

## **Application of clinical pathway management in the training and practice of nursing staff for cancer patients.**

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### **Abstract**

**Objective:** To evaluate the effect of the pattern of clinical pathway management upon the healthcare nursing for patients who were diagnosed with malignant tumors.

**Methods:** A total of 186 intern nurses were recruited and randomly divided into the control (n=90) and clinical pathway groups (n=96). In the control group, all the intern nurses received traditional teaching management, and their counterparts in the clinical pathway group were delivered with clinical pathway teaching management. After corresponding training and practice, the levels of theoretical knowledge, professional expertise, nursing practical ability, teaching practice and degree of satisfaction were assessed and statistically compared between two groups, respectively.

**Results:** In the clinical pathway group, the sub-scores of the items including theoretical knowledge, professional expertise, nursing practical ability and degree of satisfaction of the intern nurses were equally significantly better compared with those in their counterparts from the control group (all  $P < 0.05$ ).

**Conclusion:** Health and academic institutions should support nurses through quality continuing and higher education that reinforces professional values, thus improving the quality of patient care. The pattern of clinical pathway management can significantly enhance the quality of academic and practice teaching for intern nurses.

**Keywords:** Nursing, Clinical pathway, Degree of satisfaction, Teaching and training, Intern nurses.

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### **Introduction**

Professional nursing values have been widely acknowledged as the foundation of daily nursing care practice. Understanding how nurses identify, comprehend and apply their professional nursing values plays a pivotal role in improving nursing practice and patient healthcare quality. Recent research has demonstrated that nurse's professional values are cultivated during pre-licensed academic education [1-3]. As licensed nurses who work clinically caring for patients, practicing intern nurses often experience many challenging ethical situations. Previous studies have alluded that a nurse's ethical decision-making is influenced by their professional values. For practicing nurses to be in a position to deal with ethical challenges appropriately, they must recognize their own individual values along with those of the patient, institution, profession and society [4-6]. According to the American Association of Colleges of Nursing (AACN 2008), professional values are the foundation that directs and outlines nurses' clinical judgment and actions, shaping both nursing mind-set and conduct [7]. The nursing department is a complex section, which integrates the clinical diagnosis, preoperative, intraoperative and postoperative nursing service and recovery for patients. Consequently, the training program for the intern

nurses is a challenging task for both the intern nurses and tutors. How to establish an effective and time-efficient educational pattern is urgently to be resolved [8-10]. At present, traditional teaching pattern is still the most commonly utilized for intern nurses. It lacks of theoretical guidance on modern education, active learning capability and the major role of the internship. In this investigation, a novel pattern of Clinical Pathway (CP) management is tentatively applied in the teaching and training courses for intern nurses in the nursing department. The teaching effect and learning curve are evaluated, aiming to offer an effective and highly efficient teaching and training pattern for intern nurses in clinical practice.

### **Materials and Methods**

#### ***Study methods***

In the traditional group, the nursing training program was delivered in the conventional pattern. After enrolment in the department, the head nurse was responsible for introducing the working environment, workflow system, working procedures, teaching content and the knowledge related to the medical

safety, etc. Subsequently, the head nurse appointed different experienced nurses to teach and train the intern nurses strictly according to the training outline requirement. In the clinical pathway group, the training outline was initially established

based upon the nursing level and background of each nurse. Then, different training programs were specifically designed for different individuals. The routing table of the clinical pathway training program was illustrated in details in Table 1.

**Table 1.** The routing table of clinical pathway training program.

Time	Teaching content and mode
1st week	Head nurse introduced working environment, workflow system, working procedures, teaching content and medical safety knowledge.
	Operation demonstration in terms of injection technique, aseptic technique and oxygen inhalation, etc.
	Explain the name, code and main side reaction of common chemotherapy drugs.
	Teach the nursing care of the radiation skin.
	Stage evaluation and feedback.
2nd week	Explain conventional nursing and healthcare education.
	Operation demonstration of nasopharynx irrigation, chemotherapy drug preparation and deep vein catheter nursing.
	Explain the prevention and measures against the leakage of chemotherapy drugs.
	Teach how to offer nursing care for critically ill patients and the standards of writing nursing document.
	Evaluation and feedback by head nurse.
3rd week	Intensify the basic skills of fundamental nursing operation.
	Operation demonstration of changing bed sheet and usage of electrocardiogram.
	Teaching lecture.
	Implementation of the entire nursing procedures and completed nursing medical record.
	Evaluation and feedback by teaching group leader.
4th week	Explain new nursing techniques for cancer patients.
	Teach how to arrange time efficiently and have acute prediction ability.
	Evaluation on theoretical knowledge, professional expertise and nursing practical ability.
	Evaluation on teaching effect and improve the teaching pathway.

### Teaching procedures

The intern nurses were assigned into the Nursing Department of TCM-integrated Hospital of Southern Medical University. A nursing tutor was appointed for each intern nurse, and handed out the routing table of clinical pathway teaching to the intern nurses, explicitly informed with the primary goal and major content of the teaching course. The teaching effect during different stages was evaluated by the head nurse and teaching group leader and the assessment scores were recorded on the routing table. If an abnormal issue occurred, corresponding measures were implemented to handle the issue in an efficient and effective manner. The teaching pathway was further corrected and improved to qualify the teaching target.

### Evaluation methods

Prior to the teaching courses, the levels of theoretical knowledge and professional expertise of the intern nurses between two groups were evaluated and statistically compared. The specific pattern of nursing care was delivered and provided for the nursing procedures of the cancer patients.

Moreover, the intern nurses were required to complete the drafting the nursing medical record independently. The nursing performance was assessed by the head nurse and teaching group lead. Subsequently, the intern nurses were required to fill in the questionnaire survey in the assessment of the degree of satisfaction about the teaching and training effect.

### Statistical analysis

SPSS 19.0 statistical software was utilized for data analysis (SPSS Inc., Chicago, IL, USA). Measurement data were expressed as mean  $\pm$  standard deviation (mean  $\pm$  SD). Measurement data between two groups were compared by t-test or rank sum test.

Group comparison was conducted using t-test or analysis of variance. Enumeration data were analyzed by chi-square test or Fisher exact test.  $P < 0.05$  was considered as a level of statistical significance.

## Results

### Baseline data

In total, 186 intern nurses in TCM-integrated Hospital of Southern Medical University between January 2015 and March 2017 were recruited in this study. Among them, 90 intern nurses were assigned into the traditional group and 96 counterparts were allocated into the clinical pathway group. All participants were female and attended a 4-week training program in the Nursing Department of TCM-integrated Hospital of Southern Medical University. Statistical analysis demonstrated that the educational background, age and nursing skill level did not significantly differ between the traditional and clinical pathway groups prior to the beginning of the training program (all  $P > 0.05$ ). The grouping and workflow of nurse enrolment are illustrated in Figure 1.

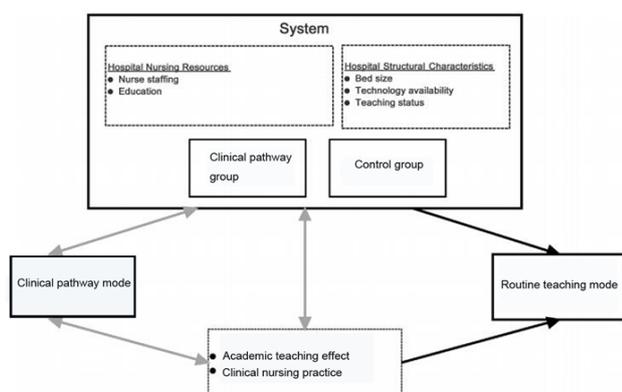


Figure 1. Grouping and workflow of the enrolled nursing staff.

### Parameter comparison

In the clinical pathway group, the assessment scores of theoretical knowledge, professional expertise and nursing practical ability were  $95.13 \pm 2.86$ ,  $91.07 \pm 2.32$  and  $89.79 \pm 4.01$ , which were significantly higher compared with  $81.89 \pm 3.62$ ,  $72.18 \pm 6.66$  and  $77.31 \pm 7.46$  in the traditional group (all  $P < 0.05$ ), respectively, as illustrated in Table 2.

Table 2. Comparison of the assessment scores of different parameters between two groups.

Group	N	Theoretical knowledge	Professional expertise	Nursing practical ability
Traditional group	90	$81.89 \pm 3.62$	$72.18 \pm 6.66$	$77.31 \pm 7.46$
Clinical pathway group	96	$95.13 \pm 2.86$	$91.07 \pm 2.32$	$89.79 \pm 4.01$
T value		19.63	78.04	9.96
P value		<0.01	<0.01	<0.01

Comparison of the degree of satisfaction between two groups In the traditional group, the degree of satisfaction about the teaching effect was 80.0% and 72 among 90 enrolled intern

nurses were satisfied about the teaching and training courses, and the remaining 18 (20.0%) were dissatisfied about the course delivery. In the clinical pathway group, 92 (95.8%) among 96 intern nurses were satisfied about the effect of teaching and training program, and 4 (4.2%) intern nurses were dissatisfied about the teaching and training effect. The degree of satisfaction significantly differed between the traditional and clinical pathway groups ( $\chi^2=5.582$ ,  $P < 0.05$ ).

## Discussion

As licensed nurses who work clinically caring for patients, practicing nurses often experience many challenging situations. This would suggest that providing more opportunities for nurses to pursue further education could improve professionalism and the quality of patient care globally [11]. As professionalism in nursing is relevant across the globe, efforts could be made to help countries that do not have the resources to strengthen nursing education through the integration of professional values into existing programs. Current nursing educational practices should be evaluated across the globe to determine how professional values are taught based on level of education [12]. Such assessments may contribute towards improving the depth and breadth of professional values integration in nursing curriculums. Globally, nursing education curriculums should be rich in integrated content concerning professional values and codes of ethics [13]. To enhance caring behaviours, students should be socialized to professional values in a supervised and supportive environment. Instructors and practicing nurses should receive in-services on professional values and current issues on ethics to refresh their knowledge, so that they are able to guide and influence students positively. An individual's professional values do not develop spontaneously. Instead, they are the results of lengthy academic preparation and socialization to the professional nursing values [14]. Such a process takes time and can be improved by advanced or progressing education. A dedication to professional values is usually incorporated into nursing pledges. Incidents of unprofessional behaviour from practicing nurses have been observed and reported internationally. Not only does such conduct undermine the reputation and society's trust for the nursing profession, it also impacts the quality of patient care. Professional nursing values guide and promote positive and caring nursing behaviour. Factors need to be identified that influence whether nurses recognize and integrate professional values into practice. The goal of this systematic review is to strengthen nurse's caring behaviour by exploring how education impacts professional values in clinical practice.

To minimize the risk of nursing incidents, the intern nurses are exposed to the nursing training program from the easy level to the difficult level, which applies to properly and effectively handle the simple to complicated situations. The gradual exposure approach allows for sufficient time for the intern nurses to accustom to the nursing practice and accumulate enriched clinical nursing experience. Meantime, the intern nurses are capable of putting theoretical knowledge to clinical

practice. Considering the professional nature of medical nursing, the clinical practical ability should be considered in the design of teaching pathway [15]. The intern nurses can integrate overall nursing practice, literature review, medical record drafting, elementary knowledge and clinical practice into the whole nursing procedures, which not only consolidates the basis of theoretical knowledge, but also significantly enhances the clinical practical ability of the intern nurses [16]. In the clinical pathway group, the assessment scores of theoretical knowledge, professional expertise and nursing practical ability were significantly higher compared with those obtained by their counterparts in the traditional group. In the traditional group, the degree of satisfaction about the teaching effect was 80.0% and 72 among 90 enrolled intern nurses were satisfied about the teaching and training courses, and the remaining 18 (20.0%) were dissatisfied about the course delivery. In the clinical pathway group, 92 (95.8%) among 96 intern nurses were satisfied about the effect of teaching and training program, and 4 (4.2%) intern nurses were dissatisfied about the teaching and training effect. The degree of satisfaction significantly differed between the traditional and clinical pathway groups. The results obtained from this investigation suggest that the teaching and training pathway has an influence on the professional values of practicing intern nurses. This is true for individuals pursuing a higher level of nursing education. Overall, the results indicate that higher levels of nursing education of the practicing intern nurse may result in a greater awareness and application of nurse's professional values during nursing clinical practice. These findings demonstrate that knowledge (theory and practical skills) is an important factor in the development of nurse's professional values. So instructors, nurses and both academic and clinical institutions have a collective responsibility to ensure they provide quality education, socialization and support for postgraduate studies. However, more research is needed to explore other factors that may be contributing to the relationship between education level and professional values.

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