

## Reimbursement for Nosocomial Infections Under the Prospective Payment Plan: The Future or Decline of Infection Control?

In 1982 Congress and the President directed the Department of Health and Human Services to initiate a prospective-payment system to reimburse hospitals for Medicare costs. This system has been developed and will be phased in over the next four years. Currently, Medicare funds between 40% and 45% of hospital revenues. In addition, several states have already extended prospective payment systems to include all hospitalized patients. This trend is likely to continue. Iglehart and Valdeck have recently outlined the background and details of the plan in several excellent reviews.<sup>1-3</sup>

With the prospective payment plan hospitals will no longer be directly reimbursed for the number of services performed; they will be reimbursed a fixed sum for each admission based upon the patient's diagnosis. Diagnoses have been classified in diagnosis-related groups (DRGs). These are supposed to serve as an indicator of the intensity of care and thus resources required to care for the patient. The amount of money that a hospital receives for any given DRG is based on a number of factors, including location of the hospital (ie, urban or rural, local labor costs, the number of residents in an approved training program, and initially the hospital's own previous costs). The specific way in which hospitals budget their costs is not addressed under this system. The purpose of the prospective plan is to limit costs, but not dictate health care practices. Hospitals that are efficient and can deliver health care for less than the money allotted will be able to keep the difference. Those hospitals that spend more than the allotted amount will lose money.

For the prospective-payment system to be truly successful, costs must be contained without a sacrifice in quality. These two goals may not be compatible unless waste can be eliminated and productivity improved. Improved utilization of facilities will be encouraged. Regionalization of certain expensive procedures and the sharing of expensive technologies is likely to increase.

Although improved utilization of facilities can save money, it is Iglehart's view that the savings are relatively limited.<sup>2</sup> Most of the costs incurred by the hospital are directly related to the physician's care. Examples include the length of stay, medications used, and laboratory and radiologic tests performed. In the past, hospitals have not had a vested interest in how physicians practiced medicine. Aside from the moral and legal obligation to ensure that the staff followed generally accepted standards of

care, hospital administrators have not been concerned with specifics. Even the costs of iatrogenic illness have been passed on to third party carriers. Hence, the prospective-payment system will change the relationship between the hospital administrator and the practicing physician. Physicians who consistently spend more money in caring for patients compared with regional norms are going to be a liability to the hospital. Apart from this individual liability, the physician will have to be concerned about the financial health of the hospital. Money wasted in one area will require a sacrifice in quality in another area. Quality may well be compromised to save money. However, there are potential areas in which quality and cost-containment are not incompatible.

One good example of when quality and cost-containment are compatible is in the area of nosocomial infections. Hospital-acquired infections occur in at least 5% of all patients admitted to the hospital. These infections add significant morbidity, mortality, and costs to the hospitalization.<sup>4</sup> Because of the large expense of nosocomial infections and questions on the cost-effectiveness of infection control programs, we sought to determine how the prospective payment plan will affect reimbursement for these expenses.

A sample of seven common diagnoses were classified into specific diagnosis-related groups using standard decision trees.<sup>3</sup> The amount of money that a sample of large urban university teaching hospitals would be reimbursed for each diagnosis was determined (Table). These figures represent the amount of reimbursement after total phase-in of the prospective payment plan. They also are higher than reimbursement rates for many community hospitals because of the large post-graduate training programs. The figures demonstrate several important features regarding the reimbursement structure.

1. Since nosocomial infections are allowable complications within some DRGs (50%), a hospital will receive additional funds compared to a similar DRG that is not complicated. In example #1, hospitals would receive \$714 more if a transurethral prostaticectomy were complicated by a urinary tract infection. In example #2, a laminectomy that is uncomplicated would result in a reimbursement of \$6,709 while one complicated by a postoperative wound infection would result in an \$8,286 reimbursement.

**TABLE**  
**REIMBURSEMENTS FOR SPECIFIC DRGs**

Diagnosis	DRG #	Reimbursement(\$)
1. A. Benign Prostatic hypertrophy with TUR	337	3,818
B. Benign Prostatic hypertrophy with TUR *Urinary Tract Infection	336	4,532
2. A. Laminectomy	215	6,709
B. Laminectomy *Postoperative wound infection	215	8,286
3. A. Cholecystectomy *Congestive Heart Failure	197	6,685
B. Cholecystectomy *Congestive Heart Failure *Catheter-related Sepsis	197	6,685
4. A. Cerebrovascular accident *Malnutrition	14	6,082
B. Cerebrovascular accident *Malnutrition *Pneumonia (aspiration)	14	6,082
5. A. Cerebrovascular Disease *Malnutrition	16	3,863
B. Cerebrovascular Disease *Malnutrition *Decubitus Ulcer (no surgery)	16	3,863
6. A. Chronic Obstructive Pulmonary *Respiratory Failure *Heart Failure Tracheostomy	88	4,682
B. Chronic Obstructive Pulmonary Disease *Respiratory Failure *Heart Failure Tracheostomy *Pneumonia *Catheter-related sepsis	88	4,682
7. A. Myocardial Infarction *Heart Failure	121	8,408
B. Myocardial Infarction *Heart Failure *Pulmonary Embolus Drug Reaction *Urinary Tract Infection	121	8,408

\*Allowable complication or comorbidity.

2. Under any of the DRGs that allow for a complication or comorbidity, a maximum of one will be reimbursed. This is demonstrated in examples 3-7. For example, in #3, malnutrition complicating cerebrovascular disease is DRG #16 with a \$3,863 reimbursement. Additional complications such as decubitus ulcer (without surgery), pneumonia, or urinary tract infection would not change the amount. Hence, the presence of multiple infections or complications which often occur in the critically ill, will not add to the reimbursement.

3. Approximately 50% of the DRGs do not allow for any complication or comorbidity; hence a nosocomial complication will not result in any additional reimbursement.

Overall, it appears almost certain that the costs of nosocomial infections and iatrogenic illness will be a much greater liability to hospitals under the prospective payment plan. Based on previous studies, it is extremely unlikely that the added amount of reimbursement can cover the expenses related to these infections. For example, in one study a simple postoperative wound infection doubled the length of stay and costs compared to an uncomplicated procedure.<sup>5</sup> As can be seen in the Table, the adjustment for nosocomial infections is modest.

The costs of infection control programs must be weighed against their effectiveness. Under the prospective payment plan, there will be more of a financial incentive to prevent nosocomial infections. Hospital administrators might be more willing to enforce unpopular policies that may reduce infection rates. However, the costs of these programs will also be more critically reviewed. I would anticipate large variations in the amount of money devoted to infection control based on an individual assessment of the program's effectiveness at the local level.

Many of those who are currently responsible for hospital infection control will find turbulent times ahead. The relationship between administrators, physicians and other health care workers will undoubtedly change. Hospital epidemiologists may more frequently find themselves in the middle of conflicting interests. However, the opportunity for hospital epidemiologists to improve the quality of care being practiced has never been greater.

#### REFERENCES

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