



Problems with Diagnosis Related Group in China

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Abstract. Diagnosis Related Group (DRG) has been piloted nationwide since 2018, during the pilot process, the pilot institutions have achieved certain results in controlling the consumption of medical resources and health insurance fund expenditure, reducing the burden of hospitalization on patients and standardizing clinical pathways by adopting the DRG model. However, while achieving certain results, they also encountered a number of problems. In this paper, 20 relevant papers from CNKI 1988-2023 were collected through literature analysis to analyse the problems encountered in the current DRG implementation process. It is found that DRG has problems such as distorted coding, confusing grouping rules and imperfect performance mechanisms, which affect the generation of new technologies. Sound management mechanisms grouping rules should be established to monitor the coding of data so that disease grouping is clinically rational and protects the interests of patients and hospitals, while also facilitating the exploration of new technologies. This study would be beneficial for policymakers to further promote the application of DRG.

Keywords: DRG, Health Care Reform, China.

1 Introduction

DRG originated in the United States, where the DRG payment model was adopted as the reimbursement standard for Medicare in 1983 and implemented in 1984 and 1985 with hospital profits as high as 14.5%, proving the implementation of DRG and achieving remarkable results^[1]. As a result, countries have introduced DRG payment models, with China exploring it in 1989, introducing it in 2003, conducting a small-scale pilot in 2011 and finally starting a nationwide pilot in 2018^[2]. The National Health Insurance Administration (NHA) has issued documents such as the Notice on Declaring National Pilot Payment by Diagnosis-Related Grouping of Diseases (Medical Insurance Office No. 23 [2018]) and the Notice of the National Health Insurance Administration, Ministry of Finance, National Health and Health Commission and National Bureau of Traditional Chinese Medicine on Issuing the List of National Pilot Cities for Payment by Diagnosis-Related Grouping of Diseases (Medical Insurance Office No. 34 [2019]). During the piloting process, the pilot institutions have achieved certain results in controlling the consumption of medical resources and health insurance fund expenditure, reducing the burden of hospitalisation on patients and standardising clinical pathways

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by adopting the DRG model. However, the pilot work has not been smooth and the adoption of the DRG model has been effective but has also brought about some problems. Since healthcare reform itself is a huge challenge and the DRG payment model involves the interests of many parties in healthcare reform, the problems faced by DRG are often very complex and acute and need to be solved urgently. Therefore, this paper aims to identify the problems in the implementation of DRG through a large amount of literature research, combined with the actual situation, and make recommendations in the light of the experience of the United States and some European countries in DRG. It helps China in the construction of medical resources management, medical system reform.

2 Problems

This paper collects 20 relevant papers from CNKI from 1988-2023 and uses the literature analysis method to analyse the problems encountered in the current DRG implementation process. Finally, the following four issues are developed in conjunction with the actual situation (table 1).

Table 1. Problems with DRG

Problems	References
Distortion of data coding	[3]
Limitations of grouping rules	[4]
The issue of hospital and medical staff benefits	[5]
Limitations on new technologies	[6,7]

2.1 Distortion of Data Coding

In practice, it has been found that the DRG requires huge consultation data and numerous data entries, requiring high quality coding. However, in reality, medical staff, as the first element of case grouping, tend to be more focused on the latter when faced with the complex data coding work versus the heavy clinical workload, and are not sufficiently motivated and ideologically aware of the DRG. The lack of understanding of the International Statistical Classification of Diseases and Related Health Problems (ICD) has led to negligent and poor-quality data coding. There is a wide variation in the medical resources and time consumed in diagnosing the same case. There is even over-medication, which directly affects the quality of the current diagnostic grouping of diseases and the effectiveness of DRG implementation. At the same time, the greater preference for higher reimbursement groupings, driven by profit, has caused distortion of initial information and affected the authority of the groupings. Moreover, during the DRG reform process, hospitals did not have professional coding staff in a timely

manner and did not code patients' diagnoses and clinical operations according to the DRG coding rules with the patient's medical case. This led to a mismatch between the patient's main diagnosis and the clinical pathway to be performed, which not only affected the reliability of the grouping, but also seriously affected the payment of health insurance funds and caused unnecessary economic losses to medical institutions [3].

2.2 Limitations of Grouping Rules

The grouping of diseases based on ICD-10 and ICD-9 is a static result, whereas the patient's disease condition is a dynamic process, and it is difficult to match the static grouping result with the dynamic clinical operation, which leads to the emergence of uncovered cases. For example, in the 57 institutions surveyed by Li Huiling, there were 169 cases that could not be grouped and 31 groups that were not covered. At the same time, there is also the problem of price differences between domestic and imported consumables when faced with the same diagnosis, and even the problem of simple procedures being able to be broken down into multiple operations. For example, a simple cataract operation on both sides can be split up several times to increase revenue. This is unnecessary medical practice and in the end it is the patient who suffers. In addition, the core indicator of DRG grouping, the number of case mixes (CMI), is often used as an indicator of the overall diagnostic level of the provider, and in order to be able to increase the CMI, providers may be more inclined to admit patients with more serious diseases with a higher weighting and less common diseases [4]. This is clearly a serious ethical issue.

2.3 The Issue of Hospital and Medical Staff Benefits

With a prepayment system based on DRG, the cost of a medical institution increases as the number of services it provides increases. When a threshold is exceeded, the surplus of the medical institution becomes negative. Under this cost-conscious control, medical institutions and doctors may have; (i) the hidden medical ethics of selecting low-risk people for coverage and shirking serious patients; (ii) the existence of medical structural imbalance of increasing the number of outpatient visits to compensate for the loss of benefits due to the reduction of hospitalization time; and (iii) the reduction of some costly and less effective clinical items, resulting in the lack of some medical services and other related problems [5]. At the same time, in the process of implementing the DRG payment model, the performance appraisal mechanism of the medical staff, which matches it, is still stuck in the past and has not been brought closer to it. This has led to the implementation of the DRG model, which has only been able to restrict the medical staff and reduce their medical practices in order to achieve the goal of reducing the consumption of medical resources. There is a lack of consideration for the benefits that medical staff should receive for the medical and technical services they pay for. The interests of the medical staff have not been considered from their perspective, and their interests have not been protected. In the long run, medical staff will feel that the DRG model is a way to reduce the value of their medical care by withholding their own benefits, which will in turn lead to resistance to DRG. This will inevitably affect the

acceptance of the DRG model and even future policies related to the new healthcare reform in the minds of medical workers, thus affecting the overall reform effect.

2.4 Limitations of New Technologies

The DRG grouping payment standard is based on "similar resource consumption", which is used to determine relatively fixed weights and rates based on past medical costs, and thus forms the payment standard for each DRG case group. This fixed payment environment is extremely unfriendly to the development and exploration of new clinical technologies and does not take into account the necessary costs associated with the exploration of new clinical technologies. In this case, if the benefits derived from the novel technology do not meet expectations, it may lead to limited research into the novel technology [6]. Hospitals wishing to undertake research into new technologies will have to cover the costs out of their own pockets, or even increase their revenues by increasing the number of overmedical practices that have not yet been regulated. To cover the costs associated with the development of new technologies. Either way, this will reduce hospitals' willingness to develop new technologies and limit the development of the healthcare sector as a whole [7].

3 International Experience

The DRG payment model was adopted as the standard for Medicare reimbursement in the US as early as 1983 and achieved significant savings of US\$13.6 billion between 1983 and 1986 [8]. As a result, the United States and some western countries have introduced DRG payment models to manage their own health insurance costs. In the process, countries have encountered more or less resistance and have taken some measures in response. The experience gained from these measures is of some reference value for the implementation of the DRG payment model in China.

3.1 The Law

Both the United States and other European countries have enacted relevant laws and regulations before the implementation of the DRG model, such as the Tax Equity and Financial Responsibility Act (TEFRA) in the United States and the Health Insurance Reform Act in Germany. This established the legal status of DRG payments and the way in which payments are made according to the diagnosis of the disease. The law is mandatory and legal to ensure that the reform of health care costs is carried out.

3.2 Specific Institutions and Systems

DRG weights are at the heart of the DRG model, and a constant weighting cannot meet the ever-changing clinical situation. So countries have set up agencies dedicated to DRG payment, such as ProPac in the US and InEK in Germany. They are responsible for setting, monitoring and evaluating DRG prices. They are responsible for setting,

monitoring and evaluating DRG prices to ensure that the DRG prices are set in a way that best matches the real situation. In addition, the DRG model requires a huge amount of coding work. Therefore, each country has established its own health information system, such as G-DRGs in Germany, GHM in France, HRG in the UK, etc.

3.3 Base Rates

The final price of DRG is: $\text{weight} \times \text{rate}$, so the issue of rate is also the concern of countries, here mainly take the United States as an example. The base rate in the US is made up of two components, the cost of operations and the cost of capital. It is worth noting that the government takes into account the wage index, teaching hospitals or continuing education programmed, the percentage of poor patients, performance evaluation results, additional readmissions, shortened hospital days and unusual transfers when setting rates. The advantage of this is that it makes the rates reflect more than just the cost of care, but more of the true clinical situation^[9]. This is an advancement in healthcare because it reflects that healthcare is not about profit, but about care, human care.

4 Suggestions

In response to the problems identified in this paper, and drawing on international experience, the following recommendations are made here for the implementation of DRG in China.

4.1 Optimizing Management Mechanisms

As a strong agent in the process of healthcare reform, scientific management measures are essential for the effective operation of DRG^[10]. In the face of the huge volume of data, the complexity of coding, the variety of cases and other tedious tasks, professional coders and even specific supervisors are necessary. They are able to supervise the entire data, coding, grouping and entry of cases to ensure the accuracy and authority of the patient data, thus ensuring the scientific and complete implementation of DRG^[11]. In addition, for frontline medical staff, training and assessment of relevant policies should be strengthened, so that frontline staff have a full understanding of the DRG model. This can be done by inviting experts in the relevant fields to give lectures to improve the knowledge base of the entire medical team, create a good atmosphere for learning about DRG, strengthen the cohesion of the entire medical team, and guide each department to take the initiative to cater for the DRG reform and jointly promote the implementation of the DRG model.

4.2 Grouping Design Should Closely Match the Clinical Situation

Improve the grouping design to closely match the real clinical situation and fully consider the situation of unenrolled cases by the following methods: Expand the core DRG grouping based on ICD-10 and ICD-9, continuously optimize the grouping rules,

exhaust the number of cases as much as possible, and reject the emergence of case islands. Set up another grouping for unenrolled cases on top of the original DRG grouping. Tentatively called MDRG (Missing DRG), the rate method of DRG grouping should still be used, and the average cost of MDRG should be calculated to obtain the weight of MDRG and determine its payment criteria to ensure that every case will be paid by the health insurance fund ^[1]. In addition, grouping codes should be optimized to refine the price classification of consumables, and operations for bilateral surgery should be clearly identified to prevent the problem of more operations, more patient suffering, and excessive price differences for the same diagnosis. Finally, the rules for calculating the number of case mixes (CMI) should be optimised by adding other comprehensive indicators and not using the total weight as the only reference criterion to prevent hospitals from being more biased towards admitting patients with serious illnesses and neglecting patients with common diseases.

4.3 Performance Appraisal Mechanism

Performance appraisals should truly reflect the value of medical staff's knowledge and reward those who improve their performance by improving their services and skills ^[1]. At the same time, the relationship between DRG payments and discipline development and technological innovation should be handled well. The initial cost may be higher than the established "weighting", but later it may result in a technological "monopoly" and excessive profits. For example, for some difficult technologies, due to vested interests, the technology master may "monopolise" the technology, thus keeping the weighting higher for a long time, but the technology is not significantly improved; while for some diseases, the weighting is reduced, we should consider whether there is a reduction in the cost of drugs, tests. The reduction in the weighting of some conditions should take into account whether there is a reduction in the cost of medicines, tests or policies. In addition, patient experience should be included in the assessment, but not simply as a measure of satisfaction, but as a comprehensive and objective evaluation of the patient's perception of the medical environment, technological improvements, payment costs, patient-doctor communication and best efforts to promote growth.

4.4 Establishing A Technology Compensation Mechanism

The health insurance reform should not only take into account the health insurance fund to the payment standard, but also take into full consideration the medical technology to innovation, forming a good environment for both to promote each other. Reference can be made to the international temporary payment compensation and risk sharing mechanism ^[12]. To the original amount of the health insurance fund, increase the amount in addition to the amount paid by the DRG grouping and expand the payment criteria. At the same time, the excess amount is included in the rates calculated for the coming year, giving more freedom of amount to the medical institution. Technological innovation can also be included in the total weighting of hospitals as an indicator of total hospital output, as a way to increase the number of cases in the hospital's case mix (CMI) and to improve the hospital's overall diagnosis and treatment indicators. At the same time,

if the actual cost exceeds the DRG payment standard, the cost of medical treatment for the new technology can be measured in the same way, and trade-offs can be made by comparing the direct price difference between the new technology and the original technology. If the cost of the new technology is lower than the original technology, the actual payment standard is based on the cost standard of the new technology as a way to reduce the actual cost to the hospital and reduce the additional payment. This allows the additional increase in the health insurance fund to form a community with the actual costs paid, sharing the cost risk. By establishing this mechanism, the aim is to incentivize medical institutions to innovate and promote progress in the medical field.

5 Conclusion

DRG groups patients into different disease diagnostic groups according to the homogeneity of the disease and the clinic and the similarity of the consumed resources. It is essentially a case combination scheme, which aims to control the expenditure of health insurance funds and reduce the waste of medical resources through group payment. However, in the process of DRG implementation, it was found that the accuracy of the grouping coding data could not be guaranteed, the rules for grouping differed from the clinical reality, the interests of hospitals were not fully taken into account, and it could also create barriers to the generation of new technologies. Therefore, when exercising DRG, we should develop better management mechanisms to monitor the coding of data, adapt to the ever-changing clinical situation, and take into account the interests of the hospital as well as those of the patient. It should also include the exploration of new technologies. Finally, the author would like to say that the DRG model will never be the end of healthcare reform, the reality of the healthcare situation is always changing. The DRG model should be used as a basis for exploring a healthcare model that is adapted to the country and to the current state of healthcare in society as a whole, so that every citizen can enjoy the right to good healthcare.

References

1. Guterman S, Altman S H, Young D A. Hospitals' financial performance in the first five years of PPS[J]. *Health Affairs*, 1990, 9(1): 125-134.
2. Xiong Man. A study on promoting DRG payment reform in Chongqing public hospitals [D]. Chongqing Medical University
3. Huang Pei, Lu Xiaojie. A study on the influencing factors and intervention strategies of DRG implementation in public hospitals - based on multiple goal equilibrium/negotiation theory[J]. *Health Economics Research*, 2020, 37(07): 10-13. DOI:10.14055/j.cnki.33-1056/f.2020.07.003.
4. Feng Haihuan, Yang Fang, Li Jiabin, Teng Shiwei, Sun Lin. Study on the application of disease diagnosis-related groups (DRGs) in payment for special diseases in outpatient oncology[J]. *China Health Policy Research*, 2018, 11(05): 65-69.
5. Meng Jiejie, Zhang Yuang, Zhang Xuxiao, Liu Manqi, Tian Mengyuan. Implications of international comparison of DRG payments for China's practice[J]. *Modern Hospital*, 2021, 21(08): 1149-1152.

6. DAVID M C, CLELLAN MARK M C. The Determinations of Technological Change in Heart Attack Treatment[J]. Quarterly Journal of Economics, 1996, 108(4): 1-30.
7. Wu Jing, Dong Xinyue, Zhao Boya. Payment policies and insights of high-value innovative medical technologies under DRG in the United States[J]. China Medical Insurance, 2022(06): 118-124. DOI:10.19546/j.issn.1674-3830.2022.6.025.
8. Feng Shuai, Shi Luwen. Foreign DRGs price setting process and inspiration for China's per-patient pricing[J]. China Pharmacy, 2012, 23(18): 1638-1641.
9. Wang Haiyin, Zhou Jiahui, Fang Liang, Peng Ying, Jin Chunlin. The evolution of DRGs development, payment characteristics and inspiration for China in the United States[J]. China Health Quality Management, 2018, 25(06): 25-27. DOI:10.13912/j.cnki.chqm.2018.25.6.09.
10. Feng Haihuan, Yang Fang, Li Jiabin, Teng Shiwei, Sun Lin. Study on the application of disease diagnosis-related groups (DRGs) in payment for special diseases in outpatient oncology[J]. China Health Policy Research, 2018, 11(05): 65-69.
11. Dong Qian, Chen Jinbiao, Chen Hu, Fang Cultivation. Current status of domestic development of DRGs and policy recommendations[J]. China Health Quality Management, 2018, 25(02): 1-4. DOI:10.13912/j.cnki.chqm.2018.25.2.01.
12. Zheng Daxi. Cost-accounting-based compensation mechanism reform in public hospitals--the U.S. experience and implications for China[J]. China Health Policy Research, 2014, 7(07): 56-62.

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