehabilitation operation concept .

Table 4-7 Revenue Achievement Comparison Form of Rehabilitation Medical Institutions in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Category: rehabilitation center Patients: person Revenue unit: ten thousand yuan

Year	Center 1			Center 2		
	Inpatient	Outpatient	Total Revenue	Inpatient	Outpatient	Total Revenue
Before join in the model	0	0	0	0	0	0
First Year	1253	7775	1312	599	1246	770
Second Year	1309	7904	1448	888	1503	1143
Increase rate	4.5%	1.7%	10.4%	48.2%	20.6%	48.4%
P Value	0.004			0.000		
χ^2	10.999			126.797		

Notes: 1. Center 1 stands for Yunnan St. John's Hospital. Center 2 stands for Kunming St. John's Rehabilitation Hospital.
2. Increase rate refers to two-year increase rate.

Table 4-8 Revenue Achievement Comparison Form of Rehabilitation Medical Institutions in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Category: rehabilitation sub-center Patients: person Revenue unit: ten thousand yuan

Year	Sub-center 1			Sub-center 2			Sub-center 3			Sub-center 4		
	Inpatient	Outpatient	Total Revenue	Inpatient	Outpatient	Total Revenue	Inpatient	Outpatient	Total Revenue	Inpatient	Outpatient	Total Revenue
Before join in the model	0	0	0	0	0	0	200	800	320	260	500	295
First Year	1020	2300	409.8	980	1500	350	1500	4300	680	1820	995	628
Second Year	1610	2500	576.2	1100	1800	420	1600	4500	700	2454	1279	822
Increase rate	57.8%	8.7%	40.6%	12.2%	20%	20%	6.7%	4.7%	2.9%	34.8%	28.5%	30.9%
P Value	0.000			0.466			0.839			0.643		
χ^2	60.828			1.528			0.350			0.882		

Notes: 1. Sub-center 1 stands for Rehabilitation Department of Luquan County Zhongai Hospital. Sub-center 2 refers to Rehabilitation Department of Shilin County TCM Hospital. Sub-center 3 stands for Rehabilitation Department of Baoshan Anli Hospital. Sub-center 4 stands for Rehabilitation Department of Anning City Dingli Hospital.

2. Increase rate refers to two-year increase rate.

Table 4-9 Revenue Achievement Comparison Form of Rehabilitation Medical Institutions in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Category: rehabilitation station Patients: person Revenue unit: ten thousand yuan

Year	Station 1			Station 2			Station 3			Station 4			Station 5			Station 6		
	Inpatient	Outpatient	Total Revenue	Inpatient	Outpatient	Total Revenue	Inpatient	Outpatient	Total Revenue	Inpatient	Outpatient	Total Revenue	Inpatient	Outpatient	Total Revenue	Inpatient	Outpatient	Total Revenue
Before join in the model	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
First Year	264	1600	48	0	1600	52	0	200	5	102	430	12	161	200	20	204	2254	77
Second Year	419	2600	91	0	3600	86	0	1090	32	114	771	20	305	400	40	427	4254	110
Increase rate	0.658	0.083	0.741	0.006	0.914	0.081	0.658	0.083	0.741	0.006	0.914	0.081	0.658	0.083	0.741	0.006	0.914	0.081
P Value	0.837			3.005			0.109			10.180			0.180			5.015		
χ^2	58.7%			62.5%			89.6%			0			125%			65.4%		

Notes: 1. Station 1 stands for Rehabilitation Department of Banqiao Health Center of Baoshan City. Station 2 stands for Rehabilitation Department of Hongxi Health Center of Mile City. Station 3 stands for Rehabilitation Department of Zhongai Xiuping Hospital of Luquan County. Station 4 stands for Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County. Station 5 stands for Rehabilitation Department of Shili Community Health Center of Shilin County. Station 6 stands for Daba Community Service Station of Vacation Resort   of Kunming Xishan District.

2. Increase rate refers to two-year increase rate.

4.8 Personnel Income Increase Rate of Rehabilitation Department

The personnel income achievement comparison form of rehabilitation personnel of rehabilitation medical institutions in the demonstrative model of standardized tiered rehabilitation system in Yunnan Province reveals that after the inclusion in building the demonstrative model of standardized tiered rehabilitation system in Yunnan Province as rehabilitation centers, rehabilitation sub-centers, and rehabilitation stations, rehabilitation personnel in the rehabilitation medical institutions, including rehabilitation doctors, rehabilitation therapists (referred to as therapist) and rehabilitation nurses have achieved notable increase in income over the two years. The personnel at all positions of many of the medical institutions reached more than 20% income increase over two years, some even reached 90% income increase (**See** Table 4-10, Table 4-11, Table 4-12).The authentic income increase is an accountable guarantee to retain the rehabilitation personnel team in these medical institutions.

Table 4-10 Personnel Income Achievement Comparison Form of Rehabilitation Medical Institutions in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Category: rehabilitation center   Unit: yuan

Year	Center 1			Center 2		
	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse
Before join in the model	0	0	0	0	0	0
First Year	4500	3000	2200	5500	3500	2300
Second Year	6500	4000	2800	8500	4600	3000
P Value	0.000			0.000		
Increase rate	44.4%	33.3%	27.3%	54.5%	31.4%	30.4%

Notes: 1. Center 1 stands for Yunnan St. John's Hospital. Center 2 stands for Kunming St. John's Rehabilitation Hospital.

2. Increase rate refers to two-year increase rate.

Table 4-11 Personnel Income Achievement Comparison Form of Rehabilitation Medical Institutions in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Category: rehabilitation sub-center   Unit: yuan

Year	Sub-center 1			Sub-center 2			Sub-center 3			Sub-center 4		
	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse
Before join in the model	0	0	0	0	0	0	2500	1700	1400	2600	1600	1500
First Year	2800	1800	1800	2000	1800	1700	2900	1900	1600	3000	2000	1800
Second Year	4000	2800	2500	3600	2500	2200	5000	3500	2600	4500	3000	2500
P Value	0.021			0.000			0.013			0.100		
Increase rate	42.3%	55.6%	38.9%	80%	38.9%	29.4%	72.4%	84.2%	62.5%	50%	50%	66.7%

Notes: 1. Sub-center 1 stands for Rehabilitation Department of Luquan County Zhongai Hospital. Sub-center 2 refers to Rehabilitation Department of Shilin County TCM

Hospital. Sub-center 3 stands for Rehabilitation Department of Baoshan Anli Hospital. Sub-center 4 stands for Rehabilitation Department of Anning City Dingli Hospital.

2. Increase rate refers to two-year increase rate.

Table 4-12 Personnel Income Achievement Comparison Form of Rehabilitation Medical Institutions in the Demonstrative Model of Standardized Tiered Rehabilitation System in Yunnan Province

Category: rehabilitation station   Unit: yuan

Year	Station 1			Station 2			Station 3			Station 4			Station 5			Station 6		
	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse	Doctor	Therapist	Nurse
Before join in the model	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
First Year	2000	1800	1700	2000	1800	1700	2000	1800	1700	2000	1800	1700	2000	1800	1700	2000	1800	1700
Second Year	3500	2400	2000	3300	2200	2000	3400	2600	2100	3400	2700	2200	3500	2700	2400	3800	2800	2500
P Value	0.000			0.000			0.000			0.000			0.000			0.000		
Increase rate	75%	33.3%	17.6%	65%	22.2%	17.6%	70%	44.4%	23.5%	70%	50%	29.4%	75%	50%	41.2%	90%	55.6%	47.1%

Notes: 1. Station 1 stands for Rehabilitation Department of Banqiao Health Center of Baoshan City. Station 2 stands for Rehabilitation Department of Hongxi Health Center of Mile City. Station 3 stands for Rehabilitation Department of Zhongai Xiuping Hospital of Luquan County. Station 4 stands for Rehabilitation Department of Shuanglongying Town Health Center of Qiubei County. Station 5 stands for Rehabilitation Department of Shili Community Health Center of Shilin County. Station 6 stands for Daba Community Service Station of Vacation Resort   of Kunming Xishan District.

2. Increase rate refers to two-year increase rate.

Chapter 5: Discussion

To identify whether a new medical model can be accepted and promoted, this model must receive the willingness test of the funding party (the government and patient who pays for the medical model service), patients who receive medical services, and the medical service provider (medical institutions providing support for medical model services, medical personnel directly providing services, and relevant support personnel providing services indirectly). In a first-class medical model, all the three parties obtain benefits and are willing to launch and promote the model; in a mid-level medical model, two parties of the three obtain benefits and are willing to launch and promote the model; in a third-rate model, only one party obtains benefits and is willing to launch and promote the model; in a inferior model, all parties feel that their interests are damaged and try to intervene with the model. As a brand-new and exploratory medical rehabilitation model, the hierarchical rehabilitation system model of Yunnan inevitably has to undergo the test of the aforementioned stakeholders, and the following is the analysis of the three aspects based on research results.

5.1 Influence of Promoting Standardized Medical Rehabilitation System on Government Interests and Medical Policy Satisfaction

The value of the hierarchical rehabilitation system model of Yunnan is that it changes the medical treatment idea of Yunnan from focus only on clinical medical care to equal stress on clinical medical care and medical rehabilitation. The government has found the sense of gain after the transition which is mainly reflected in the reduction of social resource consumption and increase of mobilized labor force.

5.1.1 Reduction of Social Medical Resource Consumption

The standardized and systematical hierarchical medical rehabilitation system formed under the guidance of the General System Theory provides patients with full-treatment-course (Zhang,2011; Fu,2017), phased, professional, systematic, and continuous rehabilitation, which greatly shortens the entire course and accelerates the recovery of functions. It precludes the possibility of extension of treatment course and delay of functional recovery caused by

over-treatment and unprofessional rehabilitation plans, which, in turn, avoids the waste of limited social medical resources by excessive and inefficient long-course medical treatment.

5.1.2 Significant Reduction of Accompany Care Resource Consumption

We optimize rehabilitation patient accompany in an orderly and organized manner under the guidance of the General System Theory featuring systematic hierarchy, unity, integrity, isomorphism and relevance. Early rehabilitation patients need careful but not full-time accompanying care, so there is no need for one-to-one accompany. They need one-to-many accompany based on the conditions of rehabilitation patients. As for family rehabilitation and accompany care, only one-to-one accompany care is feasible, since one-to-many is often done in medical and rehabilitation institutions. The system integration has freed considerable accompany care labor force, reducing the consumption of mobilized labor force resource.

5.1.3 Rapid Recovery of Mobilized Labor Force and Increase of Social Benefits

With a full-treatment-course, phased, professional, systematic, and continuous rehabilitation in the hierarchical rehabilitation system, patients get recovered rapidly and become disposable labor force to create value, which directly increases social value. The considerable shortening of functional rehabilitation course has freed the accompany and care labor forces, which indirectly increases the social benefits.

5.1.4 Implementation of Hierarchical Rehabilitation System Improves Satisfaction with Government Medical Policies

The government has provided a full-treatment-course, staged, professional, systematic, and continuous hierarchical rehabilitation system which helps patients to return to society and family as soon as possible in a rapid, intact, time-saving, and economical way. Research results show that the average scores of all the medical institutions included in the hierarchical rehabilitation system are over 90 in the Evaluation of Patient Satisfaction with Rehabilitation Medical Institutions in the Hierarchical Rehabilitation System Model of Yunnan. It indicates that patient satisfaction with government medical policies has been improved considerably, creating a good image of integrity for the government.

5.2 Influence of Promoting Standardized Hierarchical Medical Rehabilitation System on Patient Benefits and Patient Feeling

Establishment of the hierarchical rehabilitation system model of Yunnan has promoted the shift of patient's understanding of medical rehabilitation from focus only on clinical medical treatment to equal stress on clinical medical treatment and functional rehabilitation. Patients obtain a sense of gain which is mainly reflected in shortened period of pain relief, reduced payment of full-course treatment and increased returns made by recovered labor force.

5.2.1 Patients can return to family and society quickly and create tangible and intangible benefits

The full-treatment-course, staged, professional, systematic, and continuous hierarchical rehabilitation system helps patients recover rapidly and considerably shortens the time of pain due to loss of function so that patients can return to family and society quickly and create tangible and intangible benefits.

It is showed in the results of the Evaluation of Patient Satisfaction with Rehabilitation Medical Institutions in the Hierarchical Rehabilitation System Model of Yunnan in 4.1.3.2 that in all the evaluation Figures of rehabilitation center, rehabilitation sub-centers and even rehabilitation stations, the satisfaction degree is rather high. It indicates that the rehabilitation system and rehabilitation service group trained by the Learning Cycle Theory have been widely recognized by patients as for rehabilitation concept, rehabilitation technology and orderly rehabilitation process. Through the hierarchical rehabilitation system, patients recover from their lost functions rapidly and return to the society soon, creating benefits for the society as well as for themselves.

5.2.2 Orderly and Organized Accompany Care Significantly Reduces Accompany Care Cost of Family Members

Under the guidance of the General System Theory featuring systematic hierarchy, unity, integrity, isomorphism and relevance, and thanks to the professional rehabilitation and accompany care of hierarchical rehabilitation system as well as the optimized one-to-many accompany care of patients, there is no need of one-to-one accompany care and family accompany care, significantly reducing the accompany cost and saving family member accompany resources. It also reduces the loss of direct social benefits if the family members detach themselves from the society as well as

their own benefits.

5.3 Influence of Promoting Standardized Hierarchical Medical Rehabilitation System on Benefits and Vocational Prospects of Medical Rehabilitation Providers

The hierarchical rehabilitation system model of Yunnan provides a conceptual opportunity for medical rehabilitation providers to obtain medical rehabilitation, enabling them to change from focusing only on clinical medical results to putting equal stress on clinical medical results and medical functional rehabilitation, or even consciously regarding medical functional rehabilitation as the ultimate goal of medical treatment. It brings a sense of gain in medical functional rehabilitation after the change. The sense of gain is mainly manifested in the sense of accomplishment in the shortening of pain relief, and saving of time spent in single patient so that more patients can be served. The model increases service items that generate benefits, increasing the service volume and generating more benefits at the same time. Medical rehabilitation providers include medical institutions that provide rehabilitation services, medical personnel such as doctors, rehabilitation therapists and nurses who provide medical rehabilitation services directly, and indirect support personnel at rehabilitation medical institutions that provide support for medical rehabilitation services.

5.3.1 The Hierarchical Rehabilitation System Model of Yunnan Gives A Sense of Gain to Medical Institutions Involved As For Tangible Increased Benefits and Reputation

5.3.1.1 Involved Change Their Objective of Medical Institutions

The standardized medical rehabilitation system promotes medical institutions involved change their objective from focus only on medical results to medical care-rehabilitation Integration.

The original objectives of the medical institutions involved in the system are simply medical objectives, with little knowledge and understanding of rehabilitation, which can be identified easily from research results. According to Evaluation of Patient Satisfaction with Rehabilitation Medical Institutions in the Hierarchical Rehabilitation System Model of Yunnan, most of the scores of cognition of rehabilitation given by medical staff in the first year before training are below 60 (full score 150). It can also be seen in the research results that after the medical institutions involved use the Learning Cycle Theory to carry out cycled rehabilitation training, the

scores aforementioned increase by over 50%. It indicates that the objectives of medical institutions involved in the system have changed from focus only on medical results to medical care-rehabilitation integration focusing on rehabilitation treatment, research and extension based on medical care.

As for the medical institutions that have been included in the hierarchical rehabilitation system model of Yunnan, under the dual role of the General System Theory and the Learning Cycle Theory, they have changed from focusing only on medical treatment to regarding rehabilitation treatment based on clinical treatment as the ultimate goal and comprehensively promoted rehabilitation treatment, rehabilitation scientific research and rehabilitation development research. These medical institutions have also developed to the ones with medical care-rehabilitation integration medical level.

The cultural atmosphere of medical institutions is directly related to the service concept of medical staff and the degree of medical interaction between patients and their family members and medical staff. Due to the widespread application of the Learning Cycle Theory in the construction of hierarchical rehabilitation system model of Yunnan, the various medical institutions participating in the system have gradually formed a cultural atmosphere featuring aggressiveness, innovation and accountability. They have changed from focus only on illness treatment to equal stress on illness treatment and functional rehabilitation. All these are shown in the Rehabilitation Training Satisfaction Evaluation Figure, Relevant Personnel Rehabilitation Cognition Degree Evaluation Figure and Rehabilitation Patients Rehabilitation Service Satisfaction Evaluation Figure.

5.3.1.2 The Hierarchical Rehabilitation System Model of Yunnan Brings Tangible Benefits to Medical Institutions Participating in the System Model

Research results (Table 4-13, Table 4-14, and Table 4-15) show that the growth rate of outpatient visits, hospitalization visits, and total rehabilitation service income of many medical institutions within the two years exceeds 10%, which also provides these medical institutions with the motivation to continue to develop rehabilitation service and adhere to the medical care-rehabilitation integration concept.

5.3.1.3 Successfully build the structure of hierarchical rehabilitation system model of Yunnan

An important achievement of the construction of hierarchical rehabilitation system model of Yunnan is to successfully build the structure of hierarchical rehabilitation system model of Yunnan under the guidance of the General System Theory and construct homogeneous management

efficiency of the operational quality of hierarchical rehabilitation system model of Yunnan. Medical institutions participating in the system model include five state-owned public institutions of the rehabilitation department of Banqiao Central Hospital of Baoshan City, rehabilitation department of Hongxi Central Hospital of Mile City, rehabilitation department of Shuanglongying Township Health Center of Qiubei County, rehabilitation department of Shilin Community Health Center of Shilin County, and rehabilitation department of Shilin County Traditional Chinese Medicine Hospital, five private joint-equity institutions of Yunnan St. John's Hospital, Kunming St. John's Rehabilitation Hospital, rehabilitation department of Zhongaixiupin Hospital of Luquan County, rehabilitation department of Zhongai Hospital of Luquan County and rehabilitation department of Anli Hospital of Baoshan City, one private individual enterprise of Daba Community Service Station of Kunming Xishan District, and one private Fujian enterprise of Dingli Hospital of Anning. No institutions deviate from the expected objectives due to different natures of the institutions and different managers. All of them have met the expert panel standard to establish the hierarchical rehabilitation system model. It indicates that the General System Theory model and Learning Cycle Theory model selected are appropriate, offering reliable theoretical foundation for the promotion of exemplary standard hierarchical rehabilitation system model. In particular, the openness principle of the General System Theory offers the basis of horizontal comparison among medical institutions involved. The Rehabilitation Training Satisfaction Evaluation Comparison Figure (Figure 4-37, Figure 4-38, and Figure 4-39), "Relevant Personnel Rehabilitation Cognition Degree Evaluation Comparison Figure (Figure4-40, Figure 4-41, and Figure 4-42) and Rehabilitation Patient Rehabilitation Service Satisfaction Evaluation Comparison Figure (Figure 4-43, Figure 4-44, and Figure 4-45) display the gaps between medical institutions and problems in a rapid and visual manner, creating objective room for improvement to resolve the problems and achieve homogeneity.

5.3.2 Increase of Income and Broader Career Development Prospects to Relevant Personnel

The hierarchical rehabilitation system model of Yunnan brings tangible increase of income and broader career development prospects to relevant personnel in the rehabilitation system

5.3.2.1 The medical concept transformation of medical personnel such as doctors, technicians, and nurses

The standardized hierarchical rehabilitation system has promoted the transformation of the medical concept of medical personnel such as doctors, technicians, and nurses from the medical institutions involved in the system from focus only on illness treatment to equal stress on illness

treatment and functional rehabilitation. The transformation of the medical concept cannot rely only on medical institutions, because the medical concept is implemented and embodied by the medical staff. Therefore, the change of the concept of the medical staff and relevant staff of medical rehabilitation providers is the key. The Learning Cycle Theory has been used in the implementation of hierarchical rehabilitation system model of Yunnan for rehabilitation cycled training so that the medical staff focuses on the future recovery status at the beginning of illness treatment and plans and studies medical schemes with the equal stress on illness treatment and functional recovery. As shown in 4.1.3.2, satisfaction degree in all items in the Evaluation of Patient Satisfaction with Rehabilitation Medical Institutions in the Hierarchical Rehabilitation System Model of Yunnan has been increasing in the two years, which is a powerful indication of the correctness of the medical concept transformation of medical personnel such as doctors, technicians, and nurses.

5.3.2.2 The establishment of the hierarchical rehabilitation system model has increased the economic income of employees in medical institutions involved

The income of doctors, rehabilitation therapists (abbreviated as technicians) and rehabilitation nurses engaged in rehabilitation in the medical rehabilitation institutions that participate in the hierarchical rehabilitation system model of Yunnan has increased significantly in both years. The growth rate of all the staff has surpassed 20%, some even reaching 75% (Table 4-16, Table 4-17, Table 4-18). The tangible increase of income has offered a reliable guarantee for stabilizing the team of rehabilitation.

5.3.2.3 The establishment of the hierarchical rehabilitation system model greatly expanded the professional vision of employees in medical institutions involved

The professional vision of employees has been expanded significantly. Many gaps in the rehabilitation medicine field are waiting for them to fill in, and many problems in the construction of hierarchical rehabilitation systems are waiting for them to solve. In the vast space of career development, they have become scarce and sought-after talents.

5.4 Conclusion

1. The successful application of the General System Theory in the structure construction and the Experiential Learning Cycle in the operation construction of building tiered rehabilitation system model in Yunnan Province demonstrated that the General System Theory model and the

Experiential Learning Cycle model are appropriate, suitable and critical for building tiered rehabilitation system model in Yunnan Province.

2. The results of the hierarchy rehabilitation system model in Yunnan have reached the expected objectives of the three stakeholders of the government, the general public (patients), as well as the medical institutions and their employees, so the model has reached a first-class level.

3. The expert consultation standards which have undergone multiple rounds of expert discussion provide visible targets and orientation for the supervision and homogeneous standardization of hierarchy rehabilitation system model in Yunnan. They ensure the successful construction of the hierarchy rehabilitation system model in Yunnan and are worth popularizing. This shows that the criteria set by the expert team, the process and the results of the demonstrative model of standardized tiered rehabilitation system in Yunnan Province can provide a scientific learning basis for building regional rehabilitation systems in a rapid and standardized way.

5.5 Limitation

1. Although many factors are considered in the medical care-rehabilitation integration medical pattern of the hierarchical rehabilitation system model of Yunnan, the area it covers is still not extensive enough. There are certain difficulties in the future application and some problems needed to be improved.

2. The criteria which are formulated by the expert team for Yunnan tiered rehabilitation system model best fit the circumstance that a rehabilitation unit is developed from nonexistence. Thus, there is certain limitation when applied to upgrading rehabilitation construction.

3. The construction process of Yunnan tiered rehabilitation system model is implemented under the situation that the specific executive government departments do not know in which way to give their support. Therefore, the difficulties encountered during the project construction have certain limitations in time.

4. Although the construction results of Yunnan tiered rehabilitation system model covered both public and private medical units, separate statistics are not been made between the two categories, which may cause the limitation that needs to be solved by making some adjustments at the time of instructing different category of medical units.

5. While building Yunnan tiered rehabilitation system model, emphasis is put on training medical employees based on experiential learning theory, and insufficient attention is put to the rehabilitation concept training for government employees and patients, which may cause the problem that the medical units underestimate the difficulties in developing rehabilitation.

5.6 Suggestions

The medical rehabilitation integration model of the hierarchy rehabilitation system model in Yunnan should be promoted step by step in the government level, which will give the sense of gain to more extensive government, patient, medical institutions and medical staff from the hierarchical rehabilitation system model.

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Appendix 1: Questionnaire for Employees of Yunnan Tiered Rehabilitation System

Employer:　　Department:　　Position:　　Rank:

1. Based on your knowledge, rehabilitation is

a. sanitorium　b. rest　c. disease treatment　d. function recovery

e. no idea　f. other (please specify:　　　　)

2. Where did you learn the above knowledge?

a. television b. broadcasting c. internet　　d. training e. self-study

f. other (please specify:　　　　)

3. In the past, how do you interpret rehabilitation and rehabilitation medicine?

a. sanitorium　b. rest　c. disease treatment　d. function recovery

e. no idea　f. other (please specify:　　　　)

4. How would you define the word "tiered" when used in tiered rehabilitation system?

a. different layers　b. different stages　c. different types

d. different groups of people e. no idea　f. other (please specify:　　　)

5. What do you think about the feasibility of tiered rehabilitation in the system?

a. very practical b. practical　c. not sure d. not practical　e. impossible

f. other (please specify:　　　)

6. To your understanding, tiered rehabilitation system is a system that features:

a. structure b. function c. combination d. structure and function

e. no idea　f. other (please specify:　　　　)

7. Where did you learn the above knowledge?

a. television b. broadcasting c. internet　　d. training e. self-study

f. other (please specify:　　　　)

8. At present, when do you think Yunnan tiered rehabilitation system should intervene in patients' function recovery?

a. unstable phase b. stable phase c. recovery phase d. whole process　e. no idea

f. other (please specify:)

9. What do you think about the feasibility of the intervene timing of Yunnan tiered

rehabilitation system in patients' function recovery?

a. very practical b. practical   c. not sure d. not practical   e. impossible

f. other (please specify:)

10. To what extent do you think patients will benefit from Yunnan tiered rehabilitation system?

a.   great   b. good c. not sure   d. not good   e. bad

f. other (please specify:)

11. To what extent do you think the use of rehabilitation resources will benefit from Yunnan tiered rehabilitation system?

a.   great b. good c. not sure   d. not good   e. bad

f. other (please specify:)

12. What do you think about building cooperation relationship between rehabilitation department and other departments within a hospital?

a. critical b. necessary c. not sure   d. unnecessary   e. meaningless

f. other (please specify:)

13. What do you think about the feasibility of the cooperation between rehabilitation department and other departments within a hospital?

a. very practical b. practical c. not sure d. not practical   e. impossible

f. other (please specify:)

14. What do you think about building cooperation relationship among different medical institutions, and among medical institutions and non-medical institutions?

a. critical b. necessary   c. not sure   d. unnecessary   e. meaningless

f. other (please specify:)

15. What do you think about the feasibility of the cooperation among institutions?

a. very practical b. practical c. not sure d. not practical e. impossible

f. other (please specify:)

16. After training, what is your understanding of the word "tiered" when used in tiered rehabilitation system?

a. different layers   b. different stages   c. different types   d. no idea

e. different groups of people f. other (please specify:)

17. After training, what do you think about the feasibility of tiered rehabilitation in the system?

a. very practical   b. practical   c. not sure d. not practical   e. impossible

f. other (please specify:)

18. After training, when do you think Yunnan tiered rehabilitation system should intervene in patients' function recovery?

a. very practical   b. practical   c. not sure d. not practical   e. impossible

f. other (please specify:)

19. After training, what do you think about the feasibility of the intervene timing of Yunnan tiered rehabilitation system in patients' function recovery?

a. very practical   b. practical   c. not sure d. not practical   e. impossible

f. other (please specify:)

20. After training, what do you think about building cooperation relationship between rehabilitation department and other departments within a hospital?

a. critical b. necessary c. not sure   d. unnecessary   e. meaningless

f. other (please specify:)

21. After training, what do you think about the feasibility of the cooperation between rehabilitation department and other departments within a hospital?

a. very practical b. practical   c. not sure d. not practical   e. impossible

f. other (please specify:)

22. After training, what do you think about building cooperation relationship among different medical institutions, and among medical institutions and non-medical institutions?

a. critical b. necessary c. not sure   d. unnecessary   e. meaningless

f. other (please specify:)

23. After training, what do you think about the feasibility of the cooperation among institutions?

a. very practical b. practical   c. not sure d. not practical   e. impossible

f. other (please specify:)

24. What do you think about the importance of governing policies upon the establishment of the demonstrative project of tiered rehabilitation system?

a. critical b. necessary c. not sure   d. unnecessary   e. meaningless

f. other (please specify:)

25. What do you think about the importance of governing policies upon the promotion of the tiered rehabilitation system?

a. critical b. necessary c. not sure   d. unnecessary   e. meaningless

f. other (please specify:)

Appendix 2: Rehabilitation Patients and Families Satisfaction Questionnaire

Name: Bed No.   Age:

Diagnosis: Admission No.   Date:

No.	Contents	Excellent 5 points	Good 4 points	Not Sure 3 points	Poor 2 points	Bad 1 point
1	The doctors check out the patient timely after admission.					
2	The nurses check out the patient timely after admission.					
3	The patient receives clinical and rehabilitation services at the same time.					
4	The doctors and physiotherapists explain clearly to the patient and families about the illness.					
5	The doctors and physiotherapists explain clearly to the patient and families about the rehabilitation plans.					
6	The doctors and physiotherapists explain clearly to the patient and families about the rehabilitation therapy content and purposes.					
7	The doctors and physiotherapists explain clearly to the patient and families about rehabilitation objectives.					
8	The doctors and physiotherapists explain clearly to the patient and families about rehabilitation prognosis and contraindications.					
9	The nurses explain in detail about the ward environment and matters to pay attention to when the patient is admitted.					
10	The nurses explain in detail about the layout of rehabilitation therapy zone and matters to pay attention to when the patient is admitted.					
11	The physiotherapists comply with rehabilitation plans.					
12	The nurses give instructions on daily life and caring knowledge.					
13	The physiotherapists give instructions on mobility and rehabilitation knowledge.					
14	The rehabilitation plans are adjusted to the changes of illness and functions timely.					
15	Traditional Chinese rehabilitation and western rehabilitation services are provided simultaneously.					
16	Do you like the rehabilitation facilities in the hospital?					
17	Have you been provided with ongoing rehabilitation therapy?					
18	What do you think about the rehabilitation effect?					
19	What do you think about the discharge plan on rehabilitation training and advises?					
20	What do you think about the advises that aim at ensuring ongoing rehabilitation training?					

1. Please let us know if you have any other comments.

2. Are there any other medical services you wish to receive?

Patient's or Families' Signature:

Date:

Appendix 3: Rehabilitation Training Satisfaction Questionnaire

We would be grateful if you could spare a few minutes to complete this questionnaire to help us improve our service. Please tick the appropriate box to indicate your degree of satisfaction.

No.	Contents	Excellent 5 points	Good 4 points	Not Sure 3 points	Poor 2 points	Bad 1 point
1	The rehabilitation training has clear objectives.					
2	The training content is appropriately planned.					
3	The training content is practical.					
4	The instructors are good.					
5	The training content is well organized.					
6	The training content is important.					
7	The training content is feasible.					
8	The training content includes relevant theories.					
9	The training content is relevant to your work.					
10	The training combines theory and practice.					
11	The training materials are helpful with your learning.					
12	The design of discussion is appropriate.					
13	The design of homework is appropriate.					
14	The design of practice is appropriate.					
15	The design of exam is appropriate.					
16	The training is helpful.					
17	The classroom atmosphere is properly built.					
18	Questions are answered briefly, clearly and accurately.					
19	The training improves your rehabilitation expertise.					
20	Continuous training plans are provided.					

1. Please let us know if you have any other comments.

2. Are there any other training services you wish to receive?

Trainee's Signature:

 Date: