

Research on the Implementation Effect of Diagnosis-Related Groups Point Payment Policy

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Abstract: This study explores the implementation effect of the diagnosis-based point payment policy in medical insurance. A retrospective analysis was performed on the clinical data of discharged patients. Taking January 1, 2018, as the time boundary for policy implementation, three core indicators before and after the policy reform, including average length of hospital stay, average hospitalization cost, and readmission rate, were compared. The results showed that the average hospital stay and average hospitalization cost were significantly reduced after the implementation of the diagnosis-based point payment policy. In conclusion, the medical insurance payment reform based on disease points can effectively shorten patients' hospital stays and reduce inpatient treatment costs, thereby offering favorable practical value. Nevertheless, the policy's implementation still faces deficiencies in refined management. It is essential to improve the refined management system for disease classification and further enhance the implementation quality and comprehensive effectiveness of medical insurance payment policies.

Keywords: Diagnosis-related groups points payment; Hospitalization expenses; Readmission rate

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1. Introduction

Medical insurance systems have been widely adopted nationwide, benefiting many people and playing a vital role in safeguarding public health and building a harmonious society. Against this backdrop, how to allocate medical insurance resources scientifically and equitably, and to ensure the rational use of medical insurance funds, has become an urgent issue for medical insurance departments ^[1]. Guangzhou Municipal Human Resources and Social Security Bureau, Guangzhou Municipal Finance Bureau, and Guangzhou Municipal Health and Family Planning Commission issued the *Notice On Carrying Out The Payment Of Major Medical Expenses By Disease-Interval Points Under Guangzhou Social Medical Insurance* in 2017. DRG Points Payment is a full advance payment method. It assigns points for different diseases based on the ratio of each disease's expenses to the benchmark disease's, and calculates total points according to the disease composition and the actual expenses of discharged patients, which serves as the basis for medical insurance reimbursement. Essentially, this payment model integrates macro total budget management of medical insurance funds

with micro diagnosis-related group payment. It can improve hospital operational efficiency and address the limitations of single-payment schemes. To comprehensively evaluate the practical effect of this policy, this study takes inpatients of one hospital as research subjects and reports the findings as follows.

2. Data and methods

2.1. Research data

A retrospective analysis was performed on inpatient discharge data from one hospital. Group A covered 38,000 patients admitted before January 1, 2018, accounting for 96.0% of all medical insurance inpatients, with a total medical insurance fund expenditure of 362.11 million yuan. Group B included patients admitted in or after 2018, with a total of 45,470 inpatient visits, of which 34,490 were DRG Points Payment, accounting for 76.0% of medical insurance inpatients, involving a total medical insurance fund of 282.93 million yuan and a hospital advance payment of 263.17 million yuan.

To ensure data validity, we excluded cases outside the scope of DRG Points Payment and cases with expenses below the deductible line or above the maximum basic medical insurance limit. In addition, transferred patients, delivery cases, and year-end carry-over cases were not included in the DRG Points Payment scope.

2.2. Research methods

A retrospective research method was adopted. Observation indicators included length of hospital stay, hospitalization expenses, readmission status, and medical insurance reimbursement. Relevant indicators were compared between Group A and Group B.

2.3. Statistical analysis

All data were processed by SPSS 25.0 statistical software. Measurement data were expressed as mean $\pm$ standard deviation (SD) and analyzed by independent sample *t*-test. Enumeration data were presented as percentages and tested by Chi-square (χ^2) test. A *P*-value less than 0.05 was considered statistically significant.

3. Research results

3.1. Comparison of length of hospital stay and hospitalization expenses

The average length of hospital stay and per capita hospitalization expenses in Group B were significantly lower than those in Group A, with statistically significant intergroup differences (*P* = 0.001). See **Table 1**.

Table 1. Length of hospital stay and hospitalization expenses (mean $\pm$ SD)

Group	Sample size (<i>n</i>)	Length of hospital stay (days per capita)	Hospitalization expenses (yuan per capita)
Group A	38,000	9.98 $\pm$ 0.91	16,541.25 $\pm$ 9,850.21
Group B	34,490	8.96 $\pm$ 0.63	15,865.30 $\pm$ 9,651.25
<i>t</i>	-	173.771	9.316
<i>P</i>	-	0.001	0.001

3.2. Comparison of readmission rate

The readmission rate was 20.00% in Group A and 20.50% in Group B. No statistically significant difference

was observed between the two groups ($P = 0.093$). See **Table 2**.

Table 2. Comparison of readmission rate (n , %)

Group	Total cases	Readmitted cases	Readmission rate
Group A	38,000	7,600	20.00%
Group B	34,490	7,071	20.50%
χ^2	-	-	2.818
P	-	-	0.093

4. Discussion

4.1. Practical effects of the policy

DRG Points Payment can effectively motivate hospitals to control medical costs, realize equal payment for the same disease, standardize rational medical behaviors, and restrain inappropriate medical services. For the same disease, hospitals with lower medical costs can obtain relatively higher reimbursement. Since the hospital implemented DRG Points Payment in January 2018, the average medical expenses of insured patients have decreased remarkably. Meanwhile, the average length of hospital stay was shortened by approximately one day. It demonstrates that this policy can reduce both hospital stay duration and clinical treatment costs, which aligns with current social development demands ^[2].

There is a difference in the point unit price between the two types of insured patients: 15.66 yuan per point for urban employee medical insurance enrollees and 14.51 yuan per point for urban resident medical insurance enrollees. The gap is caused by differences in payment quotas, disease composition, and medical visit frequency. Although the point value for a single disease is unified, the actual medical insurance reimbursement varies due to different point-per-unit prices across patient groups. This discrepancy increases clinicians' difficulty in understanding the policy. Some hospitals tend to receive an excessive number of patients from urban residents due to lower per-unit prices, while hospitals that mainly treat urban residents may face operating losses and even refuse to admit such patients. Therefore, it is suggested that the medical insurance fund quotas for urban employees and urban residents be balanced to achieve genuine equal payment for the same disease ^[3].

The readmission rate is a core assessment indicator for DRG Points Payment, designed to prevent hospitals from splitting a single hospitalization into multiple admissions to gain extra disease points and to monitor standardized hospital admission management. Relevant regulations stipulate clear standards for readmission rates; hospitals exceeding these standards will have corresponding funds deducted during the annual settlement. Most hospitals have established management rules, such as prohibiting repeated admissions for the same disease within 15 days, except for acute episodes ^[4].

In this study, the readmission rate slightly increased from 20.00% to 20.50% after policy implementation, but the difference was not statistically significant, consistent with the policy requirements. With accelerating population aging, the number of readmitted patients continues to grow, and existing readmission assessment criteria need to be adjusted accordingly.

4.2. Policy recommendations

The core goals of DRG Points Payment are to reduce per capita hospitalization expenses and optimize the medical service structure. First, it is necessary to clarify and strengthen the functional positioning of medical institutions at all levels and optimize supporting policies, including talent training and medical service pricing, to guide patients to select appropriate medical institutions. We shall regularly supervise and assess tertiary

hospitals using indicators such as the Case Mix Index (CMI) and median hospital stay costs, and encourage them to develop advanced diagnostic and treatment technologies. It is also essential to promote the integration of regional medical services, provide technical and talent support for primary medical institutions, and improve their service capacity. Tertiary hospitals should focus on diagnosing and treating difficult and complex diseases and ensure the equitable allocation of medical resources^[5]. When adjusting assessment indicators, local policies related to drug and medical consumable procurement shall be fully considered, as these factors directly affect medical insurance reimbursement ratios. In view of the growing aging population and rising readmission cases, local authorities shall revise readmission assessment standards in light of actual conditions.

Second, a unified regional information platform and data center with consistent statistical standards should be established to support CMI monitoring and the hierarchical construction of the DRG point database. The DRG point database shall be classified and managed at the medical institution level and disease category^[6]. In-depth data mining and special research are also required: carry out prediction analysis for disease group data in internal medicine; conduct targeted research on over-expense cases, high-weight cases, and critically ill patients to improve the accuracy of the point database.

Based on research findings, medical insurance compensation policies can be optimized to encourage high-level hospitals to admit more complex and severe cases and to upgrade their overall medical capabilities. Special monitoring shall be conducted on diseases with high consumable costs to realize refined management of medical consumables. Relevant policies should encourage the rational use of appropriate diagnostic and therapeutic consumables. National or regional unified payment standards for medical consumables are recommended. Patients may bear the excess expenses voluntarily to ensure the fairness of medical insurance reimbursement while maintaining the quality of clinical treatment.

Disclosure statement

The author declares no conflict of interest.

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