

## *Practices and Effectiveness on Payment System Reform for Rural Medical Inpatient Services in Henan Province*

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**Abstract:** The purpose of this study is to evaluate practices and effects of provider payment system reform of Henan province, China, which is composed of case-based payment for inpatients. Data for the study were obtained from the initial pilot hospital, the People's Hospital of Yiyang County, from 2010 to 2013. Compared with the previous payment intervention in 2011, the hospital built a new case-based payment system for inpatients progressively, which replaced the original fee for service payment. As of 2013, the new payment included 188 diseases, and covered more than 72% inpatients and hospitalization expenditure. The proportion of drug use and antibiotic usage continue to decrease, and the singular disease prices decided by negotiate would affect average hospitalization expenditure and so on. These findings demonstrated both significant achievements and further efforts to be made to strengthen China's rural medical service payment reform and enhance their effect.

### 1. INTRODUCTION

For the past three decades in rural China, fee-for-service payment mechanism and the drug markup policy have created financial incentives for both hospitals and doctors to overprescribe medicine and to provide inappropriate services (Wang H etc., 2011, Zhou X etc., 2012). The case-based payment method was most commonly used in Chinese provider payment experiments for inpatient services (Meng Q etc., 2010), different from DRGs payment, case-based payment rates were set for each disease on the basis of its International Classification of Diseases code. A prospective case-based payment system was used in some reform experiments, whereby hospitals were paid a fixed price per admission irrespective of the actual expenditure incurred. Prospective payment methods provide incentives for hospitals to improve efficiency since they can retain the savings. Since patient's group standard different from DRGs payment, case-based payment cannot cover totality patients like DRGs payment. Hospitals view case-based payment as experiment, and the number of disease and patient group is just a few number, which limited the case-based payment coverage of inpatient, results unclear and persuasive evidence effect of reforms (Yip W-CM etc., 2010). Effectiveness of case-based payment definitely link with number of singular disease and actually patient groups (Millwee B etc., 2013).

### 2. METHODS

**Intervention:** Henan reform practice's intervention is a prospective case-based payment system for rural inpatient service in county hospital, which with charges

based on the singular disease categories, that the hospitalized patients of the same disease are divided into three groups (three sub-groups of a singular disease) i.e. Group A (basic diagnosis group), Group B (severe diagnosis group), and Group C (critical group, or group of complicated complications), for treatment and management. The expenditures for each group of patients are paid based on the standard determined in the negotiation within the controlled proportion, and can basically cover all types of patients of one singular disease, which avoid variations and patient exclusion. The payment method by grouping and classification differs from the traditional disease-type-based charging system, and is a new practice of case-based payment system in China (Wu J etc., 2012).

The reform begins from June 2011 in Yiyang County, and selected the People's Hospital of Yiyang County as initial pilot. Before the reform, there were 40 disease categories as traditional disease-type-based charging system in the hospital, and since "high variation, low inclusion" by service provider, the traditional case-based payment covered few inpatients, and almost not work at all. The number of singular disease of new case-based payment system increased three steps from 2011, first step, 55 disease categories at the beginning of the reform on June 2011, second step, adds to 122 disease categories on April 2012, and then third step, adds to 188 disease categories on July 2012.

**Data collection:** Data for the study were obtained from the initial pilot hospital, the People's Hospital of Yiyang County, from Nov 2010 to Dec 2013. Data were collected monthly, and indicators includes hospital totality revenue, hospitalization expenditure, hospitalization drug expenditure, discharged patient number, new payment managed inpatient number, new payment managed inpatient hospitalization expenditure, new payment managed inpatient drug expenditure,

antibiotic usage case number of new payment managed inpatient and so on.

**Analysis:** This study calculated following indicators, including Average Hospitalization Expenses, New Payment Managed Inpatient Ratio, New Payment Managed Hospitalization Expenditure Ratio, Average Hospitalization Expenses of New Payment Managed Inpatient, Hospitalization Average Drug Expenditure Ratio, New Payment Managed Inpatient Drug Expenditure Ratio, and New Payment Managed Inpatient's Antibiotics Usage Rate, then analysis the

effectiveness of reform by following these indicators' trend.

### 3. RESULTS

Based on the analysis of the effectiveness indicators' trend, the effectiveness indicator trends show several main results of the payment reform practice.

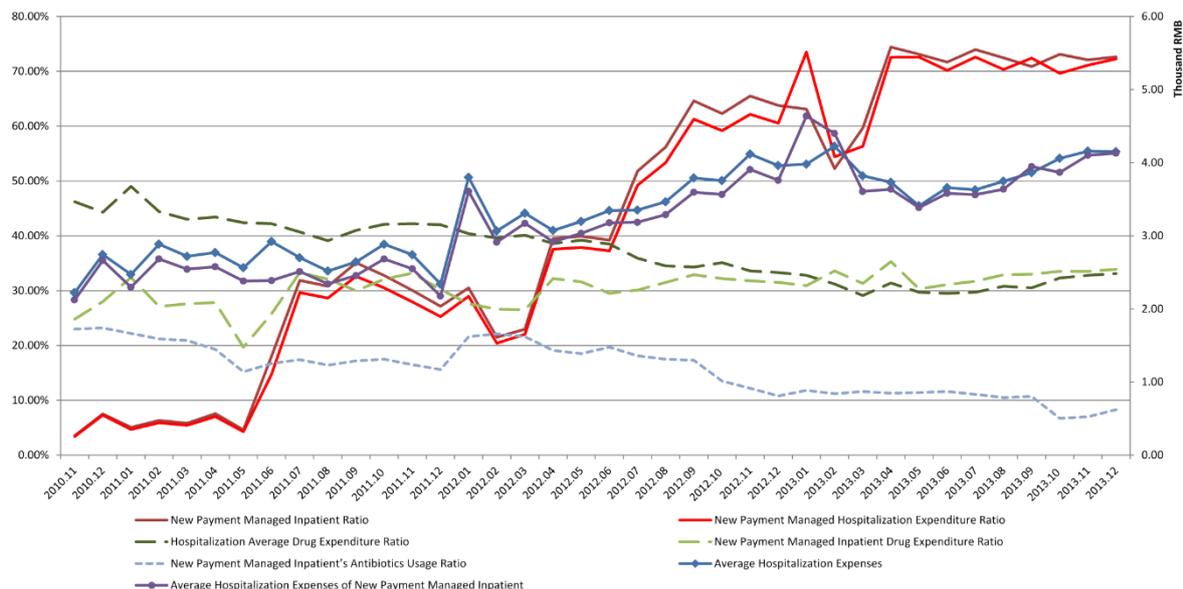


Figure 1 The analysis of the effectiveness indicators' trend

Yiyang people's hospital new payment's singular disease number include to 188 singular diseases by three steps. Conserving every disease has three sub-groups, the actual total inpatient groups was to be 564 groups from July 2012. The intervention of reform could also be view as three steps with the increase of singular disease number. Figure1 shows new payment inpatient and expenditure coverage became 30% when there were 55 singular disease, nearly 40% when 123 disease, and on the end of 2013, covered 72% (72.62% inpatients and 72.26% hospitalization expenditure). Compared after reform intervention, traditional case-based payment just covered less than 8% inpatients and hospitalization expenditure.

The average hospitalization expenditure of new payment managed inpatients is lower than the average hospitalization expenditure of totality inpatients. Both of them show the same trend, which have a huge increase after Jan 2012, and then slow rose.

Drug expenditure of totality inpatients continue decrease and drug expenditure of new payment managed inpatients lower than totality inpatients before reform, and regress to average level progressively by increase of number of inpatient groups, the latest level of both of them, was to be less than 35%. New payment managed inpatients' antibiotics usage rate show continuous decrease, and has come to be less than 10% on the last three months of 2013.

### 4. DISCUSSION

The report and analysis of inpatient coverage of case-based payment in experiment or reform is few in China, and reported experiment coverage are usually less than 20% of totality inpatient (Chen D,2009). Coverage of Yiyang new payment could be the main achievement of the reform practice. Based on coverage of the new payment, the change of expenditure, average expenditure, drug expenditure and antibiotics usage could be view as the result of case-based payment incentives.

The average expenditure change could more correlative the price negotiation between hospital and insurance management authority (County NCMS Management Office), and negotiated priced would implement on Jan every year, which also affect years' average hospitalization expenditure of new payment managed patients and totality patients.

### 5. CONCLUSIONS

The study followed the main effectiveness indicators' trend of Henan Yiyang people's hospital payment reform practice. Henan case-based payment system by sub-grouping singular disease inpatient, solve the problem of "high variation, low inclusion" under the disease-type-based charging system, and made new

incentive affecting provider's behavior, which decreased the inappropriate medicine service and drug usage (Yaojun Z etc., 2012).

Yiyang people's hospital is one initial pilot of Henan payment reform, which has separated to 46 counties (about 1/3 counties and districts of Henan province), and the study will continue to follow the Henan payment reform to contribute new evidence of China's payment reform knowledge.

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