

# Application Effect of Team Responsibility System Nursing in the Care of Patients in the Intensive Care Unit

Lingyu Li, Xiang Ma, Jiao Yan, Haijing Han\*

Department of Neurosurgery, Xi'an International Medical Center Hospital, Xi'an 710100, Shaanxi, China

\*Corresponding author: Haijing Han, [lilingyu0207@163.com](mailto:lilingyu0207@163.com)

**Copyright:** © 2025 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

**Abstract:** Patients admitted to the Intensive Care Unit (ICU) have the characteristics of rapid and complex changes in their conditions, thus putting forward higher requirements for nursing work. As an important part of the ICU medical team, nurses should actively explore the application of the team responsibility system nursing in daily care. Based on this, this paper briefly analyzes the significance of applying the team responsibility system nursing in the care of ICU patients, and discusses the improvement strategies and application effects of team responsibility system nursing in the care of ICU patients, aiming to provide certain references for the innovation and development of ICU patient care work.

**Keywords:** Team responsibility system nursing; Intensive Care Unit (ICU); Patient care

**Online publication:** December 17, 2025

## 1. Introduction

Patients in the ICU usually have injuries or disorders of multiple organ and system functions, unstable vital signs, and an inability to take care of themselves. Based on doctors' treatment plans and advanced monitoring equipment and technologies, ICU nurses should provide high-quality nursing services to ensure treatment effects, help patients accelerate the rehabilitation process, and reduce the physical and mental pain they suffer. Based on this, in ICU nursing work, the application of the team responsibility system nursing, which clarifies the patients in charge to each team, work responsibilities, and nursing processes, helps each patient receive effective care, thereby improving the pertinence and effectiveness of nursing work.

## 2. Overview of the team responsibility system nursing

Team responsibility system nursing is a nursing model that adheres to the principle of "patient-centered", forms a structured nursing team, and provides continuous professional care for patients throughout their hospital treatment.

It is also an important form of practicing the modern holistic nursing model <sup>[1]</sup>. Derived from system theory and collaborative governance theory, team responsibility system nursing is different from traditional nursing that “each is responsible for one module” with “rigid connection.” It pays more attention to the integrity, professionalism, and responsibility closed-loop of nursing services, extending nursing responsibility from one nurse to a team, which effectively improves the coordination of nursing decision-making and execution. A common nursing team configuration usually consists of a senior nurse leading three to five responsible nurses and auxiliary staff. Some teams also include professional members such as pharmacists and dietitians to care for patients in a hierarchical collaboration model. While ensuring the continuity and effectiveness of nursing services, it achieves a clear division of labor and definite responsibility <sup>[2]</sup>.

### **3. Significance of applying the team responsibility system nursing in the care of ICU patients**

#### **3.1. Strengthen multidisciplinary collaboration and improve the quality of critical care**

Patients in the ICU are usually accompanied by multiple organ dysfunction and frequent fluctuations in vital signs, requiring joint intervention of multiple systems such as respiration, circulation, and nutrition. Team responsibility system nursing led by senior nurses can dynamically organize multidisciplinary consultations according to patients' conditions and implement nursing services of “special person responsible and full-course follow-up” <sup>[3]</sup>. For example, responsible nurses can timely detect and quickly respond to potential risks such as abnormal ventilator parameters and hemodynamic fluctuations of patients based on their underlying diseases, treatment plans, and condition changes in daily work, and the medical team or nursing team will carry out targeted treatment and nursing work. This nursing model avoids problems such as scattered multidisciplinary communication and delayed response in traditional nursing, effectively reduces the risk of related complications, and significantly improves the quality of critical care.

#### **3.2. Optimize the critical care team and meet patients' diverse needs**

The ICU has extremely high requirements for nurses' professional capabilities and professional quality. The application of the team responsibility system nursing can not only provide high-quality care for patients but also carry out hierarchical teaching based on practice to cultivate more excellent nurses <sup>[4]</sup>. For example, in nursing work, the leader of the nursing team plays a “mentoring” role through case discussions and practical guidance, guiding nurses to improve their core critical care capabilities, such as ventilator operation and ECMO nursing, and promoting the development of the ICU nursing team towards specialization and refinement. In addition, in addition to physiological treatment needs, ICU patients may also have psychological problems such as anxiety and fear due to complex conditions <sup>[5]</sup>. Team responsibility system nursing can formulate personalized nursing plans according to patients' specific conditions: some nurses focus on patients' psychological nursing needs; some nurses are mainly responsible for monitoring patients' complications to promote the rehabilitation process and shorten the length of stay in the ICU.

### **4. Improvement strategies for the application of the team responsibility system nursing in the care of ICU patients**

#### **4.1. Scientifically form nursing teams to ensure a reasonable team structure**

The formation of nursing teams is an important prerequisite for implementing the team responsibility system

nursing, which requires ICU directors to make scientific plans based on the number of patients, the severity of their conditions, and the allocation of nursing staff. First, ICU patients can be divided into three nursing levels (high, medium, and low) according to the severity of their conditions. High-risk patients are assigned a senior nurse as the team leader, two responsible nurses, and one specialist nurse; medium-risk patients are assigned a senior nurse, one responsible nurse, and one specialist nurse; low-risk patients are assigned a senior nurse and one responsible nurse <sup>[6]</sup>. At the same time, each team can reasonably increase or decrease the number of patients under their care according to the actual rehabilitation progress of the patients in charge, but the number of patients under simultaneous care shall not exceed five. If a patient's condition suddenly changes, the responsible nurse can quickly supplement specialist personnel such as pharmacists and respiratory therapists in accordance with the corresponding "emergency support plan." Second, the age, professional title, and specialty of the nursing team members should also be scientifically configured. For example, the team leader should be a senior nurse with more than five years of ICU nursing experience, a professional title above a supervisor nurse, and good communication and coordination skills. Team members are matched according to age, professional title, and expertise of the department nurses to build a nursing team with a reasonable age and professional structure <sup>[7]</sup>. Then, work is carried out in accordance with the written nursing team rules. For example, the team leader organizes case discussions, plan adjustments, and team coordination every day. On the basis of completing basic nursing and condition monitoring, responsible nurses also communicate with patients and their families. Finally, with the in-depth application of information technology in nursing work, nursing teams should upload nursing records on time, such as changes in patients' condition monitoring data and adjustments to respiratory/nutritional support plans, providing data support for treatment and nursing work through information sharing and visualization <sup>[8]</sup>.

#### **4.2. Strengthen nursing team training to adapt to the needs of critical care**

On the one hand, differentiated professional training activities should be designed around the core competency requirements of ICU nursing. For nursing team leaders, "specialized training courses for improving critical care capabilities" should be offered, including but not limited to team coordination, interdisciplinary communication, and emergency decision-making. For responsible nurses, "practical training on critical care capabilities" should be offered, covering ECMO equipment operation, hemodynamic monitoring, etc. <sup>[9]</sup>. For example, simulate a scenario where a patient suffers a sudden cardiac arrest to exercise the team leader's team command ability and the responsible nurses' practical skills in emergency situations. At the same time, comprehensive nursing skill assessments should be conducted for nursing teams regularly. Those who fail the assessment need to receive intensive training for at least one week to ensure that the professional ability of each nurse in the nursing team meets the needs of critical care. In addition, a "typical/complex case database" should be established. A case with typical characteristics or special cases is selected regularly, and the nursing team leader organizes the team to conduct an in-depth discussion and review, summarizing nursing experience and improvement plans to enhance the team's ability to deal with complex conditions <sup>[10]</sup>. On the other hand, multi-dimensional treatment monitoring standards should be set to evaluate the training effect of nursing teams. The standards can be set from three dimensions: safety, efficiency, and effectiveness. Safety evaluation mainly comes from the incidence of complications and the reporting rate of adverse events of patients; efficiency evaluation assesses the on-time rate of nursing plan execution and the response time of interdisciplinary consultations of the nursing team; effectiveness evaluation consists of the length of stay of patients in the ICU and the satisfaction of patients and their families. Every month, ICU managers conduct a comprehensive evaluation based on the statistical reports of

the online nursing management platform, put forward targeted improvement suggestions, and promote the high-quality development of ICU nursing services.

### **4.3. Formulate hierarchical nursing plans to promote the humanized development of nursing**

In the ICU, each patient has a different age, condition, and psychological state. In the new era, in addition to focusing on patients' treatment effects, nursing work should also provide humanized care and psychological intervention for patients. The formulation of hierarchical nursing plans in the ICU should classify patients according to the severity of their conditions. For example, patients with unstable vital signs and a high risk of serious complications are designated as level 1 nursing, and a complete nursing team is assigned to them <sup>[11]</sup>. Responsible nurses complete nursing work such as maintaining vascular access patency and reasonable infusion speed, as well as regular turning over and strengthening oral care. The nursing team leader supervises the implementation and adjustment of the nursing plan daily. Patients with relatively stable conditions and the goal of functional recovery are designated as level 2 nursing. After responsible nurses complete basic nursing, respiratory therapists and dietitians carry out targeted rehabilitation nursing, such as respiratory function training and nutritional formula optimization. Patients with stable conditions who are about to be transferred out of the ICU are designated as level 3 nursing, focusing on the adaptive transition care for patients to be transferred to the general ward, communicating with patients and their families to help them familiarize themselves with home care knowledge and practices. In addition, conscious patients who stay in the ICU for a long time may experience negative emotions such as anxiety, depression, and panic, which requires the nursing team to strengthen psychological intervention for patients <sup>[12]</sup>. For example, relieve patients' tension through chatting, play soothing music to stabilize their emotions, or allow patients' families to visit and encourage them. At the same time, the nursing team should communicate more with patients' families, update them on the patients' conditions and nursing status, so that families can further understand the nursing work of the team, and work together to create conditions conducive to patients' rehabilitation.

### **4.4. Introduce information technology platforms to promote intelligent nursing management**

With the rapid development of smart medical care, information technology platforms should also be introduced into ICU patient care work to promote intelligent nursing management. First, the ICU should take the patient's hospital number as the core to establish a multi-system data sharing platform. Nurses and doctors can real-time monitor patients' vital sign indicators on the platform system and retrieve patients' electronic medical records and examination data at any time as needed. For example, electrocardiogram monitors collect real-time data such as patients' heart rate, blood pressure, and blood oxygen saturation, and automatically upload them to the corresponding system platform. Patients' blood test results issued by the laboratory, such as WBC count and blood glucose, are also uploaded in a timely manner; when the pharmacy dispenses drugs, the specific parameters of the corresponding drugs are uploaded to the system platform to facilitate the nursing team leader and responsible nurses to verify medication. This paperless nursing management not only helps reduce the risk of environmental pollution in the ICU but also reduces patient information errors caused by manual entry or system switching <sup>[13]</sup>. At the same time, nursing teams can carry out online case discussions and interdisciplinary consultations through the "team communication module" of the system platform. For example, responsible nurses upload patients' condition



changes and parameter screenshots on the platform to consult the nursing team leader or doctors for treatment plans, providing scientific and efficient nursing services for patients. For patients with more complex condition changes, the nursing team leader can initiate “online consultations” on the system platform, which effectively saves the time for doctors to travel to the ICU.

## **5. Application effect of the team responsibility system nursing in the care of ICU patients**

### **5.1. Significant improvement in nursing quality and safety**

Team responsibility system nursing can define nursing responsibilities, optimize nursing processes, strengthen the collaboration ability of the nursing team, and significantly improve the nursing quality and safety of the ICU. The nursing team can monitor patients’ conditions from a comprehensive and in-depth perspective, thereby timely discovering potential risks that patients may face, implementing corresponding intervention measures, and reducing the probability of patients developing complications. At the same time, standardized nursing processes and strict quality control can reduce errors and omissions in clinical nursing, improve the completeness and accuracy of nursing records, and provide high-quality nursing services and rehabilitation guarantees for patients <sup>[14]</sup>. For example, in the care of critically ill infected patients, the nursing team timely detects signs of worsening infection by tracking and monitoring patients’ body temperature, blood indicators, vital signs, and other indicators. Then, the nursing team and doctors jointly adjust the nursing plan, thereby effectively blocking severe infections and further improving clinical treatment effects.

### **5.2. Comprehensive growth of nurses’ comprehensive quality**

Under the team responsibility system nursing model, nurses have more opportunities to participate in the overall care of patients, such as case discussions, team collaboration, and the formulation of personalized nursing plans, accumulating experience and skills in practice. For example, the nursing team leader leads responsible nurses to carry out bedside teaching, demonstrating how to dynamically adjust respiratory support parameters based on blood gas analysis results to better care for patients with acute respiratory distress syndrome <sup>[15]</sup>. At the same time, clear job responsibilities and teaching mechanisms help stimulate the enthusiasm and initiative of young nurses, enhance their sense of professional value and identity, thereby promoting the continuous improvement of the professional level of the ICU nursing team, and ultimately building an excellent ICU nursing talent team with exquisite professionalism, efficient collaboration, and innovative development.

## **6. Conclusion**

In summary, the application of the team responsibility system nursing in the care of ICU patients has a positive effect on improving nursing quality and the satisfaction of patients and their families. In daily nursing work, ICU nurses provide comprehensive and meticulous nursing services for patients through the implementation of strategies such as scientifically forming nursing teams, strengthening nursing team training, and formulating hierarchical nursing plans, ensuring treatment effects and stabilizing patients’ conditions.

## **Disclosure statement**

The authors declare no conflict of interest.

## References

- [1] Wang XN, Chen MJ, Zhou Y, 2024, Application of Nursing Intervention Supported by Multidisciplinary Collaboration in ICU Patients with Cardiovascular Diseases. *Chinese Practical Journal of Rural Doctor*, 31(12): 44–46 + 50.
- [2] Niu FP, Wang HL, Wu QX, 2024, Effect of Comprehensive Nursing Intervention on the Treatment of Patients with Septic Shock in the ICU. *Famous Doctors*, 2024(21): 132–134.
- [3] Hu XC, 2024, Effect of Systematic Nursing on the Incidence of Pulmonary Infection and Complications in ICU Patients with Cerebral Hemorrhage. *Jilin Medical Journal*, 45(11): 2865–2867.
- [4] Zhou H, 2024, Effect of Hierarchical Nursing Management on Serum C-Reactive Protein Level and Vital Sign Changes in ICU Patients with Septic Shock. *Marriage and Health*, 30(14): 181–183.
- [5] Liu MX, Peng C, Wu QP, et al., 2024, Pain Management Strategies and Nursing Practice for Patients in the Neurosurgical ICU. *Chinese Journal of Neurosurgical Disease Research*, 18(5): 54–56.
- [6] Zhang YM, Luo QQ, 2024, Role of the Intravenous Therapy Team in the Maintenance of Central Venous Catheters in the Coronary Care Unit. *Journal of Modern Clinical Medicine*, 50(4): 277–279 + 290.
- [7] Ma XH, 2024, To Explore the Comprehensive Impact of the Responsible Hierarchical Nursing Team Model on the Rehabilitation and Negative Emotions of Children with Viral Myocarditis. *Cardiovascular Disease Prevention and Treatment Knowledge*, 14(13): 129–133.
- [8] Liu HY, Tang YJ, Zhang XJ, 2022, Application of Structured Nursing Risk Assessment in the Nursing of Neurocritical Care Unit. *Chinese Medical Record*, 23(6): 107–110.
- [9] Lu ZL, 2022, Effect Evaluation of Ability-Based Team Responsibility System Holistic Nursing in the Post-Anesthesia Care Unit. *Smart Healthcare*, 8(31): 209–212.
- [10] Yu H, Zhao BB, 2022, Application of Team-Based Full-Course Responsibility System Nursing in Patients with AECOPD Complicated with Respiratory Failure. *Heilongjiang Journal of Traditional Chinese Medicine*, 51(3): 304–306.
- [11] Zhang Z, Guo W, Kong J, 2022, Study on the Role of the Responsible Team Nursing Model in Preventing Postoperative Pulmonary Infection in Patients with Hypertensive Cerebral Hemorrhage. *Forum of Basic Medical Sciences*, 26(12): 28–30.
- [12] Xu Y, 2022, Application Observation of Team-Based Full-Course Responsibility System Nursing Model in Patients with Sepsis Complicated with Acute Kidney Injury. *Baotou Medicine*, 46(1): 56–58.
- [13] Xia MX, 2022, Effect of Team Responsibility System Nursing on the Prognosis and Nursing Quality of Patients with Severe Pneumonia Complicated with Heart Failure. *Cardiovascular Disease Prevention and Treatment Knowledge*, 12(2): 40–42.
- [14] Wang JN, Guo J, Ma J, et al., 2021, Application of Bedside Ultrasound Combined with the Responsible Hierarchical Nursing Team Model in the Monitoring of PICU Children. *Qilu Journal of Nursing*, 27(23): 72–74.
- [15] Liu DD, Zhang M, Wang YH, 2021, Effect Evaluation of Ability-Based Team Responsibility System Holistic Nursing in the Post-Anesthesia Care Unit. *Modern Medicine*, 49(6): 679–682.

### Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.