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# Exploration of Competency-oriented Standardized Training Model for Clinical Pharmacists

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**Abstract: Objective:** This study aims to explore a training model suitable for hospital pharmacy work, namely, a competency-oriented standardized training model for clinical pharmacists, and evaluate the teaching effectiveness of clinical pharmacists trained under this model, providing reference for improving the pharmaceutical service level of clinical pharmacists. **Methods:** A survey was conducted on students who participated in the standardized training for clinical pharmacists in our hospital from October 2020 to September 2023. By comparing assessment scores, the study explored the learning outcomes of clinical pharmacists under the competency-oriented training model compared to traditional training models. **Results:** The competency-oriented training model led to higher scores in bedside assessments, case assessments, training processes, and overall evaluation scores for trainees compared to traditional training methods. This teaching model exploration strengthens the core competencies of clinical pharmacists, making the training content more relevant to clinical work. **Conclusion:** The competency-oriented standardized training model aimed at enhancing the on-job competency of clinical pharmacists can improve the core professional competitiveness of pharmacists and promote the transformation and development of hospital pharmacy.

**Keywords:** Clinical pharmacist; Competency-oriented; Standardized training model

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## 1. Introduction

With the continuous advancement of China's new healthcare reform, transforming the pharmaceutical service model and strengthening the training of clinical pharmacists are key priorities in hospital pharmacy work. The professional level and capabilities of pharmacists are crucial factors for the development of hospital pharmacy disciplines and the improvement of pharmaceutical service levels. In response to the current situation, enhancing «pharmaceutical service competency» is essential to overcome the bottleneck of pharmaceutical service limitations<sup>[1-2]</sup>. Along with the increasing specialization of medical services, hospital pharmaceutical services are becoming more diversified, leading to higher requirements for the professional quality of pharmacists<sup>[3]</sup>. To adapt to the new requirements, our hospital, relying on the clinical pharmacist training base, has explored and practiced a competency-oriented standardized training model for clinical pharmacists aimed at enhancing pharmaceutical service competency.

## 2. Content

### 2.1 General information

Thirty-three clinical pharmacist trainees trained in our hospital from October 2020 to September 2023 were selected as the study subjects.

### 2.2 Methods

The trainees were divided into observation and control groups based on whether they received competency-oriented teaching. The control group received traditional teaching methods, focusing on guiding trainees on tasks such as literature reading, case discussions, case analysis, and medication histories. The observation group received competency-oriented teaching, with instructors not only providing guidance on tasks but also implementing patient care supervision, routinely involving trainees in tasks such as medication order review, pharmaceutical consultations, personalized therapy drug monitoring, and specialized prescription reviews.

### 2.3 Observation indicators

The performance of trainees in various assessment items during the training process, including bedside assessments, case assessments, training processes, and comprehensive evaluation scores, was compared and analyzed.

### 2.4 Statistical analysis

Data were analyzed using SPSS 23.0 statistical software. Count data were expressed as (n, %) and analyzed using the  $\chi^2$  test, while

measurement data were expressed as ( $x \pm s$ ) and analyzed using the t-test. A significance level of  $P < 0.05$  indicated statistical significance.

### 3. Results

The observation group of clinical pharmacist trainees showed significantly better performance in case assessment scores, training process scores, and comprehensive evaluation scores compared to the control group, with statistical significance ( $P < 0.05$ ). Particularly in bedside assessment scores, including communication and reception skills interview scores, the observation group showed a significant increase compared to the control group, with statistical significance ( $P < 0.01$ ).

**Table 1 Comparison of performance on various assessment items for two groups of clinical pharmacist trainees**

Group	Sample size	Bedside assessment	Case assessment	Training process	Comprehensive score
Observation Group	17	93.65 ± 3.29	89.86 ± 2.54	96.31 ± 5.23	90.21 ± 4.56
Control Group	16	87.63 ± 3.12	83.71 ± 1.54	90.75 ± 2.43	88.87 ± 3.67
t	-	5.443	2.664	3.769	3.561
P	-	0.001	0.023	0.002	0.004

## 4. Discussion

### 4.1 Urgent need to improve clinical pharmacotherapy skills of hospital pharmacists

The results of this study indicate that the case assessment scores of clinical pharmacists, which reflect their clinical pharmacotherapy skills, are lower compared to other skill levels. With the development of clinical pharmacist training positions in China, the scale of clinical pharmacists trained with a focus on clinical pharmacotherapy is gradually expanding<sup>[4]</sup>. However, due to the limitations of the current scale and duration of clinical pharmacist training systems, the proportion of trained pharmacists in most medical institutions, especially at the grass-roots level, remains low<sup>[5]</sup>. Therefore, there is an urgent need to explore a more universally applicable training model that can enhance the overall clinical pharmacotherapy skills of hospital pharmacists.

### 4.2 Importance of competency-oriented training for clinical pharmacists

As essential members of medical teams, clinical pharmacists need to be guided by competency-oriented training, integrating the training of clinical pharmacy talents with societal demands<sup>[6]</sup>. The core mission of clinical pharmacy is patient-centered, providing quality pharmaceutical services in practice. The improvement of core competencies relies on practice, which requires the supervision and assessment of pharmacists' clinical practice to ensure service quality<sup>[7]</sup>. Training clinical pharmacists should be practice-oriented, focusing on enhancing competency-based skills, which can ultimately promote their ability to address clinical issues, strengthen communication and collaboration with clinical teams, and ensure rational drug use for patients. However, due to limitations such as small sample sizes and disciplinary differences, further refinement of competency-oriented teaching models is needed in future teaching work, and multicenter clinical teaching and practice research is anticipated.

### 4.3 Exploration of competency-oriented standardized training model for clinical pharmacists

In recent years, the establishment of a comprehensive clinical pharmacist work system in hospitals, with competency requirements included in performance appraisal management systems, has become a hot topic in clinical pharmacy management<sup>[8]</sup>. However, actual clinical pharmacist training often focuses on guiding students to complete key tasks, limiting student involvement in clinical practice. In this study, clinical pharmacist training was conducted with a focus on competency requirements, employing a patient-centric care model. Pharmacists were guided to supervise students in participating and completing routine clinical pharmacist work, aiming to cultivate clinical thinking and enhance pharmacist competency. The current status and demands of pharmaceutical services in public hospitals in China indicate a higher acceptance of prescription review services compared to medication guidance<sup>[9]</sup>. Observational group students showed significantly better outcomes in competency-based teaching projects, including prescription review, medication education, pharmaceutical rounds, and special prescription/inpatient medical record reviews, compared to the control group, with statistically significant differences ( $P < 0.05$ ).

## 5. Conclusion

With the comprehensive implementation of standardized training for clinical pharmacists in China, there is a growing emphasis on the quality rather than just the quantity of pharmacist training. Standardized training for clinical pharmacists is the foundation and prerequisite for hospital pharmacists to carry out patient-centered pharmaceutical services, as well as the inevitable process for the development of hospital pharmacy disciplines and the growth of hospital pharmacy talents. This study, aimed at enhancing clinical pharmacist competency, explored standardized training models, laying the groundwork for optimizing current training models and enhancing the overall professional capabilities of hospital pharmacists, particularly in clinical pharmacotherapy. This effort aims to meet the challenges of healthcare reforms and maximize the professional value of hospital pharmacists.

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