K DRG World Bank

Case-Based Reimbursement

Under case-based reimbursement, the provider is paid a predetermined amount covering all services per case or episode of illness. The basic method of case-based reimbursement is to bundle services into distinct case categories that are reasonably homogenous with respect to resource use and reimburse a fixed amount per category. Reimbursing by case gives providers an incentive to produce care more efficiently. Case-based reimbursement is a major mechanism for hospital payment in Argentina, Brazil, Hungary and the United States.

The complexity of case-based systems of reimbursement varies greatly with the number of case categories. At one extreme the case classification may be simply an inpatient admission or day. Under Indonesia's compulsory insurance program for civil servants, for example, hospitals are paid a *packet price* per diem that bundles hotel services, materials, and most medical and diagnostic services into one amount (Paqueo and Lieberman 1992). A slightly more complex system of bundled reimbursement rates is used at the district hospital in the Bwamanda health zone in Zaire, where 16 inpatient case payment categories existed in 1989 (Shepard, Vian and Kleinau 1990). As examples of the most complex systems, there were 485 categories used for the U.S. Medicare program in 1992 (ProPAC 1992), 433 categories in Hungary (vor Bords and Nagy n.d.), and 266 in Brazil (World Bank 1993a). Each of these several hundred categories have detailed classification criteria to be applied by the provider and checked by the fund holder as part of the reimbursement process.

Incentives. Cost Reduction The major advantage of case-based reimbursement is the incentive that it gives to providers to contain cost per case. By tying the provider's reimbursement to output measured in terms of a diagnosis or case characteristic, the provider has an incentive to minimize the resource content of services provided. Coulam and Gaumer (1992) concluded that the change from cost-based reimbursement to case-based reimbursement by diagnostic related groups (the classification groups are referred to as DRGs in the U.S.) led to a substantial decrease in the growth rate of the U.S. government's inpatient and total payments for Medicare, the public insurance program for the population over age 65. The change to DRGs caused a reduction in average length of stay and a decline in total input use per case, even though input use per day increased.

Although the structure of the bundled payment system in Indonesia is vastly different from U.S. DRGs, the experience of one province for which data are available is consistent with the U.S. experience. Average length of hospital stay for beneficiaries of the government's compulsory insurance program for civil servants in this province fell from 12 to 7 days with the implementation of the unified packet price per diem reimbursement. Although expenditure per day increased, this was more than offset by the reduction in average stay, and total costs per admission were reduced (Paqueo and Lieberman 1992).

Coding Bias and Case Selection Case-based reimbursement may encourage providers to attract and accept patients at the low-cost end of the case-based reimbursement category. The provider's financial interest lies in accepting cases for which the preset reimbursement rate exceeds the expected cost of services actually required and rejecting cases for which the reverse is true. In Brazil, payment incentives apparently induced private hospitals *to dump*; difficult and costly cases on public facilities (Rodrigues 1989).

Hospitals have an incentive to diagnose patients into highly paid case categories and code medical records in such a way as to increase payments. For example, the change to DRG-based payment in the U.S. induced changes in coding practices that resulted in an increase in the severity of the reported mix of Medicare patients that was greater than warranted by the actual change. Coulam and Gaumer (1992) found that the errors in coding were not random and systematically favored higher weighted DRGs.

Quality of Care The incentives to reduce costs per case that are inherent in case-based payments raise concerns about the quality of care and thus the health status of patients whose care is reimbursed on a case basis. However studies in the United States found that quality of care for Medicare patients has been improving during the period since the introduction of DRGs (Wiley 1992). Coulam and Gaumer (1992) found no evidence that the reductionin the number of diagnostic tests and therapeutic activities per case associated with the initial implementation of DRG-based payment had negative consequences for the quality of care.

In contrast to the U.S., case-based payment appears to be associated with quality problems in Brazilian hospitals. Cost studies from several hospitals in Brazil suggest that the level of reimbursement per case is far below the average costs of provision. In Sao Paulo for example, the low level of case payments has led to low levels of intensive care for conditions that normally require more use, and low average lengths of stay for diagnoses usually associated with longer stays (World Bank 1993a).

Administrative Costs. The administrative costs of a complex system of case-based reimbursement are high for both the fund holding agency and the providers. The information that must flow between fund holders and providers to file claims and monitor reimbursement requires investment in record keeping capacity and other aspects of management information systems. For the fund holder or government administrative agency, extensive management information on patient protocols and their associated costs is required to establish the case categories and appropriate reimbursement rates, especially as new technologies and drugs become available. The difficulties in defining and periodically adjusting case reimbursement rates can be even greater than for detailed service categories under fee-for-service.

Empirical evidence is not available to compare the administrative costs of simple versus complex case-based payment, but the presumption is that a complex system of case-based reimbursement is considerably more costly than a capitated system or fee for service. The designers of a case-based system must carefully weigh the relative advantages of complex versus simple classification systems. One motivation for the complexity of a detailed case-based system is to define the cases with enough specificity, sometimes requiring the creation of subcategories within diagnostic groups, to create relatively homogenous groups with respect to resource use. In contrast, a simple bundled reimbursement system, such as that used in Indonesia, has fewer administrative costs than either a complex case classification system or a fee-for-service system because there is no need for detailed data on each service used.

While administratively costly, the management information and cost accounting required by a case-based system generate benefits beyond reimbursement. The detailed information makes evaluation of the cost effectiveness of performance possible on a routine basis. The value of case mix adjusted cost, mortality, and morbidity statistics as monitoring and management tools to achieve higher efficiency and facilitate comparisons of provider quality is great enough that health systems in many OECD countries bear the cost of maintaining service and cost information for case categories even though this information is not used for reimbursement. Some have adapted DRGs to define budgets for an expected level of case mix adjusted utilization (McGuire 1991). DRGs can also be used to facilitate contracts between fund holders and hospitals (Scotton 1991).

Conditions associated with performance success and failure . In the United States, case-based reimbursement of hospitals under Medicare has been successful at reducing the rate of growth of expenditures without harming the quality of care. Although extrapolating from the U.S. experience should be done with caution, the experience suggests some conditions needed for case-based reimbursement to achieve cost savings without compromising health status. First, the case categories should be sufficiently well designed so that incentives to select certain types of patients are minimized, yet not be so detailed as to make them administratively unworkable. There should be a manageable number of case categories (i.e., hundreds rather than thousands), and variation in resource use for different cases within the same category should be small. In addition, for the potential cost savings of a well designed case-based reimbursement system to be realized, internal hospital reorganization and training may be needed so that clinical managers can be given financial responsibilities (Deeble 1992). These conditions imply the need for sophisticated management information and accounting systems and electronic data transfer capacity at both the provider and system administration levels in order to generate and organize the data needed to create and update the case categories, and to monitor and audit the coding and reimbursement process. The need for an extensive monitoring and auditing system is critical for the success of case-based reimbursement, yet the required level of management capacity, sophisticated information systems and data exchange infrastructure is probably beyond the capacity of most countries.
In countries with adequate infrastructure, quality-based competition among hospitals can help to negate the incentive to minimize inputs per patient admitted under case-based reimbursement. This requires, first of all, a competitive market for producing hospital services, a situation most likely to be found in major metropolitan areas. In addition, well-informed consumers are essential for achieving the benefits of competition between suppliers. To ensure quality of care in hospitals which enjoy de facto monopolies in their market area, regulation or direct government provision of care is required.