

# Effect Analysis of Multidisciplinary Team (MDT) Concept in the Teaching of Medical Oncology

Tingting Huo, Ying Liu\*

Department of Medical Oncology, Shaanxi Provincial People's Hospital, Xi'an 710000, Shaanxi, China

*\*Author to whom correspondence should be addressed.*

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**Abstract:** To address the disconnection between oncology nursing education and clinical multidisciplinary collaboration, the MDT concept was integrated into the nursing education system. The framework was constructed through theoretical integration, modularized teaching content, multidisciplinary collaborative instruction, and practical pathways, with evaluations conducted from dimensions such as comprehensive professional competencies, quantitative and qualitative indicators, and application outcomes. Results demonstrated that this model enhanced nursing students' specialized knowledge, teamwork skills, and clinical thinking, aligned teaching more closely with clinical practice, and effectively improved the quality of talent cultivation. The study provides references for reforming oncology nursing education and promotes the development of specialized nursing professionals toward comprehensive and collaborative capabilities.

**Keywords:** Multidisciplinary collaboration; MDT; Medical oncology; Nursing education; Teaching effectiveness

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## 1. Introduction

In the oncology nursing department, dealing with patients who have complex conditions, multiple comorbidities, and diverse needs requires highly specialized skills and a strong interdisciplinary nature. This demands a comprehensive assessment of nursing staff, cross-departmental communication, emergency response, and humanistic care capabilities. Traditional nursing education mainly focuses on teaching single-discipline knowledge and skills training, with relatively independent teaching content and a lack of systematic training in multi-disciplinary collaboration and realistic clinical scenarios, resulting in nursing students' difficulty in quickly integrating into the MDT diagnosis and treatment team and insufficient overall nursing and collaborative work capabilities. Integrating the MDT concept into oncology nursing education helps break disciplinary boundaries, restructure teaching content and practice models, and strengthen students' teamwork awareness and full-cycle care capabilities. This paper conducts research from the aspects of theoretical integration, teaching system construction, and effect evaluation, exploring scientific and feasible teaching reform paths to improve the quality of oncology nursing education and cultivate specialized nursing talents that meet modern clinical needs.

## **2. Theoretical integration of the MDT concept and oncology nursing education**

### **2.1. Core goals and competency requirements of oncology nursing education**

The core goal of oncology nursing education is to cultivate specialized nursing talents with professional care capabilities, humanistic care qualities, and clinical adaptability to meet the comprehensive care needs of complex tumor patients. The teaching process should not only solidify the theoretical foundation of oncology disease care, medication observation, and complication prevention, but also highlight the combination of clinical thinking and practical operation, enabling nursing staff to accurately identify changes in the condition and standardly implement diagnostic and therapeutic cooperation measures. With the continuous development of tumor diagnosis and treatment models, nursing work is no longer limited to basic operations but extends to psychological counseling, nutritional support, rehabilitation guidance, and hospice care, placing higher standards on the comprehensive qualities of nursing staff. In terms of competency requirements, systematic professional knowledge, proficient operational skills, fluent communication and expression, and decisive emergency response are all indispensable, and a strong sense of responsibility and humanistic care spirit are also required. The traditional teaching model often focuses on knowledge imparting, neglecting cross-scenario collaboration and multi-dimensional care capabilities training, leading to students' difficulty in quickly adapting to the team collaboration model upon entering the clinical setting. Defining the core goals and competency requirements can help position the integration of the MDT concept, making the teaching reform more targeted, promoting the transformation of teaching from skill imparting to comprehensive ability cultivation, and laying the foundation for the construction of a modern oncology nursing education system <sup>[1]</sup>.

### **2.2. Interpretation of the MDT model and adaptability of the nursing profession**

MDT, or multi-disciplinary collaboration model, is centered on integrating resources and advantages from different professional fields to form a collaborative diagnosis and treatment system for patients' needs. It has become the mainstream practice model in tumor diagnosis and treatment. MDT emphasizes breaking disciplinary boundaries and, through the joint efforts of doctors, nurses, pharmacists, nutritionists, psychologists, etc., form individualized and full-cycle treatment and care plans for patients. Its core value lies in improving treatment effects, optimizing service processes, and enhancing patients' medical experience. From the perspective of the nursing profession, the MDT model and oncology nursing have a high degree of compatibility. Nursing staff, as the key role accompanying patients throughout the process, are the link and executor of the multi-disciplinary team, responsible for information transmission, condition monitoring, implementation of care measures, and communication and coordination. Integrating the MDT concept with the nursing profession can highlight the dominant position of nursing work in multi-disciplinary collaboration, transforming the role of nursing staff from a single executor to an active participant in team discussions and plan formulation. This adaptability is not only reflected in the complementary nature of the work content but also aligns with the patient-centered service concept of nursing work, helping nursing staff establish an overall care mindset and enhance problem-solving abilities. At the same time, it also makes nursing teaching more closely related to clinical practice, providing theoretical support for cultivating specialized nursing talents who are adaptable to the modern oncology medical environment.

### **2.3. The integration logic of the MDT concept and the nursing teaching system**

The integration of the MDT concept with the oncology nursing teaching system follows the internal logic of clinical demand orientation, ability-based core, and interdisciplinary collaboration development. It is an inevitable choice for the teaching model to adapt to the changes in clinical practice. Traditional nursing teaching divides content based on disciplines, with relatively independent knowledge structures, lacking cross-disciplinary linkage design, and being disconnected from real clinical work scenarios. The integration of the MDT concept essentially reconfigures teaching content and organization, integrating multi-disciplinary collaboration thinking throughout the process of theoretical teaching, practical operation, and clinical internship, enabling students to establish teamwork awareness during the learning stage. The integration process adheres to the nursing profession as the main body, while also moderately permeating

knowledge from other related disciplines. It does not blindly expand the teaching scope but focuses on the responsibilities and ability requirements of the nursing position in the MDT team, optimizing teaching modules and practical links. At the same time, the integration logic emphasizes the consistency between teaching and clinical practice. Through forms such as simulated MDT consultations and interdisciplinary case discussions, students understand the key points of cooperation between nursing work and other disciplines, and improve their collaborative work ability. This integration respects the inherent laws of nursing teaching while absorbing the advantages of the MDT model, achieving seamless connection between theoretical teaching and clinical practice, promoting the transformation of nursing teaching from a traditional one-way transmission to interactive and collaborative methods, and providing a clear path for building a scientific and complete innovative teaching model for oncology nursing<sup>[2]</sup>.

### **3. Construction of the nursing teaching system for oncology internal medicine under the MDT concept**

#### **3.1. Modular design of nursing teaching content based on MDT**

The nursing teaching content for oncology internal medicine, based on the MDT concept, is oriented towards real clinical diagnosis and treatment scenarios, breaking through the limitations of traditional single-nursing knowledge. It is modularly integrated according to the needs of multidisciplinary collaboration, forming a complete knowledge system covering assessment, intervention, communication, and management. The teaching content breaks the boundaries of disciplines and integrates oncology, internal medicine, nursing, surgical intervention, radiotherapy, pharmacology, nutritional support, psychological counseling, and palliative care, allowing nursing learners to systematically master the role positioning and collaboration points of different disciplines in oncology diagnosis and treatment. The module setting takes into account both theory and clinical application, highlighting the core role of nursing in the MDT team, and focusing on key contents such as condition observation, medication safety, complication prevention, and cross-disciplinary information transmission.

The modular design follows the principle of progressive learning, transitioning from basic oncology nursing knowledge to cross-disciplinary collaborative handling of complex cases. Each module clearly indicates the connection points with other disciplines. The teaching content is closely combined with clinical guidelines and team collaboration norms, strengthening the awareness of precise nursing, humanistic care, and team cooperation, enabling learners to not only possess solid specialized nursing skills but also establish a holistic care mindset. Through structured and systematic content arrangement, the MDT collaboration concept can be naturally integrated into the entire knowledge learning process, laying a solid theoretical foundation for subsequent clinical practice<sup>[3]</sup>.

#### **3.2. Organizational form of multi-disciplinary collaborative nursing teaching**

The organizational form of multi-disciplinary collaborative teaching changes the traditional single teaching mode dominated by nursing teachers, and builds a teaching team composed of multiple professionals from disciplines such as nursing, oncology, internal medicine, radiotherapy, imaging, pharmacy, nutrition, and psychology. The teaching organization focuses on collaborative co-education, using joint teaching, joint lesson preparation, and synchronous teaching methods. Different discipline teachers interpret oncology cases from professional perspectives, allowing nursing learners to intuitively experience the operation mode and collaboration process of the MDT team. The classroom organization is flexible and diverse, balancing theoretical lectures and interactive exchanges, highlighting cross-disciplinary dialogue and thinking collisions, and enhancing the authenticity and practicality of teaching.

The teaching organization emphasizes scenario-based and immersive experiences. Through multi-disciplinary joint ward rounds simulation, group discussions, cross-disciplinary mutual evaluation, etc., the communication skills and cooperation awareness of nursing personnel in the team are strengthened. The teaching weight of each discipline is reasonably allocated, highlighting the dominant position of the nursing discipline while also considering the complementarity of other disciplines' knowledge. This organizational form can effectively eliminate disciplinary barriers,

allowing learners to adapt to the multi-disciplinary collaboration model during the learning stage, understanding the value of different disciplines in oncology diagnosis and treatment, and gradually forming an overall care concept centered on the patient, laying a good foundation for rapid integration into the MDT team after entering clinical practice.

### **3.3. Implementation path of nursing practice teaching integrated with the MDT concept**

The nursing practice teaching integrated with the MDT concept is carried out with real clinical cases as the carrier, constructing a progressive implementation path from simulation training to clinical internship. The practice teaching is based on the MDT team collaboration process as a framework, organizing nursing learners to participate in case discussions, condition assessment, nursing plan formulation, cross-disciplinary communication and coordination, etc., throughout the entire process of practice. It focuses on training nursing operations, condition monitoring, and emergency response capabilities in a multi-disciplinary collaboration model. The practice process strictly follows clinical diagnosis and treatment norms, reproducing real team collaboration scenarios, allowing learners to understand the connection points between nursing work and other disciplines in the process of practice.

The implementation of practice teaching emphasizes hierarchical progression and ability improvement. It starts with basic collaborative training in simulated wards and then enters the clinical environment to participate in real MDT consultations and nursing implementation. The teaching process is guided by multiple discipline teachers, correcting non-standard communication methods and nursing behaviors promptly, strengthening team collaboration awareness and responsibility awareness. Through a systematic practice approach, learners can transform theoretical knowledge into practical working abilities, enhance their comprehensive nursing literacy and interdisciplinary collaboration skills, and ensure that they can efficiently cooperate with the team in future clinical work, providing continuous, comprehensive and high-quality holistic nursing services for cancer patients <sup>[4]</sup>.

## **4. Evaluation of the effect of integrating the MDT concept into oncology internal medicine nursing teaching**

### **4.1. Evaluation dimensions of comprehensive professional competence of nursing students**

The effectiveness of the MDT concept integration in oncology internal medicine nursing teaching is mainly reflected in the improvement of students' comprehensive professional competence. The evaluation dimensions focus on professional cognition, practical operation, communication, collaboration, and clinical thinking. The professional cognition dimension mainly examines students' mastery of the multidisciplinary diagnosis and treatment process, key points of nursing assessment, and specialized knowledge, to determine whether they can establish a systematic oncology nursing knowledge framework and break away from the limitations of a single discipline. The practical operation dimension focuses on oncology-specific nursing skills, such as intravenous therapy, symptom care, psychological intervention, and hospice care, to assess the students' operational standardization and problem-solving ability in various scenarios <sup>[5]</sup>.

The communication, collaboration and clinical thinking are particularly crucial evaluation contents under the MDT model. The communication collaboration dimension mainly observes the students' communication efficiency with physicians, pharmacists, nutritionists, patients, and their families, measuring their awareness and coordination ability in the team. The clinical thinking dimension focuses on evaluating whether students can make comprehensive judgments based on multidisciplinary information and develop individualized nursing plans for complex cases, possessing overall and forward-looking nursing thinking. Through multi-dimensional comprehensive evaluation, it can objectively reflect the growth extent of students under the MDT teaching model, clarify the key directions for teaching optimization, and provide precise references for the cultivation of oncology internal medicine specialized nursing talents <sup>[6]</sup>.

### **4.2. Quantitative and qualitative evaluation index system for teaching effect**

Constructing a scientific, quantitative and qualitative evaluation index system is an important guarantee for accurately

measuring the effect of integrating the MDT concept into nursing teaching. Quantitative evaluation is centered on objective data, including theoretical assessment scores, practical operation scores, team collaboration task completion degree, and case analysis accuracy rates, etc. By comparing the data changes before and after teaching, it can directly reflect improvement in knowledge and skills. At the same time, process indicators such as classroom participation, group discussion contribution, and case report completion quality are set to comprehensively record students' performance in teaching activities, ensuring that the evaluation results are objective and comparable.

Qualitative evaluation focuses on exploring students' internal growth and teaching experience. Through interviews, reflective diaries, and group feedback, subjective feelings of students towards the MDT teaching model are collected. The focus is on students' understanding of interdisciplinary collaboration, the transformation process of clinical thinking, the enhancement of professional identity, and the changes in their perception of their own nursing capabilities. The qualitative indicators also include teacher evaluation and peer evaluation, analyzing the feasibility and applicability of the MDT teaching model from the perspectives of teaching implementers and professional observers. The combined quantitative and qualitative evaluation system ensures the accuracy of evaluation results while providing a multi-level and all-round reference basis for model optimization <sup>[7]</sup>.

### **4.3. Comprehensive analysis of the application effect of the MDT teaching model**

Comprehensive analysis of the application effect of the MDT concept integration into oncology internal medicine nursing teaching can systematically summarize the advantages and improvement spaces of the model. From the results of teaching implementation, this model effectively breaks through disciplinary boundaries, enabling students to be closer to the clinical real work scenarios, significantly improving the integration degree of theoretical knowledge and practical skills, and fully exercising teamwork, communication and expression ability. Compared with the traditional teaching model, students receiving MDT teaching perform better in complex case nursing decision-making and emergency handling, and their professional competence improvement is obvious <sup>[8]</sup>.

At the same time, comprehensive analysis can also identify problems in teaching implementation, such as the difficulty in coordinating multi-disciplinary teachers, the need for further optimization of teaching time allocation, and the slow establishment of interdisciplinary thinking among some students. Through a comprehensive review of advantages and disadvantages, the optimization direction of the MDT nursing teaching model can be clarified, providing support for the subsequent improvement of teaching content, innovation of teaching methods, and integration of teaching resources. The comprehensive analysis results can also provide a reference for introducing the MDT concept into other specialized nursing teaching, promoting the development of nursing teaching towards a direction that is more in line with clinical needs and pays more attention to comprehensive ability cultivation, and helping to build a high-quality specialized nursing talent team.

## **5. Conclusion**

This paper integrates the MDT concept into the oncology internal medicine nursing teaching, systematically constructing a theoretical integration mechanism, a modular teaching system, and a multi-dimensional effect evaluation model. The research shows that MDT teaching can effectively break through disciplinary barriers, strengthen nursing students' clinical thinking, communication, collaboration and comprehensive care abilities, making the teaching more in line with the real clinical diagnosis and treatment scenarios, and significantly improving the quality of talent cultivation in oncology internal medicine nursing. At the same time, it is found that there is still room for optimization in aspects such as the coordination of multi-disciplinary teachers and the design of teaching rhythms. In the future, further integration of teaching resources can be deepened, the practical teaching path can be improved, and the MDT concept can be continuously integrated into the entire process of nursing teaching. This can provide more solid support for cultivating high-quality oncology specialized nursing talents and improving the clinical nursing service level.

## Disclosure statement

The authors declare no conflict of interest.

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