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REVIEW ARTICLE

Operation strategies of the supplier, demander, and third party under the DRG/DIP reform

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ABSTRACT

In this study, we analyze the operation strategies of the supplier, demander, and third party involved in the current process of China's health insurance reform. Specifically, we summarize the relevant literature on the reform of healthcare insurance both in China and abroad, explore the current changes in healthcare policy, and identify the main problems in the current diagnosis-related group/diagnosis-intervention packet (DRG/DIP) payment method reform. Based on our analysis, we propose strategies that can satisfy the needs of the supplier, demand side, and third parties and offer valuable suggestions to enhance the healthcare security system and promote the DRG/DIP payment method reform.

Key words: diagnosis-related group, diagnosis-intervention packet, operation strategy

INTRODUCTION

Since the official announcement of "Opinions of the Communist Party of China (CPC) Central Committee and the State Council on Deepening Healthcare System Reform" in 2009, China has witnessed rapid developments in its healthcare sector, with gradual improvements in the service capabilities of healthcare institutions as well as basic healthcare services and facilities. However, owing to the late start of China's healthcare undertakings, the implementation process is still hampered by various problems, such as unreasonable healthcare allocation, severe resource wastage, and unclear delineation of rights and responsibilities among healthcare providers, insurance providers, and patients. In 2015, the State Council issued the "Guiding Opinions on the Pilot Comprehensive Reform of Urban Public Hospitals," which proposed the diagnosis-related group (DRG) approach and further deepened the reform of health insurance payment methods. Although the DRG/diagnosis-intervention packet (DIP) reform has been fully implemented, it still faces several challenges. Therefore, it is necessary to further explore the operation strategies of the supplier, demander, and third party under the DRG/DIP reform to promote a high-quality development of China's healthcare sector.

DEFINITIONS OF CONCEPTS

Diagnosis-related group

The DRG system is a method used to compare the quality of healthcare services provided by a healthcare institution.[1] In recent years, the DRG system has gradually gained prominence in the field of health insurance payment due to its superior risk adjustment function. It introduces the idea of risk adjustment to generate several "case mixes," in which different weights are assigned to different groups to reflect the characteristics of each group.[2] This is especially useful when the differences among case types are small during clinical diagnosis and treatment, which can hinder the direct comparison of case severity. Using the DRG system, cases with similar clinical processes or resource consumption can be grouped into the same category for comparison, which effectively circumvents the problem of large discrepancies in the number and types of

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patients admitted to healthcare institutions of different levels.[3] This health insurance payment method further contributes to a standardized, systematic, and scientific level of management services, thereby achieving the ultimate goal of ensuring a win-win-win situation for healthcare providers, insurance providers, and patients. In general, we do not add an "s" when discussing the design and management within the DRG system, but when discussing the specific groups, an "s" should be added to denote the plural form, that is, "DRGs."

Diagnosis-intervention packet

DIP is a diagnosis-based payment method based on big data that encompasses diagnosis-based payment and global budget management. It aims to enhance the initiative of healthcare service providers by implementing a regional point-based global budget, thereby controlling the regional global budget within a reasonable level, "loosening" the restrictions on hospitals to some extent, and setting the improvement of healthcare service standards as its own goal.[4] This approach also introduces a competitive mechanism that encourages healthcare service providers to provide patients with better services and to establish a comprehensive hospital management system, so as to obtain higher health insurance payments.[5] Compared with DRGs, DIP offers the advantage of simpler data requirements while also fully leveraging the key role of DRGs and better complying with China's current level of healthcare security. DIP is based on the analysis and processing of big data, which can facilitate the supervision and assessment by third parties and significantly enhance the service quality provided by the supplier.[6] Naturally, the two health insurance payment methods, DIP and DRGs, are not mutually exclusive, and both can be applied simultaneously in China's existing health insurance payment system, ultimately achieving a health insurance payment method in line with China's national conditions.

Operation strategies

"Operation strategies" refer to the action plans and collaborative mechanisms established to achieve predefined goals as well as the collection of means, resources, and solutions adopted to achieve goals within a given cycle.[7] Since any entity goes through different developmental stages during its life cycle, operation strategies that are consistent with actual conditions should be determined based on those stages to maximize social benefits. To do so, we need to identify the operation strategies capable of meeting the needs of healthcare institutions at different levels so that we can optimize the structure and layout of existing healthcare resources, thereby achieving the ultimate goal of deepening healthcare reform.

Supplier, demander, and third party

The supplier refers to healthcare service providers, namely healthcare professionals and institutions. The supplier provides the demander with various healthcare services, such as epidemic prevention, maternal and child healthcare, health education, and so on. The demander refers to the insured and beneficiary populations, who are also the recipients of healthcare services. The demander must pay some amount of healthcare expenses when receiving treatment. The third party refers to the health insurance policy-makers, who are required to fulfill supervisory and administrative functions. The third party also acts as a protector of the supplier's interests and pays the supplier a certain amount of expenses for healthcare services.

LITERATURE REVIEW ON HEALTH INSURANCE PAYMENT REFORM

Current research worldwide

In recent years, many countries have accelerated the reform of their healthcare systems to control the share of healthcare costs in national fiscal expenditures and have explored the options for health insurance payments tailored to their actual national conditions. During the reform of health insurance payment methods, these countries have also gradually improved their healthcare service standards and effectively safeguarded patient rights and interests in healthcare.[8] Currently, more than 40 countries have adopted the DRG health insurance payment method, while only a handful of countries are still using the fee-for-service (FFS), global budget, per-diem-payment, or capitation payment methods. Among them, the health insurance payment reforms in the USA and Germany have achieved significant results and can serve as a useful reference for China's health system reform.

The USA is a pioneer in the establishment of health security systems and has achieved a series of remarkable results since undertaking the reform of its payment system in the 1950s. After two to three decades of exploration, the DRGs-prospective payment system (PPS) and the sixth version of DRGs were eventually established [9]. This system has successfully achieved its expected goals by effectively curbing the continuous upward trend of healthcare costs.

Germany is a country with a relatively robust social security system. Owing to organizational, regional, and other factors, a German DRG (G-DRG) payment method for patient hospitalization costs has been established since 2003, which is different from that of most European countries.[10] The G-DRG payment method enables the rational allocation of financial resources in hospitals and improves the utilization rate

of healthcare resources. Hospital outpatient and inpatient fees are paid separately. Specifically, the payment of outpatient fees involves two steps. First, the third-party health insurance provider pays the physician association a certain amount on a per-patient basis. Next, the physician association pays the outpatient physicians according to the service points method.[11] This system can safeguard the level of healthcare while also minimizing unnecessary healthcare spending, such that Germany's healthcare costs are only about half those of the USA. This DRG-based health insurance payment method not only effectively curbs the surge in national healthcare costs, but also has a profound impact on the reform of global healthcare payment methods.

Current research in China

The continuous population aging and constant advancement of medical science and technology have led to the prevalent global phenomenon of rising healthcare costs. Likewise, China has also encountered the social problem of "poverty due to illness, and return to poverty due to illness" on the demand side.[12] The traditional FFS method can limit the profits earned by providers to some extent, causing many physicians to subtly increase patients' treatment fees to improve performance. Within this context, it is necessary for China to explore and identify a set of scientific and effective healthcare payment methods based on the characteristics of its system and reform its healthcare system in response to the changing times.

China began reforming its healthcare payment methods in the 1990s. Given the actual conditions of China's healthcare institutions, the pilot projects were mainly concentrated in major cities.[13] The new payment methods introduced at that time included global budgets, DRGs, and case-based or per-diem fixed payments. Although these reforms reduced the unit costs to some extent, they did not fundamentally alter the continuously rising healthcare costs in China.[14] Given this, China has continued to reform its payment methods ever since. In 2003, the New Rural Cooperative Medical System was implemented, and the medical subsidies continued to increase. This system minimized the patient's medical burden, improved the ability of rural residents to cope with diseases, and effectively enhanced patient initiative in seeking medical treatment.

China has adopted corresponding measures based on the actual circumstances of hospitals. Since 2019, the National Healthcare Security Administration has initiated DRG-based payment pilot projects (i.e., China Healthcare Security (CHS)-DRG-based payment pilot projects) in more than 30 cities. In 2020, the Administration launched a regional point-based global budget and DIP pilot projects in 71 cities.[15] As of the end of 2021, 101 cities have entered the actual payment stage and have essentially achieved the expected results. To further deepen the reform, the pilot cities for DRG-based payment pilot projects were divided into eight regions, and two to four experts were assigned to each city to guide and promote reform throughout the process. These reforms did not happen overnight and gave rise to several problems, such as the non-adoption of CHS-DRG, poor matching of the CHS-DRG core grouping scheme, non-uniform data standards, excessively large number of groups, insufficient number of cases within groups, and so on.

In 2022, China began implementing the three-year action plan for DRG/DIP payment method reform, which is expected to be completed by 2024.[16] At present, more than 200 regions across the country are promoting the DRG/DIP payment system reform of hospitalization costs. Bundling and paying by diagnosis groups allows the price to be transparent, which better safeguards the basic needs of the insured population.[17] Notably, the payment method is the bridge between healthcare and health insurance. Thus, the interests of healthcare service providers, insured populations, and third-party institutions must be guaranteed during the implementation of payment method reform. To achieve the value objectives of the three parties, an effective payment method that conforms to social interests should be determined. However, problems such as the unreasonable rise in healthcare costs, low healthcare service efficiency, and poor healthcare quality remain prominent. Furthermore, payment method reform inevitably leads to the reallocation of interests, and the main stakeholders involved include health insurance agencies, healthcare providers, insured patients, governmental departments, and pharmaceutical companies, each of whom has different, even conflicting, interests and needs.[18] Therefore, if the basic interests and needs of these five parties are not properly coordinated, it will be impossible to coordinate, integrate, or promote the reform of health insurance payment methods.

PROBLEMS ENCOUNTERED BY THE SUPPLIER, DEMANDER, AND THIRD PARTY UNDER THE DRG/DIP REFORM

The reform of health insurance payment methods should be examined from the perspectives of the supplier, demander, and third party. The supplier (*i.e.*, healthcare providers) provides the demander (*i.e.*, insured population) with services. Additionally, the insured population pays a certain amount of fees to the healthcare institutions and also pays the third party a certain amount of premiums, while the third party manages the health insurance fund and supervises the healthcare institutions.

Discrepancies in the objectives of the supplier, demander, and third party

The supplier (*i.e.*, the healthcare providers) and the demander (*i.e.*, insured and beneficiary people) are the core stakeholders of the healthcare payment system, and hence must promptly modify their attitudes toward providing or seeking healthcare according to the major trends in payment method reform. The third party includes stakeholders directly related to the reform of health insurance payment methods as well as health insurance agencies and professional third-party technical service providers. In this context, to prevent the supplier from inducing patients to receive unreasonable diagnoses and treatments in pursuit of more profitable service items, it is necessary not only to provide the supplier with financial support but also to strengthen third-party supervision.[19] Additionally, reasonable healthcare services can only be achieved through the joint efforts of all three parties, thereby improving the healthcare of the population. However, healthcare institutions must consider the salary costs of internal healthcare professionals and create greater revenue value through healthcare services. When seeking medical treatment, patients tend to emphasize the "price-performance ratio" of healthcare services and will attempt to obtain the best healthcare services at the lowest price. In addition, health insurance agencies provide financial support to healthcare providers on behalf of health insurance financing parties and supervise the use of health insurance funds to guide healthcare providers toward providing reasonable healthcare services to insured patients. Based on the above discussion, there are discrepancies in the objectives of the three parties in the process of payment method reform.

Large variations in disease types can hinder global budget formulation

Owing to the gradual increase in the types of diseases, more investment is needed in the classification of disease types, which is not conducive to the subsequent classification and management of patients by hospitals.[20] Based on such classifications, hospitals carry out strict selection of patients and adopt a negative medical attitude toward patients with more serious conditions. Hospitals may also exaggerate the difficulty of treatments and classify patients as having severe diseases to obtain greater profits. The formulation of a global budget is dependent on data about patient disease severity and total healthcare costs. These data then need to be sorted, compiled, and summarized to produce the corresponding global budget. In this context, data incompleteness or excessive payment basis classifications can easily lead to the formulation of an unreasonable global budget. A global budget that is insufficient can lower the desire of patients to seek medical treatment, which goes against the original purpose of improving the population's healthcare standards. Conversely, a global budget that is too high will increase the profits earned by the supplier, and hence the share of overall healthcare costs in fiscal expenditures. Nevertheless, neither scenario will improve healthcare services for the population in the long run.

Strict reform approaches hinder the coordination of stakeholder entities

China's reform of healthcare payment methods has been implemented in a bottom-up manner. In particular, the supplier, demander, and third party are not actively involved in the policy-making process, while health insurance agencies and healthcare providers generally carry out consultations rather than negotiations as equals. Therefore, various stakeholder entities tend to passively accept the relevant policies and guidelines, which decrease the initiative of all parties to express their needs and their subsequent level of involvement.[21] Furthermore, China is faced with even more severe population aging with an even larger population base. This adds yet another challenge to the reform, as population aging and the current population base need to be considered, and the three parties need to be given adequate time to adjust. According to the experiences of other countries in health insurance payment reform, comprehensive reforms need to be carried out in stages.

OPERATION STRATEGIES

Suppliers' rational use of tiered diagnosis and treatment to improve overall service capabilities

Within the context of the DRG/DIP reform, competition among healthcare providers has further intensified, prompting hospitals to rapidly improve their healthcare service quality. Over time, hospital service standards will reach the upper limit of its current development; hence, the supplier should clarify its positioning and promptly improve its medical technology and talent quality. The supplier should also rationally utilize the advantages of tiered diagnosis and treatment to triage different types of patients promptly to obtain a higher level of diagnosis and treatment expenses. In addition, healthcare providers should further improve the level of healthcare quality management and promote the continuous improvement of hospital record-keeping quality. Moreover, internal healthcare resources should undergo adjustment and optimization to improve the hospital's overall service capabilities, supporting healthcare facilities should be continuously improved, dynamic management mechanisms should be enhanced, and the threshold for involving the demander and third party in supervision should be lowered. Furthermore, the relationship

between healthcare providers and patients should be improved, and the overall competitiveness of hospitals should be continuously enhanced.

Demanders' proper supervision to enhance healthcare experience

The demander's knowledge of the DRG/DIP reform can be strengthened through various publicity channels, and a more proactive attitude should be adopted to facilitate their adaptation to the changes brought about by the new healthcare payment methods. Various information platforms can be utilized to communicate and interact with healthcare providers promptly to improve patients' satisfaction and understanding.[22] Further, the current information asymmetry between the supplier and demander should be improved, which will allow the demander to select suitable treatment options and also enhance their trust in healthcare professionals and their experiences in seeking medical treatment. In particular, patients requiring long-term treatment should establish long-term relationships with the supplier, which will reduce the occurrence of medical malpractice and enable the demander to exert incentivizing and constraining effects on the supplier.

Third parties' enhanced policy guidance to improve hospital work efficiency

As health insurance policymakers, the third party should promptly identify problems that arise in the process of health insurance payment method reform and further improve policymaking.[23] The third party should also conduct adequate supervision and management during policy implementation, perform real-time monitoring of changes in healthcare costs, and encourage healthcare institutions to continuously improve treatment standards. Talent attraction programs should also be implemented to gradually improve the comprehensive competency and individual capabilities of health insurance professionals. In addition, the third party should meticulously and thoroughly carry out the policies and guidelines related to health insurance, thus effectively promoting the successful implementation of the DRG/DIP reform.

CONCLUSION

The DRG/DIP reform will enable healthcare providers to gradually adjust their operation models and comprehensively improve the quality of their medical records.[24] It can help physicians forge professional ethics centered on beneficence, better equip them to consider problems from the patient's perspective and encourage them to reduce unreasonable expenses incurred by overdiagnosis and overtreatment by providing rational diagnoses and treatment. Standardizing healthcare behavior can enhance the public's healthcare experience, promote internal reform in hospitals, and improve management. In addition to guaranteeing quality, the payment method reform will significantly mitigate the budget insufficiency faced by various healthcare institutions, while also resolving the conflicts among the supplier, demander, and third party.

Furthermore, the DRG/DIP reform has altered the previous salary allocation method, introduced performance appraisal, and linked patient satisfaction to physicians' year-end performance reviews. Healthcare institutions should also overcome the deficiencies of profit-seeking, establish an evaluation system that rewards greater effort and superior performance, and continue to improve the concern of healthcare professionals for their patients. The DRG/DIP reform has also prompted the state to pay greater attention to the construction of health insurance premium payments, which is the most fundamental part of the healthcare security system, and hence a key component of the new healthcare reform. It will promote the reallocation of healthcare resources, which will inevitably lead to competition among major stakeholders for limited resources, thus necessitating the introduction of relevant policies and regulations by the state. The interests of healthcare providers, insured patients, health insurance agencies, government departments, and pharmaceutical companies should be rationally coordinated and reallocated to maximize the interests of each party, thus promoting the concrete, systematic, and comprehensive reform of health insurance payment methods.

In conclusion, the DRG/DIP payment method reform is conducive to the development of China's healthcare industry and can meet the growing health needs of the population. It can enhance the coordination among different sectors and curb the unreasonable growth of healthcare costs in the process of information sharing. However, the supplier, demander, and third party should be firmly rooted in the overall reform. The next step is to combine the policies and mechanisms of health insurance reform in a timely manner, ultimately establishing a linked reform mechanism and creating a social governance model of health insurance payment methods. This should be followed by the construction of a DRG intelligent supervision information and review platform to continuously optimize the workflow and improve the DRG/DIP reform system.

DECLARATIONS

Conflicts of interest

There is no conflict of interest among the authors.

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