

Cost and Reimbursement as Determinants of the Quality of Diabetes Care: I. Direct Cost Determinants

Steven B. Leichter, MD, FACP, FACE

The quality of diabetes care in the United States has become an important focus of concern among voluntary health organizations and managed care programs.¹ A variety of initiatives designed to improve diabetes care delivery are now in progress. Each advocates guidelines or procedures that will alter the performance of providers in rendering diabetes care. The suggested changes are possibly associated with increased costs to providers of rendering diabetes care, as we have previously noted.²

We have also suggested that diabetes care is a high-cost service with a low profit margin because of the intensity of services required based on patient need.³ Therefore, an important question that has not been analyzed previously is whether the cost structure of diabetes care and patterns of reimbursement for it substantially influence the quality of diabetes care. These questions should be assessed in light of current suggestions and guidelines proposed for diabetes care.

Medical Office Costs

Whether performed for a small office or a multiple-provider organization, basic cost analysis for a health care group is the same. As in most other businesses, the organization will have direct costs and indirect costs and fixed costs and variable costs (Table 1). This discussion is devoted to an analysis of direct costs. Indirect costs will be analyzed in a subsequent issue.

Direct costs are composed of fixed costs and variable costs. Fixed costs include expenses such as the cost of

space and capital equipment. With one exception, these costs do not vary with increasing patient load. (The exception is that higher rates of use of equipment may increase the rate of depreciation or cash reserve set aside to purchase replacement equipment in the future.)

Variable costs include personnel, consumable supplies, and services such as telephone and postage, which increase in proportion to the caseload served. These variable costs drive the overall cost of care and are more easily modified than fixed costs. Whereas fixed costs per patient served decline with increasing caseload per unit time, variable costs increase. One financial challenge in rendering health care is to restrain the rate at which variable costs increase as caseload increases.

The more intensely supplies and services must be used to render adequate care to individuals with specific diagnoses, the higher the variable and total costs associated with the care of people with those diagnoses. Therefore, patients with a simple medical problem, such as simple goiter, may require a less complex pattern of care during an office visit than people with poorly controlled diabetes (Table 2). Because more compli-

cated patients require a more intense application of personnel and consumable resources, the cost of serving them increases per visit. These increases are related to greater consumption of physician time and a greater utilization of allied health professionals.

The Cost Implications of Quality Measures of Diabetes Care: The Risks of Populations With High Acuity

Some of the new guidelines and suggestions for diabetes care delivery may increase the cost per visit of providing care to diabetic patients. The clinical practice guidelines of the American Diabetes Association recommend that patients achieve HbA_{1c} levels that are persistently <8%.⁴

Studies suggest that populations of diabetic patients with higher HbA_{1c} levels have a high prevalence of care issues that make their treatment more complex and time-consuming. The characteristics of these patient groups include a high prevalence of poor self-care capability,⁵ depression,⁶ and the occurrence of diabetic complications.⁷

Thus, individuals with elevated HbA_{1c} levels or diabetic complications

Table 1. Fixed and Variable Costs of Medical Outpatient Offices

Fixed Costs	Variable Costs
Space costs (rent or mortgage)	Personnel
Capital equipment*	Supplies
Licensure fees	Telephone use
Journal subscriptions	Postage
Insurance and malpractice costs	Transcription

*Capital equipment cost is modified to a slight degree by the *variable* factor of depreciation.

Table 2. Application of Office Resources for Patients With Simple Versus Complex Medical Problems

Simple Problem	Complicated Diabetic Problems
Reception	Reception
Vital Signs	Vital Signs
Nursing	Nursing
Physician	Physician
Venapuncture	Venapuncture
	Patient Education
	Nutritional counseling
	Confirmation of HEDIS*

*Chart review to confirm compliance to current guidelines for diabetes care.

are likely to be more complicated patients than diabetic patients without these characteristics and are more costly to providers.⁸ As such, they will require longer physician visits to deal with their multiple diagnoses. If they are less educated or less adherent to the medical prescription, they will consume more effort of other health professionals as well as physicians to achieve the goals of treatment. Therefore, the costs of care are influenced by the acuity of the population under care, its educational level, and its psychological characteristics.

The clinical status of many of the co-morbidities associated with diabetes are influenced by the same factors that increase the service requirements and cost of service for diabetes. For example, adherence to the medical prescription influences the success of treatment,⁹ and the success of treatment determines the cost of care for hypertension.¹⁰ Thus, co-morbidities associated with diabetes may adversely influence the outcomes of care and the cost of care delivery in high-risk populations of diabetic patients.¹¹

From a financial perspective, populations with a high prevalence of elevated HbA_{1c} represent a high risk for elevated cost per visit to health providers. Given the widespread acceptance of current treatment guidelines, providers caring for a high-risk population face the threat of financial loss in rendering care if they attend to the needs of their patients as suggested by guidelines or the threat of

failing reviews of care if they lack the resources to follow the guidelines.

These risks may make diabetic patients an unattractive population for some providers. They also suggest that financial issues may influence the quality of care, and these influences may not be modified by current care guidelines.

Restraining the Cost of Service to High-Risk Populations

The financial issues inherent in providing care to high-risk diabetic populations suggest that “time is of the essence.” The more efficient the system of service delivery, the less the service costs, assuming that the care is effective in meeting treatment guidelines. The efficiency of office systems and personnel in serving a given caseload substantially influences cost. We previously outlined how work-flow can influence cost.¹² Thus, health care providers and provider organizations with high caseloads of diabetic patients should establish systems to monitor and improve the efficiency and productivity of their office systems and personnel.

Provider organizations should map out the optimal number of patients each health professional should serve in a day. This issue addresses the delicate balance between the underutilization and the overutilization of personnel. Too small a caseload will harm the cost structure, whereas too large a caseload will affect quality. A calculation of the daily cost of each provider employee, including their

compensation, fringe benefit package, and space cost, may provide a rough guideline for considering their productivity. This consideration should also apply to employees who are not health professionals. For example, how many customers can a receptionist reasonably manage in a day? How much is transcription costing per day, and can that service be made more efficient?

The amount of supplies and materials used per patient is another issue that needs to be addressed. Some provider organizations offer patients a full package of educational materials. The per-patient costs of these materials should be monitored. Unreimbursed use of medical supplies, such as injectable drugs, should also be carefully considered. In our office, our billing staff monitors any charge that is denied by third-party payers and presents them to the medical staff for our consideration.

Finally, there are both financial and medical-legal questions associated with the care of patients who are repeatedly nonadherent to the treatment regimen. Under the medical practice acts of many states, providers are required to express their concern about the health habits of these individuals both verbally and in writing. Patients who repeatedly miss office appointments are supposed to be a special focus of such attention. These efforts increase the time spent on such patients by both health providers and other office staff. In the absence of alterations in patterns of reimbursement for such cases, the challenges they pose may be considered a financial disincentive to retain them in the practice base.

In summary, analysis of the cost structure for the outpatient care of diabetic patients today reflects the need to consider a number of factors to prevent the cost of care from interfering with the delivery of necessary care. The efficiency of care delivery to all diabetic patients should be a primary business focus of all organizations with a focus on diabetes care. Mechanisms to identify patients with indices of medically high risk and cost-efficient methods of assessing and

treating those patients in the outpatient environment are essential to maintaining the fiscal integrity of health care delivery organizations involved in diabetes care. Whether these methods alone will suffice to meet the fiscal challenges of care for this high-risk population is unclear.

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Steven B. Leichter, MD, FACP, FACE, is the co-director of the Institute for Healthcare Leadership in Columbus, Ga., and a clinical professor of medicine at Mercer University School of Medicine in Macon, Ga.

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