

# Clinical application of multidisciplinary teams in tumor therapy

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## Abstract

Multidisciplinary team (MDT) model is a diagnostic and treatment model characterized by interdisciplinarity, integration, centralism, individualization, and precision and is becoming more common in the management of complex malignancies. MDT emphasizes team spirit and a personalized treatment strategy according to the actual condition of each patient. A cooperative and effective multidisciplinary team is an important guarantee for delivering high-quality services to patients. Under the guidance of a medical humanistic concept, MDT provides reasonable, effective, convenient, and a full range of excellent quality medical service to patients. The MDT maximizes patient benefits, and it is the developmental direction for large-scale general hospitals. At the same time, the MDT is also an important measure to strengthen the core competitiveness of hospitals. Here, we introduce the clinical application of the model in tumor therapy as well as the current state and development in our hospital.

**Keywords:** Multidisciplinary team; tumor therapy; clinical application

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## Introduction

With the development of medical technology and refinement of disciplines, the scope of individual professional or discipline knowledge is not sufficient to cope with complicated cases, and the importance of multidisciplinary team (MDT) in clinical practice and scientific research has become increasingly prominent. To carry out the “patient-centered” service concept and make full use of the hospital resources and complementary advantages of various divisions, the First Affiliated Hospital of Zhengzhou University which could accommodate 10,000 hospitalized patients, has developed a series of multidisciplinary collaborative guidance documents, such as systemic specifications of disease diagnosis and treatment, consultation systems, and protocols related to multidisciplinary comprehensive management for difficult and severe diseases (1). The goal of these measures is to offer comprehensive diagnostic and treatment services for patients with cancer or critical diseases to make a diagnosis

as soon as possible and treat patients in a timely and effective manner. The hospital adheres to the idea of “patient-centered care” and actively explores MDT. The hospital has established more than 10 multidisciplinary collaborative teams, which are represented by hepatocellular carcinoma (HCC), lung cancer and hepatoblastoma (HB) multidisciplinary teams, and explores the discipline integration pathway in practice. These measures contribute to the highly efficient, safe, and inexpensive medical services offered to patients. Here, we introduce the clinical application of the model in tumor therapy as well as the current state and development in the hospital.

## Establishment of representative MDTs in tumor therapy

### HCC MDT

The rising incidence of HCC is likely due to the increasing

prevalence of chronic hepatitis C virus (HCV) infection (2,3). No single treatment strategy can be applied to all patients with HCC, necessitating a multidisciplinary approach to tailor a management plan based on tumor burden, extent of metastasis, severity of hepatic decompensation, comorbid medical conditions, functional status, cancer-related symptoms, and patient preference. In the First Affiliated Hospital of Zhengzhou University, the core members of multidisciplinary liver tumor board include liver transplantation/hepatobiliary surgeons, hepatologists/gastroenterologists, oncologists, radiologists, interventional radiologists, pathologists, and primary care physicians. Furthermore, additional consultative services can be obtained based on the individual needs of the patients. The clinical decision making during the evaluation by the multidisciplinary liver tumor board relies heavily on the accuracy of diagnosis and staging of HCC before outlining a treatment plan. The diagnosis of HCC is established either by dynamic imaging involving radiologists using contrast enhancement and washout and/or by immunohistochemical methods employed by expert pathologists, especially for atypical nodules in both cirrhotic and noncirrhotic patients. The approach has been extremely convenient to patients and their families who at times travel from outreach clinics to our tertiary care center. In addition, the multidisciplinary approach helps physicians learn and review different protocols (experimental and standard of care) that are available.

### ***Lung cancer MDT***

Lung cancer accounts for a large burden of disease worldwide and nationwide (4,5). Timely treatment is considered particularly important in lung cancer, as tumors have rapid doubling times and delays in treatment may result in upstaging and worse outcomes for patients. In the First Affiliated Hospital of Zhengzhou University, multidisciplinary care increases access to different treatment modalities in lung cancer, including surgery, chemotherapy, and radiotherapy, and facilitates recruitment into clinical trials. Selecting the most appropriate surgical procedure in early lung cancer is one of the most important steps in cancer management and vital to the individual patient's quality of care. Palliative care has a key role for symptom management, as well as end-of-life care, and should be utilized early. There are a number of important linking steps including correct processing of initial and subsequent referrals to specialists

and timely and patient-centered treatment decisions, as well as supportive care, follow-up, and surveillance, which must occur in a timely fashion to ensure best-quality care in lung cancer. Multidisciplinary care improves quality of life and survival, facilitates more accurate staging and appropriate treatment decisions, reduces ineffective surgical interventions, and increases access to surgery, radiotherapy, and palliative care services. Additionally, physicians appear to be satisfied with the process, and feel that it provides the best-quality care for patients.

### ***HB MDT***

Recent data showed that the incidence of HB, one of the most common liver malignancies in children, has increased by 2.18% annually in patients under 20 years of age (6). In the past, the main treatment for HB was surgical resection; however, complete tumor resection could be achieved only in a few patients. Multidisciplinary cooperation is also the fundamental in HB treatment, especially neoadjuvant chemotherapy, which is the cornerstone in the development of solid tumor treatment. A dedicated team of hepatobiliary surgeons, pediatric hepatologist, pediatric oncologist, pathologist, nutritionist, and team of well-trained nurses discuss the overview of treatment for every child upfront. Besides conventional surgery for tumor resection, new surgical approaches should be explored, such as liver transplantation, transcatheter arterial chemo-embolization and high intensity focused ultrasound. The survival in children HB has dramatically improved in the western world due to advances in imaging, chemotherapy options, surgical techniques, and pediatric liver transplantation. Our report shows that similar outcomes can be replicated in countries with limited resources, when these children are managed by an MDT with expertise in both complex liver surgery and liver transplantation.

### **Conclusions**

Practice has proven that MDT significantly improves the level of diagnosis and treatment, and the quality of healthcare services. The relationship between patients and physicians is also remarkably improved. In developing countries like China, where organizing an MDT is difficult, communication across various centers is needed to coordinate care. Policy makers should make it a priority to support the setting up of MDTs through proper public-

private partnerships, utilization of government funds, and involving nongovernmental organizations.

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### Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

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