SPECIAL ARTICLE

Health Care Expenditures for People with Diabetes Mellitus, 1992*

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ABSTRACT

The purpose of this report is to estimate diabetes prevalence and annual health care costs for people with diabetes in 1992, compare average annual costs for diabetics and nondiabetics, and estimate the portion of total U.S. health care expenditures incurred by people with the disease. Data from the 1987 National Medical Expenditure Survey were used to estimate diabetes prevalence and health care expenditures for diabetics in 1992. Diabetics were identified based on self-reports of a physician diagnosis of diabetes, a history of taking diabetic medications, or an encounter with the health care system specifically related to diabetes. Identified diabetics were classified as confirmed if they had a history of taking diabetic medications, had a diabetes-specific encounter with the health care system, or purchased diabetic equipment. Estimates of diabetes prevalence and health care expenditures were calculated separately for identified and confirmed diabetics using the National Medical Expenditure Survey database. Total health care expenditures included costs associated with inpatient hospital care, outpatient hospital care, office visits to a physician or other provider, emergency room visits, home health care, prescription drugs, dental care, and durable medical equipment purchases. We estimate that per-capita annual health care expenditures in 1992 were more than three times greater for diabetics ($9,493) than for nondiabetics ($2,604). Per-capita expenditures for confirmed diabetics ($11,157) were more than four times greater than for nondiabetics. In 1992, diabetics constituted 4.5% of the U.S. population but accounted for 14.6% of total U.S. health care expenditures ($105 billion). Confirmed diabetics constituted 3.1% of the U.S. population but accounted for 11.9% of total U.S. health care expenditures ($85 billion). This study found that health care expenditures for people with diabetes constituted about one in seven health care dollars spent in 1992. Health care reform and insurers should take note of these findings and structure benefit packages to promote care likely to reduce the costs of caring for diabetics. (J Clin Endocrinol Metab 78: 809A–809F, 1994)

DIABETES mellitus is a chronic and potentially disabling disease which represents a major public health and clinical concern (1–3). People with the disease are at increased risk of developing chronic complications related to ophthalmic, renal, neurological, cerebrovascular, cardiovascular, and peripheral vascular disease (4). Diabetics, for example, are more likely than their nondiabetic peers to have heart attacks (5), strokes (6), amputations (7), kidney failure (8), and blindness (9). As a result of the disease and its complications, people with diabetes have more frequent and intensive encounters with the health care system (10–12).

The critical methodological question in estimating the costs of diabetes is the extent to which diabetes-related complications should be included. The economic burden of diabetes has been previously estimated by studies applying conventional prevalence-based cost-of-illness techniques (13), which count only the health care expenditures (direct costs) and lost productivity (indirect costs) specifically attributable to diabetes. The cost of diabetes in 1984, for example, was estimated to be $14 billion, with direct medical care costs incurred as a result of diabetes ranging from $7.4–12.0 billion (14). This study excluded costs associated with complications of diabetes and costs incurred when diabetes was the secondary or tertiary diagnosis. A 1987 study estimated economic costs of diabetes at $20.4 billion, of which 47% were direct medical expenditures (15). Although this estimate included some costs associated with chronic complications of diabetes, it excluded costs of surgical procedures, home health care, emergency rooms, ambulance services, services provided by licensed dietitians, and physical therapy. It also did not fully account for costs associated with the late complications of diabetes (16).

The principal advantage of the methodology used by these and other studies (17–19) is that an estimate of costs specifically attributable to diabetes is generated and can be used to gage the relative cost of the disease. The studies are limited by relying on principal diagnoses to attribute costs to diabetes, since some costs legitimately viewed as related to the disease are excluded. In addition, previous studies have not fully accounted for the possibility that diabetics may have higher costs than nondiabetics for treatment of the same diabetes-related conditions.

A recent study of the economic impact of type II, or non–insulin-dependent diabetes mellitus (NIDDM), included the costs associated with complications of diabetes (e.g. circulatory, visual, renal, and skin disorders) (20). The study concluded that NIDDM cost $19.8 billion in 1986, of which 41% resulted from related conditions. As with other conventional

Received February 2, 1994. Accepted February 17, 1994.

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* This work was supported by grants from Diabetes Treatment Centers of America, Inc. (Nashville, TN).
prevalence-based cost-of-illness studies, however, this diabetes-specific estimate was based on primary diagnoses recorded on patients' charts. Accordingly, health care encounters related to diabetes but not designated as the primary diagnosis were not included.

Our study differs in that we take a broader approach and estimate the costs associated with diabetic patients in the U.S. health care system. To do so, we estimated total health care expenditures for people with diabetes, compared per-capita annual expenditures for diabetics and nondiabetics, and estimated the portion of total U.S. health care expenditures incurred by people with the disease. This approach includes estimates of costs specifically attributable to diabetics, as well as health care costs incurred by diabetics that may not be related to the disease.

Our approach is particularly critical for understanding the costs associated with diabetic patients as the nation moves toward health care reform. Policy makers and insurers are increasingly expecting providers to assume financial risk for the care of their patients (e.g. through capitation arrangements). Health care providers at risk for the care of diabetic patients must assume financial responsibility for treating these individuals, regardless of whether their costs are generated as a result of diabetes. Our estimates are thus intended to identify the full range of costs associated with diabetic patients, in hopes of informing the insurers, providers, and policy makers charged with defining and assuming risk.

Methods

Data source

To estimate total health care expenditures for diabetics, we used the 1987 National Medical Expenditure Survey (NMES) (21). The NMES is a national probability sample of approximately 35,000 people representative of the noninstitutionalized, civilian U.S. population in 1987. NMES includes information on individual demographic, income, insurance, and health characteristics, as well as detailed data on health care expenditures from all payers (including out-of-pocket and free care furnished by providers) and for all health care encounters (excluding nursing home costs and nonprescription drug costs). Interview data were supplemented by expenditure data obtained from respondents' medical providers. Individual population weights permit adjustment for over-sampling and extrapolation of results to the total U.S. population. NMES collected information for the period from January 1, 1987 through December 31, 1987. All prevalence and cost estimates in this article are expressed in 1992 terms.

The principal advantage of using NMES is that diabetes prevalence and health care cost estimates can be made directly from a single database. In contrast, previous studies relied on a combination of disparate data sources and a series of assumptions about diabetes prevalence, use of health care services, and the cost of care.

Estimation of total health care costs for diabetics in 1992

Estimating the prevalence of diabetes. Our first step in estimating health care costs for diabetics was to identify people with diabetes in the NMES database and to estimate overall prevalence. First, we classified as diabetics respondents who answered "yes" to the NMES question in the Health Status Questionnaire, "Has a doctor ever told you that you have diabetes (high blood sugar)?" (22) second, because NMES did not pose this question to respondents younger than 18 yr old, we also classified as diabetics those younger than 18 yr who had a record of taking insulin (virtually all diabetics younger than 18 yr are insulin-dependent). Finally, we classified as diabetic those respondents who answered "no" or did not answer the NMES question regarding diabetes but nevertheless had any of the following characteristic: 1) a record of taking insulin or another diabetic drug (diabetes, diabinese, glucose, glucotrol, micronase, mixtard, orinase, tilinase, glipizide, glucose enzymatic test, or glyburide); or 2) an encounter with the health care system specifically related to diabetes, as indicated by the presence of a diabetes-specific International Classification of Diseases (ICD-9-CM) code (250 diabetes mellitus); 250.0 (diabetes mellitus without mention of complication); 250.1 (diabetes with ketonuria); 250.2 (diabetes with hyperosmolar coma); 250.3 (diabetes with other coma); 250.4 (diabetes with renal manifestations); 250.5 (diabetes with ophthalmic manifestations); 250.6 (diabetes with neurological manifestations); 250.7 (diabetes with peripheral circulatory disorders); 250.8 (diabetes with other specified manifestations); 250.9 (diabetes with unspecified complications); or 250.0 (diabetic ketoacidosis); 250.0 (diabetes insipidus); 362.0 (diabetic retinopathy); and 648.0 (diabetes mellitus) (23).

The NMES database records four levels of ICD-9-CM codes for hospital and ambulatory health care visits. We used all four levels in identifying diabetics. We did not include ICD-9-CM codes 648.8 (abnormal glucose tolerance test in pregnancy) or 790.2 (abnormal glucose tolerance test) to identify diabetics.

We derived a more conservative prevalence estimate by classifying as diabetics only those respondents who could be confirmed as having diabetes. Identified diabetics were classified as confirmed if they had any of the following characteristics: 1) a record of taking insulin or another diabetic drug; 2) an encounter with the health care system specifically related to diabetes, as indicated by the presence of a diabetes-specific ICD-9-CM code listed above; or 3) a record of purchasing "diabetic items" such as "syringes or test paper" (21).

After identifying these two groups of diabetics, we extrapolated to the U.S. population using NMES weights to estimate prevalence in the general population. Population estimates were projected forward to 1992 using U.S. Census data on age, sex, and race characteristics for the U.S. population (24).

Estimating health care expenditures. To estimate total health care expenditures for diabetics, we calculated annual health care expenditures for each identified diabetic and summed these expenditures across all identified diabetics. We also divided total expenditures by the number of diabetics to obtain an estimate of per-capita annual health care expenditures for diabetics. Our NMES estimate of total health care expenditures includes costs associated with inpatient hospital care, outpatient care, office visits to a physician or other health care provider, emergency room visits, home health care, prescription drugs, dental care, and durable medical equipment purchases. Our estimate also includes payment from all sources, including Medicare, Medicaid, employer-based private insurance, other private insurance, other public insurance, and out of pocket. Finally, we also included the cost of "free care" furnished by health care providers, which we allocated to the "other private insurance" category for the purposes of estimating costs. Expenditure estimates were inflated forward from 1987 to 1992 dollars using inflation factors derived from published federal government data specific to different payers and types of service (25, 26).

Our estimates of both total U.S. health care expenditures and expenditures for diabetics exclude costs associated with nursing home care, nonprescription drugs, research and construction, program administration, and government public health expenditures. We also did not estimate the indirect costs of diabetes, such as forgone productivity due to disability or premature death.

Results

The prevalence of diabetes

We identified a total of 1670 diabetics in the NMES database. The majority (92.7% of identified diabetics) were identified because they answered "yes" to the NMES question, "Have you ever been told by a doctor that you have diabetes (high blood sugar)?" The remaining 118 diabetics were identified because they reported taking insulin or another diabetic drug or had a health care encounter specifically
related to diabetes as indicated by a diabetes-specific ICD-9-CM code. Estimates of diabetes prevalence by age are presented in Table 1. We estimate that diabetes prevalence in the U.S. population in 1992 was 44.8 per 1000 people, or 11.1 million people. Seventy-one percent of identified diabetics in NMES could be confirmed as having the disease (Table 1); extrapolated to the general population, the prevalence rate under this more restrictive definition is 31.1 per 1000 population, or 7.7 million people.

**Total health care expenditures for people with diabetes**

Total U.S. health care expenditures in 1992 were approximately $720.5 billion. Health care expenditures for diabetics totaled about $105.2 billion, or 14.6% of total U.S. health care expenditures in 1992. When the cost of free care furnished by health care providers is excluded ($44.1 billion), 1992 health care expenditures totaled $676.4 billion, and expenditures for diabetics totaled $101.8 billion, or 15% of total U.S. health care expenditures. Expenditures for confirmed diabetics totaled $85.7 billion in 1992, or 11.9% of total U.S. health care expenditures.

Table 2 summarizes per-capita annual health care expenditures in 1992 for diabetics, nondiabetics, confirmed diabetics, and the total population (diabetics and nondiabetics) by type of service. Per-capita annual health care expenditures for diabetics averaged $9,493 in 1992 compared with $2,604 for nondiabetics and $7,917 for the total population ($ \,< 0.01). Diabetics therefore incur annual health care expenditures 3.6-fold higher, on average, than nondiabetics. All differences in average annual expenditures between diabetics and nondiabetics are statistically significant ($ \,< 0.01), except for dental costs. Table 3 shows that per-capita annual health care expenditures for diabetics exceeded expenditures for nondiabetics across all age categories. Differences between diabetics and nondiabetics were statistically significant at $ \,< 0.01$ in all age categories except for ages 0–34 yr. Per-capita annual health care expenditures for the 7.68 million confirmed diabetics were $11,157 in 1992, or $1,664 higher than for all identified diabetics, and 4.28-fold greater than for nondiabetics.

Figure 1 shows the percentage of costs for diabetics accounted for by different services. Inpatient hospital care accounted for 63% of total health care expenditures for diabetics and 46% percent of expenditures for nondiabetes. For diabetics, outpatient hospital visits and professional office visits accounted for 12% and 10% of costs, respectively. The remainder of 1992 health care costs for diabetics were attributable to home health care (4%) drug and durable medical equipment costs (9%), emergency room costs (1%), and dental costs (1%).

Figure 2 shows total expenditures for diabetics and nondiabetes by payment source. For diabetics, Medicare and Medicaid accounted for 27% and 15% of total expenditures, respectively. For nondiabetics, Medicare accounted for only 13% and Medicaid for 10% of total expenditures.

**Comment**

Using data on diabetes prevalence, health care use, and health care costs from the 1987 NMES, we have estimated that 14.6% percent of total health care expenditures were incurred by the 4.5% percent of the general population who had diabetes in 1992. We included in our estimate costs associated with inpatient hospital care, outpatient care, professional office visits, emergency room care, dental care, prescription drugs, home care, and durable medical equipment. We found that diabetics, on average, incur health care costs 3.6-fold greater than those incurred by people without the disease. Confirmed diabetics incurred health care costs 4.28-fold greater than nondiabetes. These findings are consistent with earlier research that average health care expenditures for diabetics were about three times greater than expenditures for nondiabetics (14). Also consistent with previous research, 66% of expenditures of people with diabetes were incurred in inpatient settings (14–16, 20).

As implied by the prevalence figures in Table 1, diabetics

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**TABLE 1.** 1992 NMES estimates of diabetes prevalence in the United States by age

<table>
<thead>
<tr>
<th>Age</th>
<th>Number</th>
<th>Rate per 1000</th>
<th></th>
<th>Number</th>
<th>Rate per 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ages</td>
<td>11,085,952</td>
<td>44.8 (1.4)</td>
<td></td>
<td>7,681,967</td>
<td>31.1 (1.2)</td>
</tr>
<tr>
<td>0-17</td>
<td>75,776</td>
<td>1.2 (0.4)</td>
<td></td>
<td>75,776</td>
<td>1.2 (0.4)</td>
</tr>
<tr>
<td>18-24</td>
<td>207,010</td>
<td>8.9 (2.0)</td>
<td></td>
<td>113,429</td>
<td>4.9 (1.4)</td>
</tr>
<tr>
<td>25-34</td>
<td>781,588</td>
<td>18.6 (2.0)</td>
<td></td>
<td>362,585</td>
<td>8.6 (1.2)</td>
</tr>
<tr>
<td>35-44</td>
<td>1,948,838</td>
<td>31.5 (3.1)</td>
<td></td>
<td>698,996</td>
<td>17.6 (2.1)</td>
</tr>
<tr>
<td>45-54</td>
<td>1,652,497</td>
<td>60.2 (5.0)</td>
<td></td>
<td>1,050,017</td>
<td>40.3 (3.8)</td>
</tr>
<tr>
<td>55-64</td>
<td>2,286,607</td>
<td>107.4 (6.4)</td>
<td></td>
<td>1,723,413</td>
<td>80.9 (5.8)</td>
</tr>
<tr>
<td>66-74</td>
<td>3,094,012</td>
<td>166.8 (7.1)</td>
<td></td>
<td>2,320,988</td>
<td>125.1 (7.1)</td>
</tr>
<tr>
<td>75+</td>
<td>1,739,524</td>
<td>143.3 (8.2)</td>
<td></td>
<td>1,281,788</td>
<td>105.6 (7.3)</td>
</tr>
</tbody>
</table>

* Per 1000 U.S. civilian population. SE in parentheses.

**TABLE 2.** 1992 per-capita annual health care expenditures for diabetics and nondiabetics by setting

<table>
<thead>
<tr>
<th>Setting</th>
<th>Diabetics</th>
<th>Nondiabetics</th>
<th>Confirmed diabetics</th>
<th>Total population</th>
<th>Ratio of diabetics to nondiabetics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total expenditures</td>
<td>$9,493</td>
<td>$2,604</td>
<td>$11,157</td>
<td>$2,912</td>
<td>3.6</td>
</tr>
<tr>
<td>Inpatient</td>
<td>5,885</td>
<td>1,222</td>
<td>7,153</td>
<td>1,451</td>
<td>4.8</td>
</tr>
<tr>
<td>Office visit</td>
<td>989 (67)</td>
<td>554 (51)</td>
<td>1,045 (41)</td>
<td>573 (68)</td>
<td>1.8</td>
</tr>
<tr>
<td>Outpatient</td>
<td>1,127 (246)</td>
<td>330 (19)</td>
<td>1,225 (327)</td>
<td>366 (22)</td>
<td>3.4</td>
</tr>
<tr>
<td>Drugs and DME</td>
<td>891 (28)</td>
<td>201 (6)</td>
<td>1,056 (35)</td>
<td>232 (5)</td>
<td>4.4</td>
</tr>
<tr>
<td>Dental</td>
<td>130 (13)</td>
<td>146 (4)</td>
<td>110 (12)</td>
<td>144 (3)</td>
<td>0.9</td>
</tr>
<tr>
<td>Home health</td>
<td>357 (62)</td>
<td>67 (9)</td>
<td>438 (80)</td>
<td>80 (10)</td>
<td>5.3</td>
</tr>
<tr>
<td>Emergency room</td>
<td>115 (11)</td>
<td>84 (4)</td>
<td>131 (16)</td>
<td>86 (4)</td>
<td>1.4</td>
</tr>
</tbody>
</table>

SE in parentheses. All differences between diabetics and nondiabetics are statistically significant at $ \,< 0.01$, except for dental costs. All differences between confirmed diabetics and nondiabetics are statistically significant at $ \,< 0.01$.
TABLE 3. 1992 per-capita annual health care expenditures for diabetics and nondiabetics by age

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Diabetics</th>
<th>Nondiabetics</th>
<th>Total Population</th>
<th>Ratio of Diabetics to Nondiabetics</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ages</td>
<td>$9,493 ($622)*</td>
<td>$2,604 ($103)</td>
<td>$2,912 ($107)</td>
<td>3.6</td>
</tr>
<tr>
<td>0–17</td>
<td>2,342 (801)</td>
<td>1,181 (85)</td>
<td>1,183 (85)</td>
<td>2.0</td>
</tr>
<tr>
<td>18–24</td>
<td>2,809 (658)</td>
<td>1,923 (140)</td>
<td>1,931 (139)</td>
<td>1.5</td>
</tr>
<tr>
<td>25–34</td>
<td>6,531 (2638)</td>
<td>2,416 (142)</td>
<td>2,492 (152)</td>
<td>2.7</td>
</tr>
<tr>
<td>35–44</td>
<td>6,948 (1821)*</td>
<td>2,087 (124)</td>
<td>2,241 (132)</td>
<td>3.3</td>
</tr>
<tr>
<td>45–54</td>
<td>11,102 (2218)*</td>
<td>3,095 (779)</td>
<td>4,141 (747)</td>
<td>3.0</td>
</tr>
<tr>
<td>55–64</td>
<td>3,537 (1839)*</td>
<td>3,003 (241)</td>
<td>4,218 (291)</td>
<td>2.6</td>
</tr>
<tr>
<td>65–74</td>
<td>10,669 (1188)*</td>
<td>5,112 (292)</td>
<td>6,039 (336)</td>
<td>2.1</td>
</tr>
<tr>
<td>75+</td>
<td>10,746 (1144)*</td>
<td>7,103 (463)</td>
<td>7,568 (462)</td>
<td>1.5</td>
</tr>
</tbody>
</table>

SE in parentheses.

*Differences between diabetics and nondiabetics are statistically significant at P < 0.01.

are, on average, older than the general population. It is therefore likely that our results are accounted for, in part, by the age of diabetic patients. Although the purpose of this study was not to estimate the incremental effect of diabetes, it is important to establish that our results cannot be accounted for simply by the fact that diabetic patients are older. We have therefore calculated relative levels of spending on diabetics, controlling for the age of the patients. If the age distribution among diabetics was equal to the age distribution among the general population, health care spending for diabetics in the United States would have totaled $71.9 billion in 1992, accounting for 10% of total spending. When adjusted for age, per-capita expenditures for diabetics would have been $6425, a value 2.47-fold higher than that observed for nondiabetics.

Our diabetes prevalence rate of 45 per 1000 population, derived from the NMES, is higher than estimates in other national surveys. The 1991 National Health Interview Survey (NHIS) estimated diabetes prevalence at about 29 per 1000 population (28), whereas Harris et al. (29) estimated 1980 diabetes prevalence for those 20–74 yr of age at about 34 per 1000 population using the National Health and Nutrition Survey II. Like NMES, both the NHIS and National Health and Nutrition Survey II asked respondents whether they had ever been told by a physician that they have diabetes. The NMES survey, however, included the parenthetical phrase (high blood sugar) at the end of the question. Although inclusion of this phrase may have identified some additional diabetics, it also could have prompted some respondents to answer “yes” when they did not actually meet the clinical criteria for a diagnosis of diabetes (e.g., people with gestational diabetes or those informed by a physician that they have high blood sugar and are borderline diabetics). This may tend to overstate diabetes prevalence.

To obtain a more conservative estimate of prevalence and costs, we also calculated figures for only those diabetics whose diagnoses could be confirmed through rigorous validation criteria. The results were no less significant; although confirmed diabetics constituted only 3.1% of the population, they accounted for 11.9% of total health care expenditures, or approximately 1 in 8 U.S. health care dollars spent in 1992. Moreover, we would note that even this conservative estimate of diabetes prevalence is higher than estimates from the NHIS, which is commonly used to estimate the number of diagnosed diabetics in the U.S. population. Our conserv-

![Diabetics](image1)

![Non-diabetics](image2)

FIG. 1. Annual health care expenditures for diabetics and nondiabetics by setting in 1992. Amounts are in billions of dollars. Excludes nursing home, research and construction, program administration, government public health, and nonprescription drug expenditures. Includes estimate of free care furnished by health care providers.
The health care system could be realized if even a fraction of these costs could be avoided through prevention or effective management of the disease and its complications. Several recent studies have found that the onset of diabetes-related morbidity may be postponed through control of blood glucose levels (31, 32). Of particular potential import are findings from the Diabetes Control and Complications Trial (DCCT), a 10-yr, prospective, randomized clinical trial funded by the National Institutes of Health, which tested the effectiveness of intensive treatment in delaying the onset and progression of diabetes-related complications among 1441 insulin-dependent diabetics. Recently published findings report that tight control of blood glucose levels can delay the onset and slow the progression of retinopathy, nephropathy, and neuropathy among type I diabetics by as much as 70% compared with patients receiving conventional treatment (33). More research and analysis will undoubtedly be conducted to determine the extent to which DCCT results apply to non–insulin-dependent diabetics (who comprise approximately 90% of all diabetics), the risks associated with intensive control of blood glucose levels such as hypoglycemia, and the cost-effectiveness of the intensive interventions used in the DCCT. The American Diabetes Association recently stated its position that results from the DCCT likely apply to both insulin-dependent and non–insulin-dependent diabetics (34).

Taken together, our findings on health care costs for diabetics and recent findings on the clinical efficacy of managing diabetes have important policy implications. Policy makers and insurers should be made aware of emerging evidence on the effectiveness of interventions in reducing...
the complications of diabetes and its attendant costs. Given that approximately 1 in 7 health care dollars is currently spent on caring for diabetics, health care reform should design benefit packages and structure reimbursement policies to promote diabetic care likely to reduce the costs of diabetes and improve the health status of people with the disease. Research should continue to identify effective ways to reduce the complications of diabetes to guide policy makers in this effort.

Acknowledgments
We thank Richard Iovanna and Jesse Ford of Lewin-VHI for their analytic support.

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34. Steinberg C. 1993 Tight for type II, too? What do the results of the DCCT say to people with type II diabetes? Diabetes Forecast. 46:61–62.
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misions from junior and senior investigators.

The entire submission should not exceed 10 double-spaced pages
and should be in the format of a clinical pathological conference.
The case or cases should be presented briefly with pertinent positive
and negative information as well as relevant laboratory data. The
laboratory data should be presented in SI units with the normal
ranges noted in parentheses.

A discussion of the differential diagnosis should follow. An ap-
propriate diagnostic evaluation should be recommended in the discus-
sion. The actual diagnostic procedures performed should then be
discussed. Black and white photographs of all relevant imaging and
histologic studies should be included. The actual diagnosis should
be given then and briefly discussed with a review of the current
literature (no more than 10 references should be included).

Submissions should be sent to the Editorial Office with a cover
letter identifying the article as a Clinical Case Seminar.