

# On Development of Emergency Critical Care in China

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**Abstract.** At present, there are some problems in the nursing record, early warning, rescue and other aspects of emergency critical care in China. Through the establishment of integrated nursing management mode, the development of disease assessment tools, the strengthening of psychological nursing intervention and the emphasis on holistic emergency care, it is conducive to the cultivation and evaluation of specialized nurses, effectively promoting the development of emergency critical care, and improving the clinical nursing effect of emergency critical care.

**Keywords:** ACL, anterior cruciate ligament; RT-qPCR, reverse transcription-quantitative polymerase chain reaction; MRI, magnetic resonance imaging; TLDA, TaqMan Low-Density Array; AAV, adeno-associated virus; Crt, relative cycle threshold; Ct, cycle threshold; SD, standard deviation; CV, coefficient of variance; RQ, relative quantification; Acc.SD, accumulated standard deviation.

## 1. Introduction

With the transformation of medical model, the combination of medicine, natural science and social humanities is deepening day by day, and the development trend of nursing specialization is increasingly obvious. Critical care is an important part of nursing science, and its role cannot be replaced. Due to the characteristics of their specialized posts, working environment and rescue needs, it is required that the emergency and critical care nurses not only have excellent professional skills, but also pay attention to the patients' rescue experience, meet the patients' rescue needs, have good humanistic quality, have the technical operation, data analysis and Application ability, quick response ability, comprehensive judgment ability and accurate and fast place of various intensive care Ability to set up. Therefore, based on the characteristics of the service object, the rescue environment and the post responsibility, this study combed the current situation and development trend of emergency critical care in China in recent years, which has an important enlightening role in strengthening the quality of emergency critical care professionals.

## 2. Current situation of emergency critical care in China

### 2.1. Problems and Countermeasures of emergency critical care record<sup>[1]</sup>

**Problems:** Pay less attention to nursing records. For medical disputes; The content of nursing record is not perfect; The writing of emergency nursing records is lack of objectivity, authenticity and accuracy; The contents of nursing records are inconsistent with those of doctors; The sense of responsibility is not strong; Nursing records are not timely.

**Countermeasure:** Strengthen the sense of responsibility, strictly implement the nursing system and routine, strengthen the study of professional knowledge, know well the observation of the disease, be familiar with the rescue process of the specialty, be familiar with the performance of instruments and equipment, and strengthen the study of legal provisions; Respect the right of informed consent of patients, strengthen communication, do a good job in security work, and ensure night shift security work; Talk with nurses frequently, care about nurses' life, solve all kinds of problems in nurses' psychology and life, reduce pressure and make them work at ease; Strengthen the training and learning of professional knowledge and medical record writing; The nursing department should strengthen the training of emergency nurses, strengthen the ability of writing nursing documents, and learn the legal provisions; Strengthen communication between doctors and patients.

### 2.2. Problems and Countermeasures of nursing early warning<sup>[2]</sup> in emergency critical illness

Some scholars compared the prediction effect of three early warning scores on the prognosis and evaluation of emergency critical patients to explore the most suitable tool for China's pre examination and triage condition evaluation. This method analyzed 2006 critical patients admitted from May 2013 to August 2013 through prospective investigation, compared the value of three early warning scores of mews, tests and corrected tests in judging the condition and prognosis of critical patients in emergency, and compared the accuracy of different early warning scores in predicting the prognosis of critical patients in emergency by aucroc curve area (aucroc), and made statistical scores Analysis. The results show that:

1) Age, gender, systolic blood pressure, respiratory frequency, consciousness, oxygen saturation, admission mode, trauma, dyspnea, dysuria and pain of patients have certain effect on the prognosis of emergency critical patients.

2) The scores of Tess, age, dyspnea and dysuria are the early independent risk factors for the death of emergency critical patients, which form the corrected scores of Tess, including the scores of Tess, age dyspnea and dysuria.

3) The predictive value of corrected scores of tens in predicting the 28-day prognosis of critical patients in emergency department, transferring from emergency department to comprehensive or specialized ICU, and accepting emergency treatment in emergency department (CPR / defibrillation and invasive respiratory support) was higher than that of scores of mews and tens.

4) The value of the scores predicted by Tews is higher than that of mews and adjusted Tews.

5) The three kinds of early warning scores have some clinical significance in predicting the hospitalization cost of patients, but they have no practical significance in predicting the hospitalization time of patients.

### 2.3. Problems and Countermeasures of emergency critical care and rescue <sup>[3, 4]</sup>

600 emergency critical patients were divided into control group and study group. The differences of rescue time, hospitalization time, nursing satisfaction and rescue success were studied. It was found that the rescue time and hospitalization time of the study group were better than those of the control group, and the nursing satisfaction score was higher, but the rescue power was not statistically different. The results showed that giving emergency care to critical patients in time could shorten the time of rescue and hospitalization, and improve the patients' satisfaction of clinical return. However, the success of rescue is more restricted by the comprehensive factors of all aspects, and the improvement effect is not obvious only by clinical nursing.

## 3. Development trend of emergency critical care in China

3.1. The integrated management mode <sup>[5]</sup> of emergency critical care is conducive to the training and evaluation of specialized nurses

1) the development of critical medical service system needs high-level specialized nursing team to support the development of critical care. At present, there are two important trends: on the one hand, we emphasize the early and high-level rescue of critical patients, that is, "the application of critical care technology in pre hospital first aid"; on the other hand, the number of all kinds of critical patients is increasing rapidly, the hospital This paper begins to discuss how to build a green channel based on emergency center and critical department to shorten the rescue cycle and improve the rescue success rate. In order to adapt to the development of critical care and improve the level of specialized nursing, it is urgent to establish a team of specialized nurses to adapt to the development of emergency and critical care.

2) there is a lack of standardized training and evaluation system for the growth of emergency and critical care nurses in China. Most of the existing emergency and critical care nurses in our country are trained simply to undertake the work of emergency and critical care, and their qualification and strength are far from that of a specialist nurse. The lack of specialized nurses will lead to the decline of nursing quality and the increase of safety accidents, which will eventually restrict the development of the whole nursing ability of critical illness and affect the development of clinical medical work. The crisis of high-quality nursing human resources is shouldered by critical clinical nursing.

3) implement the integrated management mode of emergency and critical care department to effectively improve the core competence of specialized nurses

According to the current situation of clinical division of labor, the traditional emergency care mainly undertakes the pre hospital first aid of patients, the task of triage and patient transfer in hospital, and the emergency nurses generally lack the relevant skills of critical care; critical care mainly undertakes the care and nursing, and the nurses in critical care department generally lack the relevant skills and awareness of first aid. The traditional emergency and critical care nurses receive the core competence training of independent specialty, and their knowledge and skills are relatively independent. This study shows that after the adjustment of the integrated structure of the emergency department and the critical care department, the nurses in this group can handle most of the critical care work in terms of the quality and practical ability of the critical care, and the core ability of the critical care has been significantly improved.

4) the integrated management mode shortens the training and maturity of specialized nurses

At present, there is no formal training program for emergency and serious disease specialty nurses in China. There are perfect training methods for specialty nurses abroad, but the training cycle is long and the management cost is high. Under the current system and national conditions in China, there are practical difficulties in clinical copying. This study shows that the integrated management mode of emergency and critical care department can share the teaching and human resources of emergency and critical care, expand the working radius of specialized nurses, reduce the training cost, shorten the training cycle, and train a qualified emergency and critical care specialized nurse with limited time. It has accelerated the construction of clinical emergency and critical care professional nurses and the development of disciplines, and met the current hospital's demand for emergency and critical care professional nurses.

At present, the application of training methods and core competence of emergency and critical care nurses in China is generally in a separate and independent state. The training methods are mainly focused on the independent nursing professional quality and professional skills of each department, without considering that there are many cross contents in the core competence requirements between emergency and critical care. Therefore, there is a lack of systematic and common training of nursing core competence and Research on assessment criteria. Therefore, the establishment of an integrated model of emergency and critical care department and the implementation of a systematic training system for the core competence of specialized nurses can effectively improve the core competence of specialized nurses, accelerate their growth, meet the needs of current emergency and critical care specialty for specialized nurses, adapt to the development direction of China's nursing specialization, and conform to China's national conditions and current nursing status.

3.2. Evaluation tools<sup>[6]</sup> of critical illness can effectively promote the development of critical care in emergency

Several common critical illness assessment tools include: illness severity index (ESI), shock index (SI), modified early warning score (mews), Acute Physiology and Chronic Health Evaluation II (APACHE II).

The application status of critical illness assessment tools in emergency nursing:

1) Realize seamless connection of emergency treatment

In clinical medicine experiments, 1500 emergency patients were treated with mews. According to the scores of mews, the severity of the patients was analyzed, and the patients were distinguished and arranged by wrist bands of different colors. The specific process is as follows. If the mews score of the patient is 0-1, the patient shall wear a green wristband and arrange it to the emergency room for treatment; if the mews score of the patient is 2-3, the patient shall wear a yellow wristband and arrange it to the observation room or special ward for treatment; if the mews score of the patient is more than 4, the patient shall wear a red wristband and arrange it to the emergency room. In order to realize the seamless connection of emergency treatment, the monitoring room or emergency room can not only improve the efficiency of emergency triage and treatment, but also ensure the timeliness and rationality of the application of medical resources, strive for more treatment time for patients, and reduce the mortality of emergency patients.

## 2) Improve the efficiency of emergency triage

Triage is the first step for medical institutions at all levels to receive emergency patients. Its efficiency and accuracy are directly related to the treatment efficiency, treatment cycle and safety of patients. In clinical medicine experiments, mews and Apache II were used to manage the emergency triage of emergency patients, and the severity of patients' condition was scored from three aspects of age, medical history and physiological indicators, respectively, combined with the basic situation of patients, and then the hierarchical summary work was carried out, and the severity of patients' condition was divided into three stages, i.e. mild, moderate and severe in order to achieve the triage of emergency patients, we can avoid congestion in the emergency department and ensure that the triage results can be recognized by patients and their families.

## 3) Ensure patients can be treated at the best time

In the updated CPR guidelines in 2015, it is clearly pointed out that the establishment of rapid response team and emergency medical team (MET) for adult patients can effectively reduce the incidence of cardiac arrest. As early as 1990, met was established in Liverpool Hospital in Australia, and 10 standards for calling met were stipulated, including the patient's heart rate and breathing. It has been proved that the sharing efficiency of medical resources has been greatly improved after met was added to emergency treatment. Mews score is the main basis for me to take emergency treatment, which ensures that patients can receive treatment in the best time.

Therefore, choosing a reasonable assessment tool of critical illness can improve the effect of emergency nursing, realize seamless connection of emergency treatment, improve the efficiency of emergency triage, and ensure that patients can be treated in the best time. Severity index, shock index, early warning score, acute psychology and chronic health assessment are four kinds of assessment tools which are widely used and frequently used in emergency nursing. According to the general characteristics of the patients in the emergency department and the application advantages of various assessment tools, the medical staff in the emergency department at all levels of medical institutions can select one or more tools to assess the severity of the emergency patients scientifically, so as to determine the order of patients receiving treatment.

## 3.3. Strengthen the role of psychological nursing intervention <sup>[7]</sup> in the clinical nursing of emergency critical patients

As the main type of patients in emergency department, severe patients have various disease types, but they all have the characteristics of high risk of disease deterioration, high difficulty in treatment and easy to be critically ill. Therefore, in the clinical emergency treatment, patients and their families can cause adverse effects on patients' condition due to different degrees of adverse psychological emotions, which are easy to cause the emotional agitation of family members leads to disputes between doctors and patients. Therefore, effective treatment is needed to relieve the bad emotions of patients and family members and improve the quality of emergency nursing service. A total of 104 emergency patients were selected as the study object. They were divided into control group and study group by random number sampling method. The sample size of each group was 52 cases. The control group received routine emergency nursing; the study group received routine emergency nursing + psychological nursing intervention. The differences of anxiety, depression scores and family satisfaction between the two groups were compared. The results showed that: after emergency care, the anxiety and depression scores in the study group were significantly lower than those in the control group, and the satisfaction of family members in the study group was significantly improved. Analysis of causes: the implementation of psychological intervention in emergency critical clinical nursing can effectively dredge the bad psychological emotions of the patients and their families through targeted nursing intervention of different psychological emotions of the patients and their families, improve the stability of the patients' condition, ensure the treatment and nursing cooperation of their families, and effectively treat the patients It can improve the quality of nursing service and establish the image of hospital. To sum up, the implementation of psychological intervention in emergency critical clinical nursing can effectively guide patients' bad emotions, establish good communication with their families, promote the harmonious relationship between doctors and patients, and achieve remarkable clinical effect.

### 3.4. Emphasize the holistic<sup>[8]</sup> emergency care of critical illness

37 cases of critical patients were selected and divided into two groups for routine and holistic emergency nursing intervention. The results showed that: the time of clinical indicators in the observation group was lower, the difference was statistically significant. It can be seen that it is feasible to implement holistic emergency nursing intervention in the rescue of critical patients. It is suggested that holistic emergency nursing intervention based on routine nursing is of great significance. Personalized nursing follows the principle of "people-oriented", and carries out different nursing work from daily life, diet, psychology and other aspects. Traditional Chinese medicine characteristic nursing is more conducive to the development of health guidance through the nursing intervention of fracture patients with traditional Chinese medicine technology. The results showed that the swelling index and pain index of fracture in the study group were significantly lower than those in the reference group ( $P < 0.05$ ), and the joint activity index in the study group was significantly higher than that in the reference group ( $P < 0.05$ ). It is suggested that the application of individualized nursing combined with characteristic nursing of traditional Chinese medicine is beneficial to optimize the overall nursing work of fracture patients and has more significant effect and effect in clinical practice.

That is, the application of personalized nursing combined with traditional Chinese medicine characteristic nursing in patients can significantly improve the prognosis effect, play a positive role in patients' health and recovery, and have the value of promotion.

## 4. Conclusion

Through the establishment of nursing integrated management mode, the development of disease assessment tools, the strengthening of psychological nursing intervention and the emphasis on the overall emergency care, it is conducive to the training and evaluation of professional nurses, effectively promote the development of emergency critical care, and improve the clinical nursing effect of emergency critical care.

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