Construction of the Clinical Nursing Performance Assessment Model Based on the DIP Payment Method

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Abstract: In China, hospital medical quality management is of great significance for the sustainable development of hospitals and enhancing their core competitiveness. It is a very important part of improving the quality of hospital medical services, especially in the performance assessment of clinical nursing. Implementing a more scientific and reasonable clinical nursing performance assessment management model is conducive to improving the quality management of hospital clinical nursing performance assessment. It is very important to provide accurate decision-making reference reports for the management. Due to some drawbacks in the performance evaluation management of clinical nursing in various public hospitals at present, in order to increase the hospitalization volume of the hospital, further deepen the development of the medical industry, and improve the poor current situation, this article interprets the relevant policies of the "14th Five-Year Plan". Understand the system of Diagnosis-Intervention Packet and DIP payment methods, and analyze the application of DIP payment methods in the performance assessment of clinical nursing.

***Key words*:** DIP payment method, clinical nursing, performance evaluation, model construction

1. Introduction

Under the requirements of the medical industry reform during the "14th Five-Year Plan" period, in terms of medical performance management, the "14th Five-Year Plan" proposes that in the next five years, all public hospitals will continuously carry out in-depth reforms and advancements in hospital governance and management. Since China's reform and opening up, in countless five-year periods, China has achieved remarkable results in the economy and medical care. Among them, public hospitals in China have developed and matured year by year . Due to the rapid development of the medical market, both the medical environment and the broader social environment are quietly undergoing changes[1]. With the advent of the era of digital transformation in performance management, hospital performance big data has been widely applied in hospital performance data management. DIP is a new type of medical insurance payment basis method that emerged thanks to the current big data system and has high application value in performance assessment. Based on the necessity of improving the quality of clinical nursing performance assessment in hospitals, this article constructs a clinical nursing performance assessment model driven by DIP, providing a research framework for hospitals to improve management quality.

2. DIP payment method and its application necessity

DIP, or the payment model by Disease score, is a method that classifies medical record data based on the common features of "disease diagnosis + treatment methods" using big data. It compares the average consumption of treatment resources for each disease within the region with the average consumption of resources for the entire sample to form a DIP score, which serves as the basis for medical insurance payment. Similar to Diagnosis Related Groups, DIP can be used not only for medical insurance payment but also for performance evaluation[2]. Through the DIP performance management model, it is expected to enhance the medical level and service quality of the inpatient medical team, thereby improving the quality of inpatient medical services in the hospital and promoting an increase in the number of hospital visits[3].

3. Construction of the clinical nursing performance evaluation model under DIP

3.1 Objectives of DIP performance assessment

First, improve the quality of medical services. Ensure that the medical service process is standardized, safe and effective through assessment. Second, control medical costs: Guide hospitals and medical staff to reasonably control the consumption of medical resources and avoid excessive medical treatment[4]. Third, enhance operational efficiency: Optimize the internal management processes of the hospital to improve operational and service efficiency. Fourth, motivating medical staff: Through a fair and impartial assessment system, encourage medical staff to actively engage in their work and enhance their

sense of professional honor.

3.2 Model construction principles

First, ensure that both result-oriented and process management are given equal weight, paying attention not only to the outcomes of clinical nursing but also to the process management of clinical nursing. Second, adopt multi-dimensional assessment to conduct a comprehensive evaluation from multiple dimensions such as medical quality, cost control, patient experience, and operational efficiency. Third, ensure fairness, impartiality and transparency, guarantee the uniformity and impartiality of the assessment standards, and make the assessment results public and transparent, subject to supervision.

3.3 Contents of DIP performance assessment

The indicators constructed for the DIP performance assessment include medical quality indicators, cost control indicators, patient experience indicators, etc. The specific contents are as follows:

3.3.1 Medical quality indicators

(1)Treatment effectiveness rate: It reflects the degree of effectiveness of the treatment measures.

(2)Complication rate: It measures the safety of the medical process and the quality of medical care.

3.3.2 Cost control indicators

(1)Disease cost control: Compare the actual costs of each disease with the DIP payment standard to assess the cost control capability.

(2)Proportion of drugs and medical consumables: Control the proportion of drug and medical consumable expenses in medical expenses to avoid unreasonable consumption.

3.3.3 Patient Experience Indicators

(1)Patient satisfaction: Understand patients' satisfaction with medical services through methods such as questionnaires.

(2)Smoothness of medical treatment process: Evaluate the convenience and efficiency of patients seeking medical treatment.

3.4 Construction of the assessment process

The assessment process includes the following contents: The first step is data collection: Collect relevant data through channels such as the hospital information system and the medical insurance settlement system. The second step, indicator calculation: Calculate and analyze based on the assessment indicators and the collected data. The third step, result evaluation: Organize experts to assess and analyze the assessment results and put forward improvement suggestions. Step 4: Result Feedback: Promptly feed back the assessment results to the department and medical staff, and publicly release the assessment results. Step 5: Reward and punishment measures: Rewards and punishments will be given based on the assessment results to encourage the advanced and spur the lagging.

3.5 Supervision and assurance

First of all, establish a supervision mechanism and set up a dedicated supervision team or committee to conduct full-process supervision over the performance assessment work. Secondly, improve the system construction. Establish and improve the relevant systems and procedures for hospital performance assessment to ensure the standardization and effectiveness of the assessment work[5]. Furthermore, strengthen training and publicity. Regularly conduct training and publicity on the DIP policy and performance assessment-related knowledge for medical staff to enhance their understanding and participation in the DIP work.

4. Specific implementation plan and result evaluation

4.1 Data collection and processing

4.1.1 Qualitative data

(1) Interviewees: Five head nurses, ten clinical nurses and three administrative and logistical management personnel were selected by purposition-based sampling to ensure the representativeness of the sample.

(2) Interview tools: Design a semi-structured outline covering three major themes and ten sub-questions, namely "Deficiencies in the Current Assessment", "Difficulties in Adapting to the DIP Reform", and "Ideal Assessment Elements";

(3) Analysis Method: Nvivo 12. 0 was used for three-level coding (open coding - spindle coding - selective coding) to extract high-frequency topics (Table 1).

Table 1. Distribution of High-frequency Topics in Qualitative Interviews (N=18)

Theme	Frequency	Examples of typical statements
The technical value has not been quantified	15	The complex operation took 2 hours, but its performance was equivalent to that of ordinary intravenous infusion.
Insufficient risk compensation	13	The night shift allowance is only 50 yuan per time, which is far lower than the physical and mental exhaustion.
The satisfaction assessment is one-sided.	10	The family members were only asked about the service attitude and no professional explanations were involved.

4.1.2 Quantitative data

(1) Objective indicators: Extract data such as adverse nursing events, bed turnover rate, and equipment response time from the Hospital Information System (HIS)for 2022-2023;

(2) Subjective indicators: The modified "Nurse Occupational Stress Scale" and the "Patient/Family Satisfaction Questionnaire" were adopted. A total of 300 questionnaires were distributed, with an effective recovery rate of 92. 7%.

(3) Expert consultation: 15 experts (8 in nursing management, 3 in medical insurance policy, and 4 in clinical medicine) participated in two rounds of the Delphi method.

4.1.3 Model construction and weight calculation

Indicator screening: 20 indicators were initially selected. Redundant items (such as "number of papers" and "number of conferences")were eliminated by the Delphi method, and 12 secondary indicators were retained. Among them, the weight distribution can screen the indicators through the Delphi method (with two rounds of consultation by 15 experts), combine the balance card integration method and the hierarchical analysis method to construct the judgment matrix, calculate the weights of the first, second and third-level indicators, and verify the consistency of the obtained weights through the Yaahp V10. 3 software (finally determine the weight of the first-level indicator: Nursing quality (40%), work efficiency (25%), occupational risk (20%), patient satisfaction (15%)Examples of secondary indicators: compliance rate of operation norms (15%), psychological stress score (7%), etc. Scales and questionnaires are designed based on weighted results, incorporating both subjective and objective indicators to ensure scientificity and practicality.

Table 2. Clinical Nursing Performance Assessment Indicators and Weight Distribution

First-level indicator (weight)	Secondary indicators (weights)	Data source	Example of scoring criteria
Nursing quality (40%)	Compliance rate of operation norms (15%)	Random spot checks of the HIS system	5 points will be awarded if the score is ≥95%, and 0.2 points will be deducted for every 1% decrease
	Incidence of adverse events (10%)	Adverse event Reporting System	A score of 5 points is awarded for every less than 1‰, and 1 point is deducted for every additional 0.5‰
	Success rate of rescue for critically ill patients (15%)	Medical record	5 points will be awarded if the score is ≥90%, and 0.5 points will be deducted for every 2% decrease
Work efficiency (25%)	Bed turnover rate (10%)	Hospital Operation Report	Each department reached earns 3 points, and 0.5 points are added for every additional 5%
	The timeliness of medical order execution (8%)	Nurse Workstation Log	A delay of no more than 10 minutes earns 5 points, and 1 point is deducted for every additional 5 minutes
	Equipment failure response time (7%)	Equipment Department Record	5 points will be awarded for no more than 5 minutes, and 0.5 points will be deducted for each additional minute
Occupational risk (20%)	Occupational exposure frequency (8%)	Hospital Infection Control Department Report	0 times earn 5 points, and 2 points will be deducted for each occurrence
	Psychological stress score (7%)	Nurse Self-Rating Scale	A score of no more than 2 points (on a 5-level scale)earns 5 points. For every additional 0.5 point, 1 point is deducted
	Night shift frequency coefficient (5%)	Shift schedule	If the average number of occurrences is no more than 8 times per month, 5 points will be awarded. For each additional occurrence, 0.5 points will be deducted
Patient satisfaction (15%)	Satisfaction survey score (10%)	Third-party investigation	A score of 90 or above is 5 points. For every 2 points reduced, 0.5 points will be deducted
	Complaint rate (5%)	Complaint Management Platform	0 complaints earn 5 points, and 3 points will be deducted for each occurrence

4.2 Result evaluation

In the constructed performance assessment model under the DIP payment method, the opinions of nurses are fully considered, the unfair situations encountered by nurses in practical nursing are understood, and problems such as the unquantified technical value, insufficient risk compensation, and one-sided satisfaction assessment are incorporated into the construction of the performance assessment model. Secondly, during the construction process, items such as nursing quality, work efficiency, occupational risks, and patient satisfaction were examined to comprehensively evaluate the work of nurses. At the same time, records from the Internet system, work logs, record sheets, etc. were strictly relied upon to make the data for performance assessment more scientific and reasonable. Therefore, the performance assessment model under this DIP payment method meets the needs of nurses, while considering that the content is reasonable and has practical application value.

5. Summary

In conclusion, the performance evaluation model under the DIP payment method holds significant application value in the performance evaluation of clinical nursing. This model quantifies core dimensions such as medical quality, cost control, and patient experience, providing a scientific and systematic evaluation standard for clinical nursing work and promoting the refined management of hospitals. In practical application, it is necessary to clearly define the objectives of DIP performance evaluation, with the orientation of optimizing medical resource allocation and enhancing service quality. Implement the model strictly in accordance with the construction principles to ensure the objectivity and fairness of the evaluation process. Meanwhile, further clarify the evaluation content, improve the construction of the evaluation process, and strengthen supervision and guarantee measures. By doing so, the positive role of this model in enhancing the level of clinical nursing and promoting the high - quality development of hospitals can be fully realized.

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