



Review

Application progress of case management in the treatment of chronic diseases

Gai-Jing Wang*, Hui Wang*, Yan-Ling Li, Jiao Chen, Yan-Qing Tian, Jing Wang*✉

Affiliated Hospital of Hebei University, Baoding, Hebei, 071000, China

* These authors contributed equally.

✉ Correspondence

Jing Wang, Affiliated Hospital of Hebei University, Clinical Laboratory, Baoding, Hebei, 071000, China. Email: 8011281@qq.com. Telephone: +8613731210987.

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Abstract

This article introduces the general situation of the case management model. Combined with the research status of domestic case management in chronic diseases, this paper summarizes the existing problems and puts forward relevant suggestions to resolve the existing problems. It aims to promote the application of case management model in chronic diseases and promote the further development of the case management model.

Key words: Case Management, Chronic Disease, Review.

Introduction

With the improvement of people's living standards, the acceleration of the aging rate of the population and changes in lifestyle and dietary pattern, cardiovascular and cerebrovascular diseases, malignant tumors, diabetes, and respiratory chronic diseases seriously endanger people's physical and mental health and affect the quality of life. The prolongation of the length of hospital stay for chronic diseases has caused great distress to the lives of patients and their families. To promote the rehabilitation of patients and reduce the cost of treatment, an effective chronic disease management model is urgently needed. Relevant studies have

shown that the case management model as a new model is recognized by the application of diabetes, cancers, chronic obstructive pulmonary diseases, and other fields, through the rational use of clinical resources, reduce medical costs, to improve the quality of life of patients (1). This paper analyzes the current situation of the application of case management of chronic diseases such as diabetes, tumors, and chronic obstructive pulmonary diseases, and finds out the existing problems about case management, providing a reference and basis for further improvement of the case management of chronic diseases.

1. Overview of the case management model

1.1 Concept of the case management model

Case management was first proposed by an insurance company. In recent years, case management model has become the first choice for clinical medical staff by providing more options for the nursing industry and benefiting patients and medical staff. In 1985, among New England Healthcare in Boston, USA, nursing staff were the first to start a new care model as managers, which is suitable for acute medical treatment and long-term care system; in Taiwan Province, China, in response to universal health care, case management was also targeted and established in 2005, and good achievements have been made in oncology. There are many definitions of case management model, which are understood differently by different organizations and institutions. The American Nurse Qualification Center (ANCC) proposes (2) that case management is a flexible, systematic, and cooperative method that can provide and coordinate nursing services for specific populations. At present, Chinese scholars prefer the definition of case management given by the American College of Case Management (CMSA) (3), that is, case management is comprehensive cooperation, including the evaluation, planning, implementation, coordination, and supervision of selected medical services through various communications; reasonable selection of available medical resources to meet the overall health needs of patients, improve the quality of medical services, and improve cost-effectiveness. In other words, it is a care model in which patient-centered medical personnel form care groups for communication and coordination to achieve cost control and quality improvement.

The case management model, like the responsibility system nursing model, belongs to a nursing care model, but it is different from the previous care model. The case management model is a continuous care model, which integrates evaluation, planning, service, coordination, and supervision. It requires the nursing staff to

cooperate with other relevant personnel as a manager to implement the plan according to the actual situation of patients. It can be concluded that the case management model is a dynamic process, which will not be retained in a certain clinical-stage nor limited to a certain medical unit but continues throughout the medical service process and continuously meets the needs of patients. The model is shown in Figure 1.

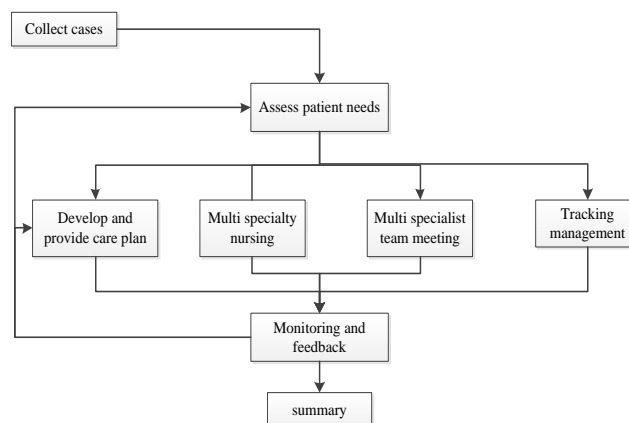


Figure 1. Case management model.

1.2 Implementation link of a case management model

Key links in the implementation of case management: At present, there are three main stages (collection of case-management cases-summary) and five key links (evaluation, planning, implementation, evaluation, and feedback) in the implementation steps of case management commonly used at home and abroad.

1.2.1 Evaluation

In the first step, all diagnosis and treatment information and other necessary information should be collected and summarized. Comprehensive assessment of the patient's physical, psychological, cognitive, social support, and resource utilization, managers found and analyzed the above patient's condition, and applied the most advanced

technology in clinical practice to comprehensively assess the patient as much as possible.

1.2.2 Plan

According to the above evaluation content, the needs and expected objectives of patients shall be considered, so that patients and their caregivers can participate in the development of a targeted case management plan. The care plan should be tailored to the patient's current and realistic needs. The case manager must work with the patient, his/her family, and/or other key personnel to develop a management plan to ensure the effective implementation of case management. An important responsibility of managers in the process is to ensure that all aspects are consistent with the final plan.

1.2.3 Implementation

The case manager is responsible for coordinating and supervising and authorizing the development of a care plan to ensure the quality of patient care and control medical costs. In this link, case managers should not only carry out the actual operation of the care plan but also empower others' care activities, as well as promote and coordinate the development of all aspects of the care plan. For case managers, it is necessary to communicate with all parties.

1.2.4 Evaluation

It develops measurement indicators and monitor the completion of the plan. Generally, through investigation or oral feedback, data integration and cost-effectiveness analysis are carried out, and the plan and re-evaluation are continuously revised. The evaluation process

shall be realized through the following steps: comprehensive analysis on patient conditions; investigation and/or oral feedback by clinical, social work, and other relevant personnel; data reorganization or chart review; cost-benefit analysis of clinical diagnosis and treatment.

1.2.5 Feedback

It obtains feedback on the patient's condition through cooperation with clinical personnel, patient families, medical cost payers, and social health institutions to ensure effective communication and high-quality care between case managers and patients. Case managers need to have good communication skills and improve their ability to collaborate to meet clinical needs.

2. Research status of the case management model in chronic diseases in China

The case management model has been applied in many fields abroad and has achieved good results. The application population of the case management model in China mainly includes patients with chronic diseases such as diabetes, cancers, and chronic obstructive pulmonary diseases.

2.1 Progress in the application of the case management in diabetes

Diabetes mellitus is a very common chronic disease, with the elderly accounting for the majority, and for other chronic diseases, diabetes mellitus is also a risk factor and has fatal complications (4). The long-term medication process for diabetic patients is prone to poor medication compliance and poor blood glucose control. The results of a randomized controlled study on hospitalized diabetic patients by Liu Fang et al. (5) showed that the case management model not only effectively controls the patient's blood sugar and blood

pressure, but also improves the patient's self-management ability and greatly improves the patient's life quality. Wang Huili et al. (6) found that the case management model can not only improve the ability of patients with type 2 diabetes to self-control blood sugar, but also can specifically strengthen the expertise of nursing staff. The case management model can also effectively reduce the occurrence of hypoglycemia (7). Some scholars have argued that combining the ternary health care model for diabetic patients (8) with the diabetes case management model can provide more comprehensive services for diabetic patients. In addition, strengthening the cooperation between hospitals and communities can provide patients with full-course, professional disease management and care (9).

2.2 Progress in the application of the case management in oncology

At the end of the 20th century, cancer case managers were set up in Taiwan to be responsible for many cancer management businesses, but the application of case management models in the field of breast cancer only was more common in mainland China. As the number one killer threatening women's health, the incidence of breast cancer is also increasing year by year. As a new multidisciplinary treatment and nursing model for cancer, the clinical application of the breast cancer case management model is becoming more and more mature (10). The chemotherapy process of breast cancer patients is quite long, and during this period, patients can not accurately predict the outcome of the disease, which inevitably leads to anxiety and fear. Through the application analysis of breast cancer patients, Deng Yan et al. (11) found that double duty and double track case management mode can ensure the quality of nursing and improve nursing satisfaction. Yu Yamei et al. (12) found that the whole-process case management model can improve the awareness of pressure ulcer prevention in surgical patients, and timely

preventive measures can also reduce the patient's disease uncertainty.

2.3 Progress in the application of the case management in chronic obstructive pulmonary diseases

The case management model can make patients with chronic obstructive pulmonary disease master more disease-related knowledge, improve the level of knowledge, reduce the number of disease attacks, reduce symptoms, reduce the impact of the disease on daily life, and improve the quality of life. Research by Tong Yahui (13) shows that the case management model can help patients with chronic obstructive pulmonary emphysema in a stable phase learn more about their own related diseases, reduce the number of acute exacerbations, and reduce the impact of the disease on their daily lives to prevent the progress of its activity intolerance, can effectively improve its quality of life. Zheng Junqing (14) conducted a randomized controlled trial of a case management model based on the Omaha system and found that the case management model can significantly improve the patient's respiratory function while also improving the quality of life after discharge. Li Jiayi et al. (15) explored the impact of case management mode on patients with chronic obstructive pulmonary disease and found that among 103 patients with chronic obstructive pulmonary disease, the quality of life of the case management group was significantly better than that of the conventional group. Wu Hongying (16) also showed that the case management model for patients with chronic obstructive pulmonary disease, whether it is a healthy lifestyle, lung function, and quality of life have been improved. Recent studies in the United States have shown that (17) that routine rehabilitation exercises and a customized case management plan for patients with chronic obstructive pulmonary disease can reduce the rate of rehospitalization within 30 days. The application of case management in patients with chronic obstructive pulmonary disease is superior to

other care modes in terms of disease improvement and quality of life. Therefore, it is necessary to further carry out case management in the field of respiratory diseases to better benefit patients .

2.4 Application of Case Management in Other Chronic Diseases

Yang Xin et al. (18) explained in the research progress in the disease management of hypertensive patients that the hypertension case management model, as a brand-new nursing model, can not only improve the compliance and satisfaction of patients, but also improve the sense of work value and professional identity of nurses, as well as the cooperation of teams, and the nursing services have also been improved to a new level. The application of case management in pulmonary tuberculosis patients also has relatively good results. Studies have shown that case management mode can improve drug compliance of pulmonary tuberculosis patients and improve patients' self-efficacy (19). Case management can also provide strong support for patients with long-term illnesses and severe mental illnesses diagnosed with dementia (20).

3. Application effect of a case management model for chronic patients

Case management model, as a new type of care model, has achieved results in such issues as the long course of chronic diseases, high disability rates, high costs, and anxiety in family care. In terms of patients: the case management model can reduce the number of days of hospitalization, reduce the rate of rehospitalization, improve treatment compliance and patient satisfaction, improve patients' physiological functions, stabilize emotional state, reduce direct and indirect costs, and improve quality of life (21-23). Family members of patients: In long-term care, many family members will experience negative psychology such as boredom and anxiety, which

affects the psychological and physical health of caregivers (24). The case management model can effectively improve the anxiety of the family members of chronic diseases and enhance the care ability. Medical treatment: The case management mode requires the cooperation of various specialties, which improves the cooperation relationship, job satisfaction, participation, and patience with patients. While the case management model meets the comprehensive service needs of patients with chronic diseases, managers can also easily obtain medical information, increase the patient's own participation in the entire medical process, promote doctor-patient communication and optimize medical referral services. Patients and their families can experience better in case management throughout the medical process (25).

4. Problems and solutions in the application of the case management in China

At present, researchers in China have carried out relevant research on case management in chronic diseases, and the research results have also obtained good results. However, the application of developing a case management model in chronic diseases is also full of challenges and has some shortcomings.

4.1 Ambiguous understanding and lack of support from relevant authorities

The connotation and implementation mode of case management are relatively vague in the understanding of nurse groups in China. Medical staff believes that case management is "case nursing", case management is not nurses to implement relevant nursing measures, it is different from "case nursing" can be applied in the field of medical care disease management model, its category is greater than "case nursing." In 2010, Taiwan's Regional National Health Bureau included the "Cancer Case Management and Care System" in the "Qualification Benchmark for Cancer Diagnosis

and Treatment", a milestone in the development of cancer treatment and case management in Taiwan (26). The case management and care system and guarantee policy in mainland China still need to be continuously improved, which requires further groping and practice of case management personnel, to promote the full development of case management mode in China.

4.2 Limited resources and information

Carrying out case management models for chronic diseases requires cooperation between multiple disciplines and institutions, and the expertise of each discipline and the sharing of resources and information from related disciplines need to be brought into play. However, at present, there is a phenomenon of partition in our information between disciplinary cooperation and different institutions. Some foreign community case management is assumed by community family doctors or rehabilitation personnel. In China, the main limitations of hospital case management implementation are reflected in the limited human resources and social resources that can be coordinately utilized for in-hospital care. The development of community case management can make full use of the advantages of community grassroots popular science education base, establish and promote community case management, can improve the health index of patients, and can reduce the medical costs of patients. This also requires us to develop further.

4.3 Lack of training and identification of case manager

The requirements for case managers to carry out case nursing are very high. Most of the leaders of case management practice in China are obtained by a certain unit or society after self-made training content or going out for study, and no full-time posts are set. Establish clear case manager qualification requirements and certification

measures to gradually institutionalize case management to correct the incorrect role setting in scholar practice (27). Our nursing staff has the innate advantage of becoming a case manager, and master's degree nursing graduates can also move towards case management posts based on certain clinical experience. This has been regarded as a research topic for graduate students abroad (28).

4.4 Lack of quality control and outcome evaluation system

The implementation of the case management model must have the standard of quality control, which needs to be combined with the content of the case management model. There must be a corresponding evaluation system and index for the effect of the implementation of the chronic disease case management model, and this system and index must be combined with China's medical system and assessment criteria based on learning from the foreign evaluation system. Establishing the clinical pathway, process, network platform for information sharing, and multidisciplinary team for case management implementation are all key points for case management operation; formulating strict case-management – case-closure conditions is a prerequisite for implementing case management under the basic national conditions of a large population base, uneven distribution of medical resources, and information occlusion among institutions at all levels in China; strengthening the evaluation of cross-sectional indicators such as the quality of case managers, cooperation, decision participation, and process indicators such as coordination and integration of resources can feedback promote the enthusiasm of medical staff and constantly improve the case management model.

5. Summary

As a new nursing care model, case management is of great significance in the

treatment of patients with chronic diseases. It allows patients to obtain more relevant knowledge about their diseases and can reduce the medical costs of patients, reduce the number of hospitalizations, and the average length of hospital stay. It can also improve the satisfaction and cooperation of medical staff. However, compared with foreign countries, case management model in China is not yet mature, and relatively few fields are involved. The qualification of case managers lacks standards, and the training of specialist nurses is still in the initial stage of exploration. As far as the current situation is concerned, relatively good results can be achieved in some chronic diseases, but the fields involved are still relatively few, cannot be widely described, and need to be continually explored.

Declarations

1) *Consent to publication*

We declare that all authors agreed to publish the manuscript at this journal based on the signed Copyright Transfer Agreement and followed publication ethics.

2) *Ethical approval and consent to participants*

Not applicable.

3) *Disclosure of conflict of interests*

We declare that no conflict of interest exists.

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5) *Authors' Contributions*

Authors contributed to this paper with the design (Gai-Jing Wang, Hui Wang, Jing Wang), literature search (Yan-Ling Li, Gai-Jing Wang, Hui Wang), drafting (Gai-Jing Wang, Jiao Chen, Yan-Qing Tian), revision (Gai-Jing Wang and Yan-Ling Li), editing (Gai-Jing Wang, Hui Wang) and final approval (Jing Wang).

6) *Acknowledgement*

None

7) *Authors' biography*

None

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