

New prospective payment system in Japan

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The longevity of Japan's population leads the world, a fact that may be due in part to the Japanese health care system, which provides both comprehensive personal medical care and public health services. Public health services are provided through prefecture and local health centers and are funded through general government revenue. Personal medical care is provided primarily through privately owned hospitals and clinics and is paid for by compulsory national health insurance. A weak Japanese economy and a shrinking work force have decreased general and health insurance premium revenues, increasing the need to control health care costs.

The Ministry of Health, Labour, and Welfare (MHLW) has focused on hospitals to control health care costs. MHLW has developed and implemented a prospective payment system (PPS) similar in concept to the diagnosis-related-group (DRG) system in the U.S. Medicare system. The Japanese system, called the Diagnosis Procedure Combination (DPC) system, was begun in 2003 in

80 private and public university hospitals, a public cancer hospital, and a public cardiac care hospital.¹ The DPC system is based on 1860 diagnoses, 475 disorders, and 16 major diagnostic categories (MDCs) derived from the *International Classification of Diseases, 10th Revision (ICD-10)*.² The system is applied only to cases that are considered to require routine general inpatient care; more complicated, higher-cost cases are excluded. Reimbursement is determined by a set number of points per day for each category, length of stay (LOS), and a rating for each hospital (the hospital coefficient); in addition, there are provisions for fee-for-service (FFS) charges.²

Patients covered. The targeted population for the DPC system consists of patients with routine medical and surgical problems who are admitted to a hospital. Patients who have died within 24 hours of admission, participants in research drug therapy protocols, patients undergoing advanced medical treatment, organ transplant recipients, and patients who were admitted to a hospital by MHLW are not covered by the DPC system.

Assignment of diagnostic procedure categories. The DPC system uses a stepwise decision tree that is based on primary and secondary diagnoses (procedures, complications or comorbidities, severity), age, sex, and discharge status to determine the DPC assignment of a patient's case. In the first step, the principal diagnosis is determined and the case is assigned to 1 of 16 MDCs (Table 1). The second step is classification of the case as medical or surgical. In step 3, a medical case is classified on the basis of the disorder by using the *ICD-10* and the primary diagnosis; a surgical case is classified according to the surgical procedure.³ When there are multiple surgical procedures during a hospitalization, they are classified by a hierarchy of surgical procedures within each MDC. The system

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Table 1.
Major Diagnostic Categories (MDCs)

MDC No.	Description
1	Nervous-system diseases
2	Ophthalmologic diseases
3	Ear, nose, and throat diseases
4	Respiratory-tract diseases
5	Circulatory-system diseases
6	Alimentary, liver, biliary-tree, and pancreatic diseases
7	Musculoskeletal diseases
8	Skin and subcutaneous tissue diseases
9	Breast diseases
10	Endocrine, nutrition, and metabolism diseases
11	Kidney, urinary-tract, and male reproductive system diseases
12	Female reproductive system and puerperal diseases, abnormal pregnancy, and abnormal labor
13	Blood, blood-forming-organ, and immune-organ diseases
14	Neonatal diseases and congenital anomalies
15	Pediatric diseases
16	Trauma, thermal trauma, addiction, extraneous-substance, and other diseases

further breaks down the surgical case by secondary diagnoses. The system allows for assigning the case to the most resource-intensive surgical procedure to be used for DPC classification.⁴ The medical professions division of each hospital reviews the patient's medical record and determines which DPC classification is appropriate. Future plans are for physicians to determine the DPC classification by using computers. The system will also provide physicians with monthly reports on their DPC activity.

Hospital-reimbursement calculation. The hospital's reimbursement for the care provided to a patient includes the calculated DPC reimbursement plus the FFS for specified services provided. FFS reimbursement applies for certain procedures or services during any stage of hospitalization (e.g., surgery, anesthesia, radiation therapy, counseling, high-cost procedures, rehabilitation, psychotherapy, endoscopy).

The DPC reimbursement covers the basic hospitalization fee, laboratory tests, diagnostic imaging, drug administration, injections, and medical procedures, excluding high-price procedures. Each DPC classification has an assigned point value per hospital day for the three stages of hospitalization. The formula for calculat-

ing reimbursement points is based on three stages linked to the average LOS for the DPC classification. These averages were determined by collating information from the 82 participating hospitals the year before the project was implemented. The shorter the hospitalization, the more points awarded.

Stage 1 covers hospital stays up to the 25th percentile of the LOS for the DPC classification. Points per day during stage 1 stays are 115% of the average points per hospital day for the DPC classification. In stage 2, for stays exceeding the 25th percentile of the LOS and ranging up to the average LOS for the DPC classification, the government calculates points per day as follows: Stage 2 points per day = (DPC average total points - stage 1 total points)/no. stage 2 days. The points per day for this stage are different for each DPC classification. In stage 3, once the LOS exceeds the average number of hospital days for the DPC classification, the reimbursement points per day fall to 85% of the value in stage 2. The points accumulated during stages 1-3 are added, and the sum is multiplied by the hospital coefficient determined by MHLW. The total point value determines the DPC reimbursement. If a patient's LOS exceeds the average

LOS for the DPC classification by more than 2 standard deviations, reimbursement converts to FFS billing, which is determined by MHLW. The sum of the DPC points is multiplied by the hospital coefficient and added to the FFS points to provide the total number of reimbursement points for the patient's hospitalization. Each DPC point is equal to ¥10 (\$0.09).

Hospital coefficient. The hospital coefficient is another factor used in determining reimbursement for a case. It is calculated annually by MHLW by using the referral fee; the number of hospital days or admissions for patients with severe, intractable diseases (which are defined by MHLW); and the hospital's revenue in the previous year. The referral fee was developed by MHLW to guard a hospital against major financial losses.

Example. A patient is hospitalized at Nagoya University Hospital (NUH) for 30 days for a complete resection of his cancerous stomach. The hospital has a coefficient of 0.9351. The average LOS for this case is 28 days, and the reimbursement points per day average 2,556. The 25th percentile for the LOS is 14 days. Stage 2 points per day are [(2,556 points per day × 28 days) - (2,556 points per day × 14 days × 1.15)]/14 days = 2,172 points per day. Stage 1 points are 2,556 points per day × 14 days × 1.15 = 41,146. Stage 2 points are 2,172 points per day × 14 days = 30,408. Stage 3 points are 2,172 points per day × 2 days × 0.85 = 3,692. Reimbursement is the coefficient (0.9351) times the monetary value of the points (¥10 per point × 75,246 points) plus the FFS for the medical interventions for the case (¥761,690). The total hospital reimbursement for the case is ¥703,625 + ¥761,690 = ¥1,465,315 (\$13,484 at April 2005 exchange rates).

Difference between the DPC and DRG systems. The DPC and the DRG systems share the idea of a prospectively established rate of reimbursement for a patient's hospital

stay based on average resource utilization for the medical or surgical problem. They both place the hospital's reimbursement at risk when the average LOS is exceeded. However, there are five major differences:

1. The DPC system uses 2335 categories of diagnoses and disorders, compared with 468 DRGs.
2. The DRG system sets reimbursement for the average LOS for the conditions included in a DRG. If the patient's stay is shorter or longer than the average, the reimbursement does not change.
3. The DPC system uses a daily reimbursement rate that is based on the average LOS for the DPC classification, and reimbursement depends on how an individual hospitalization relates to the 25th percentile of the average LOS and the length of stay 2 standard deviations above the average.
4. Reimbursement under the DPC system, but not the DRG system, is individualized for each hospital on the basis of its own performance.
5. After an LOS exceeds the average by 2 standard deviations, the DPC system reverts to FFS reimbursement. The DRG system provides a previously determined reimbursement based on the DRG; once the reimbursement is exceeded, the hospital is at risk for additional costs.

Other cost-saving measures. To decrease drug costs, administrators

at NUH decided to start using generic drugs in place of brand-name drugs. At this writing, 28 generic drugs have replaced brand-name drugs on the hospital's formulary. The use of generics is of concern in Japan, however, since there is no equivalent to FDA's *Approved Drug Products with Therapeutic Equivalence Evaluations* (the "Orange Book") in Japan. The Japanese version of the Orange Book provides only the bioequivalence of dissolution profiles of oral medications, not therapeutic equivalence information.⁵ In the future, the hospital's pharmacy department should consider a project to evaluate the quality of generic drugs in Japan. Information on the therapeutic equivalence of generics is also needed. NUH has implemented critical pathways and continuous quality improvement.⁶

Pharmacists at NUH have also been involved in developing ambulatory care services in an effort to improve the quality of drug use and reduce costs.⁷⁻⁹ Pharmacist-run anticoagulation and asthma clinics were begun in 2000 and 2001, respectively.^{10,11} These two services have favorably influenced patient outcomes and drug therapy costs.

Conclusion. The need to control health care costs has prompted Japan to develop a PPS. The system differs from the U.S. DRG system in important ways.

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