Individual and group education sessions should be used to provide the patient with the necessary knowledge to fully participate in management decisions. Activity and dietary routines should be strictly regimented to minimize the major variables that affect insulin requirements. The patient should perform blood glucose testing ≥4 times/day, use these results to adjust the insulin dose (in consultation with the diabetes team at first, then independently), and have frequent follow-up visits with health-care professionals to be certain they are progressing properly. In this way, the patient finds out what level of glucose control can be achieved when maximal effort is expended.

However, diabetes management should not remain the focal point of the patient's life. After the best level of control is determined, the program should be geared to an acceptable level of effort that permits flexibility in life-style. Then it is time to determine the best balance between effort and results. For example, a 20% reduction in effort that results in a 2% worsening of glucose control would be most acceptable. Whatever the effort, it is important that the patient be willing to keep up this effort for life. Periodic reassessment is needed. If the patient feels well, is free from evidence of diabetic complications, and has good indicators of long-term control (i.e., fructosamine or glycosylated hemoglobin), no changes would be necessary. If clinically significant problems develop or if monitoring tools indicate a problem, the patient's program should be reassessed, and a second or third trial at maximum effort should be undertaken.

Programs should be developed to provide the necessary education, training, and support for patients to achieve tight control, when appropriate, and to allow for compromises when tight control is not the goal. These programs should be structured so that they provide flexibility. To be truly effective, these programs must be accessible to all patients with diabetes, not just patients of diabetes specialists.

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Survey of Diabetes Curriculum in Schools of Nursing

The American Diabetes Association (ADA) Council on Education commissioned a Task Force on Nursing Curriculum to assess the need for developing diabetes education materials for use by nursing school faculty. The project goals were to *1*) examine the extent to which diabetes care is addressed in schools of nursing, *2*) characterize the clinical experiences by which nursing students learn to apply knowledge of diabetes care, and *3*) determine the interest of nursing faculty in a diabetes curriculum syllabus that would address concepts critical to the delivery of effective nursing care to people with diabetes.

A survey of diabetes education content in schools of nursing was conducted. The questionnaire asked faculty primarily responsible for teaching diabetes information to provide estimates of amount of time allotted to didactic content, the location (e.g., inpatient, outpatient) and type of clinical experiences (e.g., pediatric, elderly) to which students were exposed, the probability of students becoming familiar with the role of the interdisciplinary team, faculty interest in obtaining additional diabetes teaching materials, and involvement with ADA. Subjects were secured by mailing the questionnaire to a list of associate (ADN) and baccalaureate (BSN) schools of nursing accredited by the National League for Nursing (1,2). Alternate selection of programs from the listing resulted in a survey of 481 programs (ADN 233, BSN 248). A return rate of 52% (ADN 130, BSN 124) was achieved.

BSN programs tended to allot more time to each specific content area than did ADN programs, although the differences were not significant. In general, both BSN and ADN nursing programs tended to allot the largest amount of didactic time to pathophysiology of diabetes (5 h 54 min), followed by the therapeutic regimen (4 h 6 min) and education/psychology (3 h 24 min). In examining specific topic areas, diabetes physiology received the most didactic time (90 min), whereas exercise, patient adherence, and foot care received the least time (~30 min each). Topics most frequently omitted from nursing program curricula included cultural influences (22%) and research advances in diabetes (16%). Patient adherence, aging issues, and intensive insulin therapy were also omitted by ~10% of all programs.

Twenty percent (n = 48) of faculty reported that students had 0–8 h of clinical experience with diabetic patients during their nursing education. Twenty-seven percent reported that students received <24 h of diabetes clinical experience, whereas 53% received >24 h of exposure to diabetic patients. In half of the programs, students definitely provided nursing care to patients with diabetic complications (51.4%) and completed case studies and care plans (50%) by program conclusion. Participation in diabetes patient education was assured in only 35% of the programs. It was unlikely that students would participate in interdisciplinary patient conferences (69%), refer patients to community diabetes education programs (46%), or care for newly diagnosed patients (41%).

Most clinical experiences occurred in the inpatient setting (67%), whereas community and outpatient settings were less frequently used (17 and 9%, respectively). Most patients for whom students provided care were >65 yr of age (44%), whereas <11% of patients were <18 yr of age. When ADN and BSN programs

were examined separately, BSN programs were significantly more likely to offer clinical experiences in pediatric ($t = -2.05$, $P = 0.04$), community ($t = -9.78$, $P = 0.0001$), and outpatient settings ($t = 3.89$, $P = 0.0001$). ADN programs focused significantly more on acute care experiences ($t = 4.45$, $P = 0.001$).

In terms of faculty characteristics, 69% had recently attended a continuing education program on diabetes, and 86% of subjects indicated an interest in information on other continuing education courses. Fifty-seven percent of faculty stated that they did not use diabetes-specific educational materials in their curriculum. Eighty-one percent of faculty were interested in the development of a diabetes care syllabus as an adjunct to other materials currently in use (e.g., textbooks).

Undergraduate nursing programs lay a basic foundation for the cognitive and clinical understanding of various disease processes. Faculty are faced with developing program curricula designed to prepare a competent general practitioner. These results suggest that most nursing faculty believe there is a need for diabetes materials to supplement current teaching tools. Based on these survey data, the Task Force for the ADA Council of Education will further explore the need to develop diabetes education materials for use by nursing faculty.

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REFERENCES

1. Council of Baccalaureate and Higher Degree Programs: *Baccalaureate Education in Nursing: Key to a Professional Career in Nursing*. New York, Natl. League Nursing, 1986/1987, publ. no. 15-1311, p. 5–50
2. Council of Associate Degree Programs: *Associate Degree Education for Nursing*. New York, Natl. League Nursing, 1986/1987, publ. no. 23-1309, p. 5–47

Overnight Versus 24-h Urine Collection in Detection of Microalbuminuria

We read with interest the recent article by Tomaselli et al. (1) comparing albumin excretion rates determined on overnight and 24-h urine collections. We report similar findings, but in the pediatric age-group with assessment of several collections by each method.

Ten patients with insulin-dependent diabetes mellitus (mean ± SD age 14.2 ± 1.6 yr) attending our diabetes clinic and previously shown to have microalbuminuria (MA), defined as an albumin excretion rate (AER) of 15–200 μg/min, performed three 24-h urine collections and three overnight urine collections. Vigorous exercise was avoided during the 24-h collection period.

AERs on the 24-h collections were significantly higher than those obtained on overnight collections, with each of the 10 patients providing three urine collections by each method. The mean ± SD 24-h AER was 47.2 ± 37.7 μg/min (range 16–144 μg/min); mean ± SD overnight AER was 15.8 ± 8.9 μg/min (range 6–28 μg/min, $P = 0.04$). There was no significant correlation between the two methods ($r = -0.25$). The coefficient of variation of the three collections for each individual did not differ between the two methods (40 ± 24% for 24 h, 44 ± 19% for overnight).

When the lower cutoff of 15 μg/min was used to define MA, all 10 patients showed MA on 24-h collections, but only 4 patients showed MA on overnight collections. Our findings add to those of Tomaselli et al. (1), who looked at one collection, given the day-to-day variability in AER. The prognostic importance of patients showing daytime MA related to changes in posture, exercise, and blood pressure requires longer-term follow-up.

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REFERENCES

1. Tomaselli L, Trischitta V, Vinci C, Frittitta L, Squatrito S, Vigneri R: Evaluation of albumin excretion rate in overnight versus 24-h urine. *Diabetes Care* 12:585–87, 1989

Inhibition of Sleep-Induced Growth Hormone Secretion: No Effect on Diabetic Control

Atiea et al. (1) recently reported that an anticholinergic agent, pirenzepine, given at bedtime suppressed sleep-induced growth hormone secretion and attenuated the dawn phenomenon. Although not noted in their article, we previously made the same observation with oral methscopalamine bromide (Pamine, Upjohn, Kalamazoo, MI), an anticholinergic agent available in the United States (2). We then attempted to evaluate whether chronic use of Pamine (5 mg every night) would improve diabetes control with the following protocol.

Sixteen insulin-requiring (9 type I [insulin-dependent] and 7 type II [non-insulin-dependent]) diabetic patients who were on intensive insulin regimens were recruited. Three used insulin pumps; the remainder were on a