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Medical Insurance Payment Method of Chemotherapy and Radiotherapy for Cancer Outpatients Analysis

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Abstract

By analyzing of payment method of outpatient medical insurance in both policy and practice, this paper summarized the principles of various types of medical insurance payment methods and the characteristics of chemotherapy or radiotherapy for cancers. And then, the prospective payment system was raised for outpatient patients with cancer chemotherapy or radiotherapy by grouping them. Thus, the policy suggestion is put forward accordingly, which provides reference for establishing efficient outpatient payment system mechanism and perfecting multiple and complex medical insurance payment system.

Keywords

Payment System for Ambulatory Patient Groups; Medical Insurance Payment System; Cancer.

1. Introduction

Reform of medical insurance payment methods is a systematic project, in accordance with the Deployment and planning of the State Council and relevant ministries and commissions, the reform of medical insurance payment methods is in full swing, and many places across the country actively carry out pilot work on medical insurance payment methods such as diagnosis-related group payment (DRG) and diagnosis-intervention packet (DIP).However, studies have shown that payment methods such as DRG in hospitalization may lead to the transfer of inpatient expenses to ambulatory[1], If the reform of ambulatory payment methods is not carried out simultaneously, there may be a situation in which inpatient expenses are controlled and outpatient expenses increase, that is, the "mole effect"[2]. Due to aging, the number of malignant tumors and deaths in China increased significantly in 2019 compared with 1990[3]. Radiationtherapy and chemotherapy for malignant tumors has the characteristics of large differences in treatment costs between different treatment options, which are not suitable for existing ambulatory payment methods, and it is necessary to explore appropriate ambulatory payment methods in a targeted manner.

2. Current Situation of Ambulatory Medical Insurance Payment Methods

A single medical insurance payment method has both advantages and obvious shortcomings, and the comprehensive application of multiple payment methods can effectively avoid adverse selection and moral hazard. At present, most of the payment methods of ambulatory medicare in China are payment methods based on fee-for-service (FFS) under the total budget, and some areas have implemented the reform of capitation payment methods. In 2014, Tianjin launched the pilot project of capitation for diabetes according to the total amount per capita and hepatitis C according to the fixed amount per capita, and will fully implement the capitation payment methods of diabetes in 2022. In 2017, Liuzhou implemented capitation payment methods for the ambulatory clinic of basic medical insurance for urban and rural residents. Since 2019, Beijing has carried out a pilot capitation payment method in ambulatory clinic for chronic

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diseases in some community health service institutions, such as diabetes and hypertension. In 2020, Jinhua tried the Ambulatory Patient Groups (APG) point method on the basis of capitation payment methods under the regional total budget for patients that did not sign up.

2.1. Fee-For-Service

Fee-for-service is a post-payment system, and after the occurrence of medical services, the medical insurance fund provides economic compensation to the supplier according to the unit price and quantity of medical services provided, and is still the mainstream payment method for ambulatory clinics in most areas of China. Fee-for-service is really simple to operate and carry out, but unreasonable inducement demand will occur in the medical service market where information on both the supply and demand sides is asymmetrical, and resulting in the waste of medical resources and the increase in medical expenses.

It is necessary to improve the efficiency of the use of medical insurance funds and operate more refined because of the acceleration of China's population aging. The "Opinions on Deepening the Reform of the Medical Security System" published by State council requires that the medical insurance funds must play a strategic purchase role, and it is necessary to promote the high-quality coordinated development of medical security and medical services.

2.2. Capitation

Capitation payment system is a way that packages and prepays all the patients' consultation fees during a certain period, usually in primary medical institutions and health care institutions, most of which are the overall package of primary health care or ambulatory expenses for a certain population in some areas[4-5], but there is also the practice of packing and paying for a certain disease [6]. Determining the compensation standard for each patient in advance can motivate doctors to reduce treatment costs, reduce the induction demand for medical services, and actively control medical expenses. However, another extreme phenomenon may arise, that is, the reduction of necessary services leads to inadequate treatment, thereby harming the health rights of patients.

2.3. Ambulatory Patient Groups

Ambulatory Patient Groups (APG) payment system was first introduced in 1995 for Medicaid health insurance in Iowa, USA. APG is also a case grouping scheme, but the grouping method is based on operation, and the cases are divided into three types of APG groups of surgical operation, internal medicine services and auxiliary services in combination with ambulatory diagnosis, and a wrong group. The clinical resource consumption of cases in the same group is similar, and each group compares the consumption of medical resources by relative weight. The APG prepayment differs from inpatient DRG payments in that an ambulatory diagnosis case can be grouped into multiple APG groups[7]. Since 2020, Jinhua has for the first time fully implemented the ambulatory "APG point method" payment system reform, grouping ambulatory cases through APG, measuring the amount of medical services and paying medical insurance funds according to points.

APG grouping generally covers all types of ambulatory patient, and requires a large number of data resources such as ambulatory medical records in the process of grouping and implementation, and requires standardized ambulatory surgical operation codes, which cannot be met in most areas of China. Implementing the APG prepayment system requires a team of professionals to design, maintain, and update regularly into group specifications, which is a complex and systematic project [8].

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3. Characteristics of the Cost of Radiotherapy and Chemotherapy for Malignant Tumors

Conventional treatment methods for malignant tumors mainly include surgical treatment, interventional therapy, chemotherapy, radiation therapy, thermal perfusion therapy, cellular immunotherapy, end-stage palliative care and so on. And surgical treatment, interventional therapy, thermal perfusion therapy, cellular immunotherapy are generally carried out during hospitalization, and other treatments can be carried out on ambulatory.

3.1. Drug Therapy for Malignant Tumors

Drug therapy for malignant tumors is mainly chemotherapy, also including targeted therapy, immunotherapy and endocrine therapy. Costs vary greatly depending on the chemotherapy regimen and the presence or absence of complications. The reasons include: (1) the price of cancer treatment drugs ranges from tens of yuan to tens of thousands of yuan, and a variety of drugs may be used at the same time, such as "dual-target" treatment programs; (2) according to different treatment regimens, in addition to chemotherapy, targeted therapy, immunotherapy, endocrine therapy, there are joint applications between each other, and the general cost of combination therapy is higher than that of a single treatment; (3) the complications of malignant tumor drug treatment include nausea and vomiting, bone marrow suppression, liver and kidney damage, immunity decline, infection, etc., once complications occur, symptomatic treatment is required, which greatly increases the cost of treatment; (4) the same patient, in the case of unsatisfactory treatment plan, the treatment plan will be adjusted, and different treatment options at different stages will lead to a large difference in treatment costs.

3.2. Radiation Therapy for Malignant Tumors

Radiation therapy is divided into extracorporeal irradiation and intracorporeal irradiation according to the radiation distance, extracorporeal irradiation is the use of protons, neutrons or heavy ions for radiation therapy, while in intracorporeal irradiation is with the help of endogenous instruments, so that radioactive materials close to the tumor, to achieve a better radiotherapy effect. According to radiotherapy technology, including general radiotherapy, three-dimensional conformal radiation therapy, conformal intensity-modulated radiation therapy, graphic-guided radiotherapy, etc., the cost of each course of treatment ranges from several thousand yuan to more than 100,000 yuan, and the cost of more advanced radiotherapy technology is correspondingly higher. Radiation therapy is generally charged by per visit, and there are differences in the length of radiation therapy courses depending on the individual characteristics of the patient and the condition of the tumor itself, so there are also differences in the cost of treatment using the same radiotherapy technique.

4. Prepaid Groups by Treatment Plan

Through the combing of ambulatory medical insurance payment methods and the summary of the characteristics of malignant tumor chemotherapy and radiation therapy, it can be found that there are several difficulties in the implementation of the current medical insurance payment method for ambulatory radiotherapy and chemotherapy of malignant tumors: (1) it is necessary to avoid or reduce the use of the Fee-for-service payment method as much as possible, and in most cases, package payment can be carried out; (2) malignant tumor diagnosis and treatment is difficult and the average cost is high, so it is not suitable for the capitation which suitable for primary medical institutions ; (3) unlike chronic diseases such as diabetes that require continuous medication and the frequency of treatment plan adjustment is low, the treatment cycle adjustment of malignant tumor treatment plans will be more frequent,

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resulting in large changes in costs, and it is not suitable for ambulatories to pay by personnel; (4) it is impossible to distinguish the huge difference in costs between different treatment plans for malignant tumors by relying only on disease diagnosis and surgical operations, and the current situation of ambulatory medical records and related information in most parts of China cannot meet the implementation of the APG prepaid method.

Although patients do not have complete ambulatory medical records to record the surgical procedure in ambulatory radiotherapy and chemotherapy, there are records of outpatient diagnosis, treatment plan, patient age, treatment for complication comorbidities etc. so grouping prepayment of outpatient chemotherapy and radiotherapy cases of malignant tumors according to outpatient diagnosis and treatment plan is a transitional scheme that can be implemented at present. The specific grouping method should refer to the APG prepayment system and inpatient DIP payment, first of all, according to the outpatient diagnosis and treatment plan, complication comorbidities. Then, based on historical data, big data cluster statistical analysis is performed, and groups with the same diagnosis or the same treatment plan and similar cost of diagnosis and treatment are combined. Finally, the relative weights of each group are calculated based on historical cost data. According to the relative weight, the ambulatory cases of radiotherapy and chemotherapy for malignant tumors are paid by bundled payment.

5. Discussions and Suggestions

The reform of medical insurance payment system is an important part of deepening medical reform, which can leverage the reform of medical service models, optimize the allocation of medical resources, and reduce the economic burden of patients' diseases. At present, the national medical insurance bureau focuses on promoting the reform of inpatient medical insurance payment methods, and the National Medical Insurance Bureau's "Three-year Action Plan for the Reform of DRG/DIP Payment Methods" makes it clear that by the end of 2025, DRG or DIP payment methods will cover all eligible medical institutions that carry out inpatient services, and basically achieve full coverage of disease types and medical insurance funds. In order to prevent and control the "mole effect", the next step will focus on promoting the reform of ambulatory medical insurance payment system. Combine the ambulatory medical insurance policies of various regions, the characteristics of specific disease costs, and the basic data conditions to select the appropriate ambulatory payment method. According to the above analysis, it can be seen that the prepayment of medical insurance radiotherapy and chemotherapy for malignant tumors according to the treatment plan group will be a feasible and reliable payment method at this stage, but the effectiveness of the grouping method needs to be further evaluated and studied according to historical data.

The reform of ambulatory medical insurance payment system also requires the introduction of a sound payment policy, combined with the total amount of medical insurance fund management measures such as the total budget of the point method, the establishment of a smooth consultation and negotiation mechanism between the medical insurance department, the health department and the medical institutions, the establishment of dynamic adjustment, optimization and updating mechanism, and the improvement of the corresponding quality assessment mechanism and other supporting measures, and finally achieve a win-win situation between medical insurance, medical institutions and patients.

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