Chapter 16
Cost Models with Prominent Outliers

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ABSTRACT

Government reimbursement programs, such as Medicare and Medicaid, generally pay hospitals less than the cost of caring for the people enrolled in these programs. For many patient conditions, Medicare and Medicaid pay hospitals a fixed amount based upon average cost for a procedure or treatment with local conditions taken into consideration. In addition, while the hospital provides the services, it has little control over the cost of delivery of that service, which is determined more by physician orders. The physician is under no real obligation to control those costs as the physician bills separately for services that are independent of orders charged. However, some patients who are severely ill will cost considerably more than average. This has caused providers to lose money. In this study, we investigate the reimbursement policies and the assumptions that have been made to create these reimbursement policies.

BACKGROUND

According to the US Census Bureau statistics for the year 2004, about 45.8 million people in the United States are without health insurance coverage, which represents 15.7% of the total population. (DeNavas-Walt and Lee, 2004) These uninsured and underinsured individuals have access to many health care facilities even when they are unable to afford the health services costs. The Emergency Medical Treatment and Labor Act (EMTALA) guarantees that for any individual who comes to the emergency department of a hospital with a request for treatment, the hospital must provide for an appropriate medical screening examination. (EMTALA, 2003) The health care provider does not have any guarantee of any reimbursement from uninsured or underinsured patients.

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and Medicaid pay hospitals a fixed amount based upon average cost for a procedure or treatment with local conditions taken into consideration. In addition, while the hospital provides the services, it has little control over the cost of the delivery of that service, which is determined more by physician orders. The physician is under no real obligation to control those costs as the physician bills separately for services that are independent of orders charged. However, some patients who are severely ill will cost considerably more than average.

Private insurance pays even less than Medicare and Medicaid because they always negotiate discounts with hospitals. A study titled “DRG, costs and reimbursement following Roux-en-Y gastric bypass: an economic appraisal (Angus, et.al. 2004)” (shows that there is a large difference in hospital reimbursement between public and private insurance when DRG codes are used. The study compared the reimbursement rates between a privately-insured group (74 patients) and a publicly-insured group (59 patients) using DRG 228. The two groups were similar in terms of age, sex and BMI. Results show that the hospital received large reimbursements from public insurance compared to private ones ($11,773 public vs $4,435 private).

This situation has caused many health care providers to lose money; some of them have cut their budgets, and others have closed their emergency departments because the reimbursements no longer match costs. In addition, if hospitals were paid the same amount for each admission regardless of its clinical characteristics, they would be encouraged to treat patients who are less ill, and to avoid the cases that require more resources. This policy is observed by looking at the trends in Medicare and total hospital length of stay between 1994 and 2004. The length of stay for Medicare inpatients fell 25% from 7.3 days in 1994 to 5.5 days in 2004 while the length of stay for all hospital discharges fell 11% from 5.0 days in 1994 to 4.5 days in 2004. (MedPac Data Book, 2005) Figure 1 was developed from the congressional report of the Medicare Payment Advisory Commission’s website (www.MedPac.gov) for June 2006. MedPAC is an independent federal body established by the Balanced Budget Act of 1997 to advise the U.S. Congress on issues affecting the Medicare program.

Diagnosis-Related Group (DRG)

The Diagnosis Related Group (DRG) is a classification system developed for Medicare as part of the prospective payment system; it is used as the basis to reimburse hospitals for inpatient services. DRGs are assigned by a software program based on diagnoses, procedures, age, sex, and the presence or absence of complications or comorbidities. A substantial complication or comorbidity is defined as a condition, which, because of its presence with a specific principal diagnosis, would cause an increase in the length of stay by at least one day in at least 75% of the patients. The DRGs are organized into 25 Major Diagnostic Categories (MDC). The diagnoses in each MDC correspond to a single organ system or etiology and, in general, are associated with a particular medical specialty.

Under DRGs, a hospital is paid at a predetermined amount regardless of the costs involved, for each Medicare discharge. Only one DRG is assigned to a patient for a particular hospital admission. One payment is made per patient and that payment is based upon the DRG assignment. For example, if DRG 209 (major joint and limb reattachment procedures of lower extremity) reimburses the hospital $9600 and the hospital incurs $12,000 in costs, then the hospital has lost $2400 on that patient.

The Inpatient Prospective Payment System (IPPS)

Under the Inpatient Prospective Payment System (IPPS), each patient’s case is categorized into a
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