Problems Encountered by Primary Care Physicians in the Care of Patients With Diabetes

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Objective: The purpose of this study was to identify problems encountered by primary care physicians in the care of patients with diabetes in order to develop appropriate education programs for physicians.

Methods: A random, stratified telephone survey of 832 physicians in Pennsylvania who listed their specialty as internal medicine, family practice, or general practice was conducted. The response rate was 73%.

Results: Following diet and weight control were by far the most common problems reported by physicians for patients with insulin-dependent and non–insulin-dependent diabetes mellitus. Although physicians reported that education regarding diet is discussed during office visits, fewer than 25% of the physicians routinely refer patients to a dietician or health educator. Maintaining glucose control and dealing with the complications of diabetes were the next most common problems for patients with insulin-dependent diabetes mellitus, while compliance issues were common problems for patients with non–insulin-dependent diabetes mellitus.

Conclusions: Efforts to improve the care of patients with diabetes need to recognize and address the problems identified by primary care physicians. Education programs for physicians should deal with attitudes as well as knowledge and should focus on problems such as diet, compliance, referrals to eye doctors, and methods to improve glucose control, such as the use of multiple injections.

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DIABETES MELLITUS is a chronic disease that affects at least 10 million individuals in the United States.[1,2] At the present time, over 75% of all patients with diabetes are cared for by primary care physicians, such as family physicians, general internists, and general practitioners.[3] In a previous report,[4] the authors examined the practice behaviors for the medical care of patients with diabetes mellitus by primary care physicians in Pennsylvania. All primary care physicians reported measurements of glycosylated hemoglobin, routine referrals to eye doctors, and patient self-monitoring of blood glucose levels less frequently than recommended by the American Diabetes Association.[5]

To understand reasons for practice behavior and to develop appropriate education programs for primary care physicians, it is necessary to understand the perceived problems primary care physicians encounter in the routine care of patients with diabetes. This report represents Pennsylvania physicians' responses regarding problems encountered in the care of patients with diabetes and compares their responses with reported care patterns.

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RESULTS

A total of 610 physicians completed the survey, for a response rate of 73.3%. The top 15 responses from physicians asked to identify the three greatest problems encountered in caring for patients with IDDM and NIDDM are shown in **Tables 1** and **2**. Following diet was clearly identified as the single most commonly encountered

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METHODS

The survey was a stratified, random sample of primary care physicians with mailing addresses in Pennsylvania who saw at least 10 patients per day. Only physicians who identified their primary specialty as internal medicine, family practice, or general practice were included. After all screening procedures, 832 eligible physicians were identified to complete the interview. Eligible physicians were contacted for a telephone interview by trained interviewers. Each physician was asked in an open-ended format to identify the three greatest problems encountered in the care of patients with insulin-dependent diabetes mellitus (IDDM) and non–insulin-dependent diabetes mellitus (NIDDM), and each physician was asked a series of questions relating to care of these patients. The open-ended responses were then coded into 55 possible responses selected by the investigators. The exclusion criteria, stratification process, and statistical methods for this study are described elsewhere.[4]

problem by primary care physicians, with over 85% of physicians identifying this as a problem for patients with NIDDM and 76% for patients with IDDM. Weight control, which is closely related, was the second most reported problem. Issues related to blood glucose, such as maintaining glucose control, taking insulin as prescribed, and patient self-monitoring of blood glucose levels, were the next most commonly reported problems for patients with IDDM. Following excercise programs and noncompliance with medications and follow-up were more common problems for patients with NIDDM.

The complications of diabetes, taken as a group, were also frequently encountered. About 50% of the physicians listed renal, cardiovascular, eye, foot, or neuropathic complications among the most commonly encountered problems for patients with IDDM. These problems were listed by 39% of physicians for patients with NIDDM. The differences between the most common types of problems encountered when physicians were grouped by county size, specialty, year of graduation, and number of patients with diabetes were not statistically significant, with the exception of self-monitoring of blood glucose levels, which was reported as a problem by fewer than 1% of general practitioners.

Following diet was clearly identified as the single most commonly encountered problem by primary care physicians

When physicians were asked questions about care patterns, over 98% of the physicians indicated that they measure weight at each visit and provide patient education about nutrition on a regular basis. Most education is provided by physicians, but 36% of physicians also use nurses and 12% use other office personnel. Routine referral to dieticians and other diabetes educators is uncommon and occurs for fewer than 25% of patients.

Physicians reported using multiple injections of insulin for only 47% of their patients with IDDM and single injections for 53%. For patients with NIDDM, diet alone was used in 21%, diet plus oral agents in 65%, and diet plus insulin therapy in 14%. Significant and independent differences were noted in insulin use by different groups of physicians, with general practitioners ($P<.0001$) and older physicians ($P<.005$) much less likely to use multiple injections for patients with IDDM, and general practitioners ($P<.05$) less likely to use insulin for patients with NIDDM. Differences among physician groups for patients with IDDM are shown in the **Figure**.

COMMENT

The results of the survey conducted by the Pennsylvania Diabetes Academy suggest that problems regarding diet and weight control are the most common and perhaps the most frustrating problems encountered by primary care physicians. Although patient and physician ratings are often significantly different, patients also rate dietary compliance as the most difficult task to follow.[6] The recent American Diabetes Association guidelines provide little guidance for dealing with this

Table 1. Fifteen Most Common Problems Encountered by Pennsylvania Primary Care Physicians Caring for Patients With Insulin-Dependent Diabetes Mellitus (IDDM)

Problems for Patients With IDDM	No. of Responses (N=610)
1. Following diet	429
2. Weight control	96
3. Maintaining glucose level	87
4. Taking insulin as prescribed	81
5. Doing self-monitoring of glucose level	74
6. Following exercise program	69
7. Noncompliance with follow-up	65
8. Psychosocial adjustment	63
9. Eye problems/retinopathy	55
10. Infections	51
11. Cardiac problems	28
12. Foot problems	27
13. Renal disease	22
14. Neuropathy	20
15. Noncompliance with treatment/medication	19

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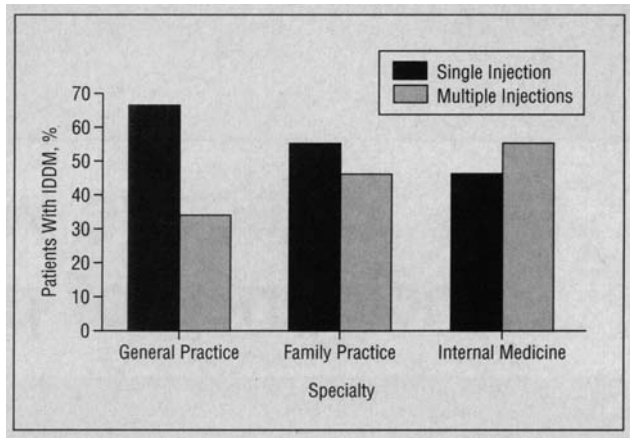
Table 2. Fifteen Most Common Problems Encountered by Pennsylvania Primary Care Physicians Caring for Patients With Non–Insulin-Dependent Diabetes Mellitus (NIDDM)

Problems for Patients With NIDDM	No. of Responses (N=610)
1. Following diet	498
2. Weight control	222
3. Following exercise program	102
4. Noncompliance with treatment/medication	63
5. Noncompliance with follow-up	53
6. Maintaining glucose level	43
7. Psychosocial adjustment	38
8. Infections	37
9. Doing self-monitoring of glucose level	36
10. Taking oral agents as prescribed	35
11. Cardiac problems	33
12. Eye problems/retinopathy	30
13. Hypertension	25
14. Foot problems	20
15. Vascular complications	19



The percentage of patients with insulin-dependent diabetes mellitus (IDDM) treated with single and multiple injections of insulin as a function of primary care specialty.

complex issue other than to recommend that a dietician be consulted at the initial visit and that nutrition and weight be reviewed at each visit. Our study suggests that dieticians and health educators are not used regularly by primary care physicians in Pennsylvania. There are probably many reasons for this, including availability, reimbursement, and patient and physician beliefs. More practical ways need to be developed to help primary care physicians deal with diet and weight management, and financial reimbursement systems need to recognize the importance of ancillary resources for the care of patients with diabetes.

Issues related to glucose control were the second most commonly reported problems. Care patterns related to maintaining the glucose level reported previously by primary care physicians varied significantly in many areas from the standards recommended by the American Diabetes Association.[4] In general, all physicians reported percentages of using self-monitoring of glucose levels, glycosylated hemoglobin measurements, and referrals to eye doctors considerably lower than the recommended standards, with older physicians and general practitioners reporting care patterns most different from the standards. These physicians were also the least likely to use multiple insulin injections in patients with IDDM or insulin therapy in patients with NIDDM. Our study did not identify outcomes and did not have sufficient detail to determine whether patient acceptance, physician knowledge and attitudes, and availability of resources were factors in patient care decisions. Nonetheless, it appears that some of the frustration of physicians in our study is related to underutilization of new scientific knowledge. Further research is in progress to examine physician and patient barriers to the use of new technologies.

Efforts to improve the care of patients with diabetes will have to focus on primary care physicians, who are the principal care providers for the majority of patients with diabetes. Primary care physicians recognize diet, glucose control, and complications as major problems in dealing with patients with diabetes. Groups involved in physician education should stress practical and proven methods to deal with these problems, and innovative educational approaches need to be developed. The results of the survey suggest that physician education strategies focusing on the appropriate use of dieticians and health educators, use of multiple injections, greater use of glycosylated hemoglobin measurements, and appropriate self-monitoring of blood glucose level should provide the greatest benefit in improving the care of patients with diabetes by primary care physicians.

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