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2025 Volume 3, Issue 6
Lecture Notes in Education, Arts, Management and Social Science
ISSN(Online): 2705-053X

Research on Common Problems and Countermeasures of Hospital Cost Management under DRG Medical Insurance Payment Model

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Abstract: This study systematically analyzes the primary challenges and optimization strategies in hospital cost management under the DRG (Diagnosis-Related Groups) medical insurance payment model. The research reveals that the implementation of DRG has fundamentally transformed hospital cost management logic, shifting from per-service billing to a prepaid bundled payment system, which compels hospitals to establish refined cost management frameworks. Current hospital operations face prominent issues including an incomplete cost accounting system, limitations in disease-specific cost calculation, insufficient IT support, and talent shortages. To address these challenges, the study proposes systematic solutions such as strengthening cost awareness, establishing scientific accounting systems, building intelligent control platforms, cultivating interdisciplinary professionals, and exploring diversified control models. These measures will help hospitals achieve cost optimization while ensuring medical quality, adapt to DRG payment reform requirements, and drive their transition from scale expansion to quality-driven efficiency enhancement.

Keywords: DRG medical insurance payment; cost management; countermeasures

Online publication: July 26, 2025

1. Introduction

China's medical insurance payment reform has propelled Diagnosis-Related Group (DRG) payment as the core tool for medical cost control, driving healthcare institutions to transition from "pay-per-service" to a "prepaid bundled" model. This shift requires hospitals to optimize cost structures while ensuring medical quality and enhancing operational efficiency. However, current hospital implementation of DRG faces multiple cost management challenges: traditional departmental cost accounting systems fail to meet the demands of disease-specific precision management; clinical pathways and cost data remain disconnected, affecting measurement accuracy; information technology infrastructure suffers from "data silos"; and shortages of multidisciplinary management professionals coupled with weak cost awareness among medical staff hinder efficiency improvements. Against this backdrop, studying hospital cost management under the DRG payment model holds significant importance. By analyzing how DRG reform impacts cost management mechanisms, identifying existing issues, and proposing optimization strategies, this research provides theoretical foundations and practical guidance for healthcare institutions to adapt to payment reforms and improve operational efficiency. Additionally, the findings

contribute to refining medical insurance policies, promoting rational allocation of medical resources, and advancing coordinated development of quality and efficiency within DRG frameworks.

2. Impact of the DRG Medical Insurance Payment Model on Hospital Cost Management

The implementation of the DRG-based medical insurance payment model has fundamentally transformed the logic of hospital cost management, driving healthcare institutions to shift from the traditional "post-payment by service" passive settlement model to a proactive "prepaid package" cost control model. Under this framework, medical insurance agencies no longer pay hospitals item-by-item based on actual medical services, but instead adopt fixed payments according to the Diagnosis-Related Groups (DRGs). This decouples hospital revenues from individual case costs, compelling them to strictly control treatment expenses while maintaining medical quality – failure to do so risks financial losses. This transformation shifts hospital cost management focus from revenue expansion to refined cost control, requiring hospitals to optimize resource allocation while ensuring standardized clinical pathways, reduce unnecessary tests, medications, and consumables, and prevent overtreatment. Additionally, the DRG model emphasizes the importance of disease-specific cost accounting. Hospitals must establish scientific cost calculation systems to accurately measure standard costs for different disease groups and dynamically monitor discrepancies between actual costs and DRG payment standards for timely adjustments. Moreover, this model raises operational efficiency requirements, prompting hospitals to shorten average hospital stays and improve bed turnover rates to achieve cost optimization and benefit enhancement within limited DRG payment quotas[1]. Overall, the DRG payment model not only changes hospital cost management approaches but also drives strategic transformation from extensive scale growth to refined quality and efficiency development.

3. Major Challenges in Hospital Cost Management Under the DRG Payment Model

3.1. Imperfection of cost management objectives and accounting system

Under the DRG (Diagnosis-Related Groups) medical insurance payment model, hospitals face a primary challenge in cost management: the imperfections of their cost control objectives and accounting systems. Traditional hospital cost accounting primarily aggregates expenses by department or service items, which fails to meet the refined cost management demands of the DRG model centered on disease categories. Due to the lack of scientific and unified standards for disease-specific cost accounting, many hospitals encounter issues like incomplete data collection and unreasonable allocation criteria during DRG-based cost calculations, resulting in significant discrepancies between accounting results and actual clinical resource consumption. Meanwhile, some hospitals still employ crude cost control methods without establishing corresponding cost management objectives aligned with DRG payments, failing to effectively assign cost control responsibilities to clinical departments and medical staff. This disconnect between DRG payment standards and actual operational costs remains unresolved. Additionally, lagging hospital IT infrastructure hinders precise cost accounting, as real-time data collection and dynamic analysis of certain medical behaviors are lacking. This data gap undermines decision-making support for cost management, hindering hospitals' ability to optimize costs and improve operational efficiency under the DRG payment framework. The ambiguity in cost management objectives and outdated accounting methods make it difficult for hospitals to achieve precise cost control and sustainable development within this payment system.

3.2. The cost accounting method of disease type is limited and not widely used

The core of the DRG payment model lies in disease-specific cost management. However, many hospitals currently face multiple limitations in their disease cost accounting, significantly reducing its practical effectiveness. On one hand, due to insufficient standardization of clinical pathways, individual differences among patients within the same DRG

group, along with complications and comorbidities, make precise cost calculation challenging. Hospitals often resort to averaging historical data for cost estimation, failing to accurately reflect actual resource consumption across cases of varying complexity. On the other hand, existing cost accounting systems mostly remain at departmental or procedure levels, lacking specialized modules for DRG grouping. This fragmentation results in fragmented cost data collection, hindering comprehensive tracking and analysis throughout the entire treatment process. Furthermore, while some hospitals have implemented disease cost accounting, the results remain confined to financial statistics rather than being effectively applied to clinical performance management or resource optimization decisions. This disconnect between cost accounting and medical practice improvement not only weakens the precision of cost control under the DRG payment system but also constrains hospitals' ability to optimize management through data-driven approaches, ultimately undermining the expected outcomes of DRG reforms.

3.3. Insufficient IT Support and Data Integration Challenges

The precision cost management under the DRG payment model heavily relies on information system support. However, current hospital informatization construction is plagued by "data silos", with ineffective integration between various business systems, creating fundamental obstacles for cost management. Critical systems like hospital information systems (HIS), electronic medical records (EMRs), financial accounting, material management, and medical insurance settlement often operate independently with different standards. This fragmentation in data sources, measurement criteria, and temporal sequences makes it difficult to achieve full-process traceability from clinical pathways to cost consumption. Particularly in collecting first-page medical record data required for DRG grouping, issues such as non-standard clinical diagnostic terminology and inaccurate code conversion lead to systematic discrepancies between grouping results and actual treatment costs. More critically, most hospitals lack professional DRG cost analysis platforms capable of real-time cleaning, matching, and modeling analysis of massive medical data. Cost managers are forced to rely on manual data organization, resulting in inefficiency and compromised data timeliness and accuracy. These IT shortcomings make hospitals struggle to promptly grasp cost performance across disease groups during DRG payment reforms, while also hindering big data-driven predictive cost control. This severely restricts the effectiveness of cost management under the DRG payment model[2].

3.4. Lagging Talent Development and Weak Cost Management Awareness

The DRG payment reform has imposed heightened demands on hospital operational management, yet the current shortage of versatile management professionals has become a critical bottleneck hindering cost control efficiency. Most medical institutions still adhere to traditional administrative models, with a severe lack of specialized personnel proficient in both clinical operations and DRG pricing rules, as well as data analysis and cost management capabilities. Financial department staff often remain confined to conventional accounting functions, lacking deep understanding of clinical pathways and DRG grouping logic. Meanwhile, clinical practitioners generally exhibit a "medical-focused, management-light" tendency, showing insufficient awareness of cost constraints under DRG payment systems. This professional gap frequently results in a disconnect between financial accounting and clinical practice during cost control implementation. More fundamentally, hospital performance evaluation systems fail to incorporate effective cost management metrics, leaving medical staff without intrinsic motivation for proactive cost control. Some departments even persist in profit-driven practices like increasing diagnostic tests and prolonging hospital stays. Management's inadequate understanding of DRG reforms is further reflected in the absence of training systems, where specialized courses on DRG payments and cost management often become mere formalities. A comprehensive cost-consciousness cultivation mechanism covering decision-makers, managers, and executors remains unestablished. These dual constraints stemming from structural imbalances in talent composition and weak awareness have created fundamental capability gaps for hospitals advancing adaptive DRG reforms.

4. Optimal strategies for hospital cost management under DRG medical insurance payment model

4.1. Strengthening Cost Management Awareness and Optimizing Cost Structure

Under the DRG payment reform framework, hospitals must establish a systematic cost management system. Management should elevate cost control to a strategic level by creating performance evaluation mechanisms that balance quality and cost efficiency, driving a shift in organizational awareness. It is recommended to form an interdepartmental DRG Cost Management Committee to regularly analyze disease group profit/loss data and directly link these findings to departmental performance. Operationally, clinical pathway standardization should be prioritized, with cost quotas established for specific diseases based on DRG classifications. Big data technology should be utilized to identify key cost drivers such as high-value consumables. A dynamic monitoring mechanism should also be implemented to trace and analyze cases with abnormal costs. The cost accounting system must incorporate advanced tools like activity-based costing to accurately allocate expenses according to actual resource consumption, ensuring data precision. Through these multidimensional management innovations, hospitals can optimize cost structures while maintaining medical quality, ultimately developing sustainable capabilities adapted to DRG payment systems.

4.2. Establishing a Scientific Cost Accounting System for Disease Classification

Under the DRG payment framework, hospitals must transcend traditional cost accounting limitations by establishing a clinical value-oriented disease cost accounting system. This system should be built on the "full treatment process" concept, enabling comprehensive cost tracking from patient admission to discharge while achieving precise aggregation of medical service costs, pharmaceutical consumables expenses, and indirect costs. In implementation, the Time-Driven Activity-Based Costing (TDABC) method can be adopted, using time consumption at each clinical pathway stage as a benchmark combined with resource input unit prices to create a dynamic disease cost accounting model. Simultaneously, hospitals should map DRG groups to clinical pathways, develop customized cost accounting templates for different complication combinations, and identify key cost drivers through big data analysis. Technologically, intelligent disease cost accounting systems should be developed to enable real-time data integration with electronic medical records, physician order systems, and material management platforms. These systems automatically capture resource consumption data during treatments and continuously optimize cost allocation rules via machine learning algorithms. Additionally, establishing a disease cost analysis application mechanism is crucial—feedback results should be provided to clinical departments to guide treatment plan optimization, medical consumable selection decisions, and performance management, forming a closed-loop management cycle of "accounting-analysis-improvement." This scientific disease cost accounting system provides core data support for hospitals' precision operations in the DRG payment environment.

4.3. Enhancing Digitalization and Building an Intelligent Cost Management Platform

In the context of DRG payment reform, establishing an intelligent cost control platform serves as a critical pathway to enhance hospital operational efficiency. Hospitals need to build a data-driven, end-to-end management system that utilizes IoT technology to achieve real-time collection and monitoring of key cost elements—from medication and consumables to examinations and tests—across the entire patient care cycle from admission to discharge. The platform should feature three core functions: 1) A real-time monitoring module displaying cost consumption by disease groups through visual dashboards with preset warning thresholds; 2) An analytical decision-making module leveraging big data analytics to break down DRG cost structures, thereby supporting clinical plan optimization; 3) A performance evaluation module integrating cost metrics into assessment systems to strengthen cost awareness across all staff. Implementation priorities include standardizing basic data through unified coding and terminology systems, establishing cross-departmental collaboration mechanisms with clear data management responsibilities, and enhancing personnel training for data application capabilities. Platform development must ensure seamless integration with medical insurance settlement, medical record management, and material supply systems to guarantee data accuracy and timeliness. Through intelligent platform

construction, hospitals can transition from reactive management to proactive control, effectively managing operational costs while maintaining medical quality, ultimately boosting sustainable development capabilities in the DRG payment environment[3].

4.4. Strengthening the Cultivation and Performance Evaluation of Multidisciplinary Talents

Under the DRG payment reform framework, hospitals must establish a new talent development and performance evaluation system. There is an urgent need to cultivate multidisciplinary professionals who are proficient in both clinical practice and DRG regulations, while possessing cost control and data analysis capabilities. Hospitals should implement a tiered training mechanism: management focuses on strategic decision-making skills, department directors enhance cost analysis competencies, and frontline staff prioritize cost awareness cultivation. Through school-enterprise collaborations, specialized training programs, and rotational exchanges, comprehensive talent development can be achieved. The performance evaluation system should align with value-based healthcare principles by establishing four-dimensional metrics: medical quality (complication rate, readmission rate), service efficiency (hospitalization days, bed turnover rate), cost control (group cost ratio, medication expenditure ratio), and innovation development (research achievements). Evaluation results should directly impact salary increments, motivating medical staff through special incentives and cost-saving sharing mechanisms. A dynamic adjustment mechanism should also be established to ensure the scientific validity and guidance of assessment indicators, driving hospitals toward quality-driven transformation from scale expansion and achieving sustainable development goals under DRG reforms.

4.5. Exploring Diversified Cost Control Models

Within the DRG payment framework, hospitals need to transcend traditional single-dimensional cost control approaches and explore multi-faceted cost management systems. Cost management should be integrated throughout the entire healthcare service process based on clinical value orientation. This involves establishing a disease-specific cost budgeting system at the diagnosis and treatment front end, setting target costs for each DRG group through big data analysis; implementing standardized diagnostic pathways during clinical procedures, adopting evidence-based medical protocols for examination packages and medication guidelines; and creating dynamic monitoring mechanisms in resource management to implement tiered approval and refined management of high-value consumables and special medications. Simultaneously, innovative management models should be explored, such as forming cross-departmental cost control teams and conducting disease-specific cost analysis meetings to organically combine clinical pathway optimization with cost control[4]. Additionally, corporate management practices can be referenced by introducing advanced tools like activity-based costing and value chain analysis to identify cost optimization opportunities across the entire healthcare service process. By building this comprehensive, multi-level cost control network, hospitals can achieve optimal cost allocation under the DRG payment framework while ensuring medical quality.

5. Conclusion

The implementation of the DRG payment model has introduced new requirements for hospital cost management. Hospitals currently face challenges such as outdated cost accounting systems, disconnect between clinical pathways and cost data, information system silos, and a shortage of multidisciplinary professionals. Research indicates that hospitals need to systematically reform management philosophies, accounting methods, IT infrastructure development, and talent cultivation to establish a DRG-compatible cost management system. Moving forward, continuous optimization of management mechanisms is essential to enhance operational efficiency while maintaining medical quality, achieving a balance between benefits and costs. The proposed framework offers reference for hospital transformation, though specific implementation should be dynamically adjusted according to actual circumstances.

Disclosure statement

The author declares no conflict of interest.

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