Pathways to DRG-based hospital payment systems in Japan, Korea, and Thailand

Peter Leslie Annear [a], Soonman Kwon [b,*], Luca Lorenzoni [c], Stephen Duckett [d], Dale Huntington [e], John C. Langenbrunner [f], Yuki Murakami [c], Changwoo Shon [b], Ke Xu [g]

[a] Nossal Institute for Global Health, School of Population and Global Health, University of Melbourne, Australia
[b] School of Public Health, Seoul National University, Republic of Korea
[c] OECD, Paris, France
[d] The Grattan Institute, University of Melbourne, Australia
[e] Johnson and Johnson, Singapore
[f] Consultant, USA
[g] World Health Organization, Geneva, Switzerland

A R T I C L E   I N F O

A B S T R A C T

Countries in Asia are working towards achieving universal health coverage while ensuring improved quality of care. One element is controlling hospital costs through payment reforms. In this paper we review experiences in using Diagnosis Related Groups (DRG) based hospital payments in three Asian countries and ask if there is an Äsian way to DRGs̈. We focus first on technical issues and follow with a discussion of implementation challenges and policy questions. We reviewed the literature and worked as an expert team to investigate existing documentation from Japan, Republic of Korea, and Thailand. We reviewed the design of case-based payment systems, their experience with implementation, evidence about impact on service delivery, and lessons drawn for the Asian region. We found that countries must first establish adequate infrastructure, human resource capacity and information management systems. Capping of volumes and prices is sometimes essential along with a high degree of hospital autonomy. Rather than introduce a complete classification system in one stroke, these countries have phased in DRGs, in some cases with hospitals volunteering to participate as a first step (Korea), and in others using a blend of different units for hospital payment, including length of stay, and fee-for-service (Japan). Case-based payment systems are not a panacea. Their value is dependent on their design and implementation and the capacity of the health system.

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1. Introduction

Many countries in Asia have introduced, piloted or are now considering the introduction of case-based payment mechanisms, including Diagnosis-Related Groups (DRGs), with a view to increasing efficiency in hospital funding. In most Asian countries hospital funding is based on pre-existing fee-for-service (FFS) methods or, in the case of public hospitals, line-item budgeting [1]. The FFS methods often encourage an oversupply of services in order to increase utilization and revenue; fixed capitation payment systems can have the perverse effect of reducing inputs in order to reduce costs below the capitation level; and line-item budgeting may encourage rigid-ity, low productivity and low responsiveness in service delivery. Moving towards universal health coverage requires that hospitals are efficient and that out-of-pocket payments for hospital services are constrained [2,3,4]. To improve both allocative and technical efficiency, managing hospital costs is critical in both high-income and in low- and middle-income countries (LMICs).

Diagnosis-Related Groups (DRGs) are one example of case-based or activity-based funding (ABF) arrangements [5]. DRG-based payment systems adopt a standard pricing framework that provides equity in payments across health-care providers for services of the same kind. DRGs, therefore, provide a technical means for achieving more efficient management and financing of public and/or private hospital services and are often linked both with social health insurance and with government funding mechanisms. However, careful implementation is required as planners are often faced with unintended consequences they did not anticipate [6]. In

this paper we focus on two important though distinct aspects of this question. First, we discuss relevant technical issues; we then follow with a discussion of policy questions and implementation challenges.

Developed initially in the United States in the 1980s [7], DRGs have increasingly been used for hospital funding internationally. As yet, however, there is only limited published documentation of this experience in Asia. Based on a review of LMICs, Mathauer and Wittenbaecher [8,9] concluded that DRG payment systems apply principally to hospitals, both public and private, that have a degree of management autonomy. The authors reviewed DRG-based case payment as a case-mix payment mechanism, which in most LMICs takes the form of retrospective reimbursement of costs while some countries apply DRG case-mix adjusted prospective budget allocation. A budget ceiling generally applies, and DRG base rate values commonly reflect the funding available.

2. Methods

This paper draws from the book *Case-based payment systems for hospital funding in Asia: an investigation of current status and future directions* published by the Asia Pacific Observatory for Health Systems and Policies in collaboration with the OECD [10]. In this paper we review experiences in developing and using DRGs in three Asian countries – Japan, the Republic of Korea, and Thailand – to distil features that may characterise an 'Asian way to DRGs'.

Based on a review of the published and grey literature on the use of case-based payment systems in Asia, the authors worked together as an expert team to review existing documentation and investigate a number of examples of case-based and DRG hospital funding systems in Asia and internationally. The team reviewed the current state of knowledge about the design of case-based payment systems (including technical issues), the experience with implementation across key Asian countries, evidence about the process of DRG implementation (reflected in certain health system indicators), and the lessons drawn for further development in the Asian region. Each of the authors is an expert in the field with many years of experience working in health financing and the implementation or review of case-based payment systems.

3. Results

In the following sections we discuss first the technical issues in country experiences and then the process of implementation and the policy implications that arise.

3.1. Technical issues in country experiences

DRG-based payment systems generally aim to increase efficiency in the provision of hospital services. In Asia, however, DRG- and case-based payment methods are also considered as a means to achieve better planning and resource allocation in order to meet population demands for improved access to hospital care, to provide incentives for more efficient service delivery, and to improve health service outcomes [2,4].

3.1.1. Efficiency in hospital funding

Fee-for-service payment methods (in the public and the private sectors) and line-item budgeting remain the most common forms of hospital funding in Asian countries [4], but these methods present increasing challenges for efficiency in hospital funding. Case-based or DRG payment systems provide, in principle, a financial and administrative tool designed to address these challenges. In Thailand, for example, the implementation of DRGs, which was piloted in 1993 and implemented from 1998, aimed to address

low hospital admission rates and strengthen public expenditure for hospital inpatient services [11,12].

DRGs are therefore a mechanism for allocating funds to hospitals for services provided, calculated as a uniform level of reimbursement for the costs of care and according to a system of classification of hospital cases. As the DRG approach provides both a financing mechanism and a tool to measure hospital activity, it involves a number of different but complementary elements: a mechanism for allocating funding for hospital services complementing global budgets; a mechanism for hospital management; and a provider payment mechanism within the broader health-care financing system.

3.1.2. DRG classification systems

DRG-based payment systems involve setting a standard price for the delivery of various similar medical procedures according to a system of classifying hospital services. The classification system may be adapted from international examples or developed domestically.

Korea and Thailand have their own DRG classification systems, which were originally adopted from the United States' Medicare system and modified to meet their own circumstances. Japan developed and adopted its own hybrid Diagnosis Procedure Combination (DPC) in which the DPC 'group' is adjusted for length of stay. In principle, the Korean K-DRG consists of 23 Major Diagnostic Categories (MDCs) and one surgical partition, with 1880 officially identified DRGs. However, only 78 DRGs within seven disease categories have been used for payment while all other services remain on a fee-for-service basis. After moving away from the USA's DRG principle to the AR-DRG (from Australia, which comprises 28 MDCs, two partitions and 2700 groups), Thailand has developed more groups (2450) than any other Asian country for its own Thai-DRG [13]. In addition, Thailand uses the international classification of diseases ICD-9-CM (Clinical Modification) and ICD-10/ICD-10-TM (Thai Modification) for procedure and diagnosis, respectively. In Thailand, the number of DRGs increased over time as the system developed, a feature that is found in most countries. Japan's DPC consists of 18 MDCs and two surgical partitions, which include 2241 DRGs, with many categories to cover 516 diseases. The basic characteristics of patient classification systems in Thailand, Korea, and Japan are summarised in Table 1.

The variables used in the identification of hospital services according to the main MDCs and DRGs can be complex, and varies between countries in the region. The factors required to identify each classification group include clinical variables, demographic and administrative variables, and sometimes resource-use variables. The classification variables and the number of severity levels in the health-care systems in the three countries are summarised in Table 2.

For clinical information, principal diagnosis and procedure are commonly used in these countries. Principal diagnosis was originally defined as the diagnosis responsible for occasioning the patient's episode of care [14]. In reality, however, principal diagnosis is generally defined as the main reason for the stay in hospital. For demographic and administrative variables, age, gender, discharge status (except in Korea and Japan), and birth weight of new-born babies (except in Korea) are commonly considered. Resource-use variables include only the level of severity of the diagnosis/procedure (except in Japan, which includes no resource-use variable). The division into severity levels within the classification is limited, with up to five levels in the Thai-DRG (as well as in the Australian AR-DRG).

With regard to the process of classification, there are four steps common to most systems. First, extremely high-cost cases, such as liver transplants, are allocated to a special category called "Pre-MDCs". Second, all cases are allocated to mutually exclusive MDCs