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A Survey of Diabetes Content in Associate and  
Baccalaureate Schools of Nursing

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Abstract: Nurses play a critical **role** in promoting **quality** diabetes patient care. The practice patterns of the generalist nurse are established in undergraduate nursing programs. It is therefore critical that the information delivered to the diabetic patient reflect the most recently identified priorities of diabetes care. The American Diabetes Association Council on Education conducted a survey to determine the extent to which diabetes content is addressed in the curricula of nursing schools. Data collected from associate and baccalaureate degree nursing faculty revealed a majority of didactic content focused on topics related to diabetic **pathophysiology**, followed respectively by information regarding the therapeutic regimen and educational or psychological concepts associated with diabetes management.

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settings, minimizing student exposure to **nonacute**, outpatient practice experiences focusing more on issues of diabetes self-management. A majority of faculty responsible for teaching diabetes content had attended continuing education courses to obtain information to use with other teaching materials. Further research is needed to better define the diabetes practice objectives of the generalist nurse and to translate these findings to the nursing faculty responsible for teaching this content.

**Recommendations** for interaction between professional nursing organizations and professional diabetes associations are made.

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Diabetes **mellitus** is a chronic disorder which is a major factor in morbidity due to cardiovascular, renal, and visual disorders (Marble, **Krall, Bradley, Kristlieb, & Soeldner**, 1985). Recent advances in diabetes research and the health care system have changed the more traditionally oriented acute diabetes care focus to that of self-management, preventive efforts. Management of illness demands consistent interactions with a variety of health professionals (such as physicians, dietitians, physical therapists) who display a comprehensive knowledge of diabetes (**Flavin & White**, 1989). The professional nurse is a major resource for the diabetic patient and frequently must assume the role of advocate and coordinator of diabetes care. The nurse assumes a critical role in assuring these clinical changes are optimally addressed. As such, it is imperative that even the nurse at an entry level of general practice have a clear

management.

The foundation for diabetes nursing practice is typically obtained in the basic education program. Therefore, nursing faculty who develop and implement the diabetes curricula are responsible for defining the critical components of diabetes education that are to be taught to the beginning practitioner. However, these same nursing faculty are also responsible for teaching health related content in numerous areas (e.g., cardiovascular health care) and cannot be expected to display expertise in all content. There is minimal information regarding the extent and type of diabetes content which is addressed in schools of nursing.

#### Review of Literature

The literature review encompasses three major areas: (a) the role of the nurse as diabetes educator, (b) the diabetes health care team, and (c) the current state of diabetes education in schools of nursing. These topics are addressed in the following sections.

#### The Nurse As Teacher

Progress in diabetes research and management has been extensive, resulting in technologies that enable the patient to assume an active decision-making role in managing the disease (Haire-Joshu, 1990). Patients with diabetes are expected to make complex behavior changes involving proper usage of medication, diet, blood or urine checks, foot care, and exercise (American Diabetes Association, 1984). Preparing the patient for this role presents a unique challenge to the nurse. Initially, such behaviors may be taught by the nurse within the context of an acute care, hospitalized setting. The additional follow-up

teaching is continued by nurses on an outpatient and/or clinic basis (Bartlett, 1989). In order to adequately conduct such teaching, the nurse needs to be aware of the factual information about the illness and regimen, as well as be able to emphasize what the patient should do rather than what the patient should know. Increasing the patient's knowledge will not improve care unless patient teaching is incorporated to provide this information into the regimen (Graber, Christman, **Alagna** & Davidson, 1977). The omission of such teaching, followed by the subsequent lack of appropriate health care behaviors, may lead to the development of severe complications (DCCT Research Group, 1989). To a great extent, the beginning nurse practitioners are responsible for facilitating teaching as a part of their routine nursing care. Before this can be accomplished however, the nurse needs to be educated as to which components of diabetes care should be incorporated into their practice. Typically, this education is assumed to occur as a part of the basic nursing curricula.

#### The Diabetes Health Care Team

Diabetes patient education requires an interdisciplinary approach (Bartlett, 1989). Although directed toward the patient, diabetes education should reflect the coordinated efforts of the health care team if it is to be comprehensive and if optimal patient welfare is to be achieved (Galloway, **Potvin**, & **Shuman**, 1988). Team members must have clearly defined roles; act collaboratively, yet within clearly defined tasks; and meet regularly to maintain a patient-centered focus. The nurse is a critical component of any such team (**Haire-Joshu**, 1990). The nurse must comprehensively assess the patient's progress and coordinate referrals to other disciplines as is appropriate (**Flavin** &

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White, 1989). The nurse must also display clinical expertise regarding the diabetic regimen, while assisting the patient with psychosocial adjustment and regimen adherence (Etzweiler, 1988). In order to function effectively in this capacity, the nurse needs to have a clear understanding of the role of the various disciplines. The foundation for such an understanding is usually established in the basic nursing education program.

#### Diabetes Education in Schools of Nursing

Educational research in general, and diabetes research in particular, may lag behind current research as much as 15 years (Bartlett, 1989). In addition, the clinical experts on the cutting edge of the research are not typically the faculty members who establish the priority of the content to be taught. This is compounded by the fact that faculty are responsible for upgrading the content of a variety of disease processes making it even more difficult to become familiar with state-of-the-art information associated with one specific disease. To date, there is no research on the extent to which diabetes content is addressed in the curricula of nursing programs.

In summary, the literature suggests the following: (a) the nurse must have a comprehensive knowledge of diabetes if optimal diabetes patient care standards are to be met; (b) the nurse must use this knowledge to provide not only individualized patient care, but also to coordinate the multidisciplinary health care team; and (c) little is known about the extent or focus of diabetes content currently being taught in schools of nursing. Thus, the authors of the present study were interested in studying diabetes content being taught currently in associate and baccalaureate schools of nursing.

The purpose of this study was to determine the extent to which diabetes content is addressed in the curricula of nursing schools. Therefore, the following research questions were investigated.

1. What topical areas receive the most time allotment in associate and baccalaureate nursing curricula?
2. What are the selected characteristics of the clinical experience in which students learn diabetes care?
3. Are nursing faculty interested in the development of additional diabetes education materials to supplement their current teaching repertoire?

#### Methodology

##### Sample

A survey of faculty responsible for teaching diabetes education in associate and baccalaureate degree nursing schools accredited by the National League for Nursing was conducted by the American Diabetes Association Council on Education. Subjects were secured by mailing the questionnaire to a list of associate (ADN) and baccalaureate (BSN) schools accredited by the National League for Nursing (Council of Associate Degree Programs, 1986-87; Council of Baccalaureate and Higher Degree Program, 1986-87). The National League for Nursing, the professional accrediting agency for all nursing programs, is authorized by the Council on Post-Secondary Accreditation of the U.S. Office of Education and the nursing profession. An alternate selection of programs from the listing resulting in a survey of 481 programs (ADN = 233, BSN = 248).

The Diabetes Content Questionnaire (DCQ) was developed for this study. Questionnaire topics were derived from a review of the literature, and from discussions with nurse specialists in diabetes care. Based on these data, the 10 question DCQ was developed. Four diabetes nursing experts generated questionnaire items for the DCQ. These items were then combined into three sections. The first section requested faculty to estimate the amount of time (in minutes) allotted to didactic content associated with three topical areas: **pathophysiology**, the therapeutic regimen, and education/psychology in diabetes. Specific topics, derived from suggestions of diabetes nurse specialists, were included within each area (e.g. , insulin/oral agents, blood glucose monitoring).

The second section requested the location (e.g., inpatient, outpatient), and type of clinical experiences (e.g., pediatric, elderly) to which students were exposed. Faculty were asked to identify the probability (definitely, probably, unlikely) of students becoming familiar with the role of the interdisciplinary team during the nursing program (e.g., referrals, participation in team conferences ).

The final section addressed faculty use of diabetes specific materials, and their level of interest in obtaining additional diabetes care materials. Additional demographic information was also secured. To establish face validity, four faculty members associated with different nursing programs were asked to review the DCQ to assure the comprehensiveness, clarity, and appropriateness of the measure. Based on their **comments**, the wording of the instrument was modified to

include two additional content items regarding the diabetic elderly and adherence issues. The final instrument received a 100% consensus on the items included.

#### Procedure

The survey was mailed to the program director identified in the NLN listing, with a request that it be forwarded to the faculty member who taught the majority of the diabetes related content. An introductory postcard was sent one week prior to the mailing as well as a follow-up reminder two weeks following the mailing.

#### Analysis of Data

The Statistical Package of the Social Sciences (**SPSS**) was used to analyze the data. Descriptive analyses were used to characterize the sample responses. T-test analyses were used to differentiate **responses** between faculty affiliated with associate and baccalaureate degree programs.

#### Results

There was a 52% rate of return of the surveys. Of the surveys mailed to 233 ADN faculty, 130 were returned; of 248 BSN faculty, 124 surveys were returned.

The reliability of sections I and II of the **DCQ** were established using **Cronbach's** Alpha. Section I, a 17 item **subscale** which measured the time allotted to specific didactic content in a nursing program, had an alpha of .88. Section II, a 6 item measure of types of clinical experiences included in nursing programs, had an alpha of .69.

#### Topical Areas Receiving the Most Didactic Time

The data revealed that BSN programs tended to allot more didactic time to each specific content area than did ADN programs although the

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differences were not significant. Therefore, data from the two groups were combined.

In general, nursing programs tended to allot the largest amount of didactic time to content focused on pathophysiology of diabetes (mean = 5 hours, 54 min), followed by the therapeutic regimen (mean = 4 hours, 6 min), and education (mean = 3 hours, 24 min). The specific topical areas, as noted in Table 1, revealed diabetes pathophysiology as

Table 1

Time Allotted For Diabetes Content in ADN and BSN Programs of Nursing

Content	Time Allotted To Content (In Minutes)	Programs Without Time Allotted To Content
	Mean	%
<b><u>Pathophysiologic Concepts of Care</u></b>		
Physiology of Diabetes	5 hrs. 54 min.	
Insulin and Oral Medications	90'	2.5
Diabetes and Pregnancy	66'	2.1
Chronic Complications	64'	4.4
<b>ICT/MDII</b>	62'	2.1
Advances in Research	36'	9.0
	36'	16.0
<b><u>Therapeutic Regimen</u></b>		
Monitoring (blood and urine)	4 hrs. 6 min.	
Diabetes Meal Planning/Nutrition	56'	1.3
Treatment Hypo/Hyperglycemia	52'	2.6
Exercise & Diabetes	51'	2.1
Patient Adherence	32'	2.6
Foot Care	30'	10.1
	25'	4.5
<b><u>Education/Psychology</u></b>		
Components of Diabetes Education	3 hrs. 24 min.	
Impact on Children/Family	48'	7.3
Diabetes and Elderly	46'	7.6
Individual Psychosocial Adjustment	42'	9.0
Cultural Differences	36'	8.0
	32'	22.2

adherence and foot care received the smallest allocations of time. 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 also were omitted by 9% to 10% of the programs.

#### Characteristics of Clinical Experiences

In regard to the selected characteristics of clinical experiences in which students learn diabetes care, the data revealed that 10% (n = 28) of faculty reported students did not provide care to a person with diabetes during their nursing program. Another 10% reported students received less than eight hours diabetes related clinical experience. Twenty-seven percent reported that students received less than 24 hours of diabetes clinical experience while 53% received greater than 24 hour exposure to diabetes 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. In contrast, it was unlikely that students would have the opportunity to participate in interdisciplinary patient conferences (69%), refer patients to **community** diabetes education programs (46%), or care for newly diagnosed patients (41%).

The majority of clinical experiences occurred in the inpatient setting (67%), while community and outpatient settings were less frequently used (17% and 9% respectively). A majority of patients for whom students provided care were greater than 65 years of age (44%),

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while fewer than 1% of patients were below the age of 18. In ADN and BSN programs were examined separately, BSN programs were significantly more likely to offer clinical experiences in pediatric ( $t = -2.05, p = .04$ ), community ( $t = -9.78, p = .0001$ ), and outpatient settings ( $t = 3.89, p = .0001$ ). ADN programs focused content on acute care experiences ( $t = -4.45, p = .001$ ).

#### Faculty Interest in Diabetes Materials

Fifty-seven percent of faculty stated they did not use diabetes specific educational materials in their curriculum. A majority of faculty (81%) expressed interest in the American Diabetes Association development of a diabetes care syllabus or course materials as an adjunct to other materials currently in use (e.g., textbooks). Only 13% ( $n = 36$ ) of respondents were members of the American Diabetes Association. Sixty-nine percent of the faculty had recently attended a continuing education program on diabetes and 86% of the subjects indicated an interest in information on other continuing education courses.

#### Discussion

Basic nursing curricula are designed to produce practitioners who can function in a nonspecialist/generalist nursing role. Given the time constraints faced by nursing faculty charged with teaching a variety of disorders, diabetes content seems to receive adequate representation. The issue then becomes whether the curricular emphasis of nursing programs is appropriate to the state-of-the-art definition of what the generalist nurse needs to know about diabetes care. For example, based on these data, the authors of the present study can be confident that graduate nurses have had clinical experiences with

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elderly diabetic patients hospitalized for complications. The present nurse researchers are less confident that nursing education prepares students to function in **nonacute**, outpatient care settings, where a majority of ongoing diabetes care occurs. The clinical experiences in these areas appeared very limited. If not balanced with alternative clinical and didactic experiences, the students' perspective of the extent to which self-management and preventive health care concepts are translated to patient/families is further diminished-

#### Conclusions

The practice of nurses may be defined **by** experiences that do not reflect the state of diabetes management as it exists today. The current didactic emphasis on **pathophysiology**, and clinical focus on acute diabetic experiences, may not accurately provide the generalist nurse with the **competencies** needed to function on the diabetes health care team. This may be due to the lack of a clear understanding as to what these **competencies** are, or what they should be. Such a definition is needed so nursing faculty might incorporate the appropriate content into the program curricula.

The practice of the generalist registered nurse is defined **by** the diabetes content taught in nursing programs. This content emphasizes a firm foundation regarding the **pathophysiology** of diabetes and acute, hospital-oriented clinical experiences regarding diabetes care. Additional emphasis is needed in several content areas to reflect the state of educational and behavioral research related to diabetes (e.g., psychosocial/adherence issues, lifespan care from childhood to aging, and issues related to outpatient diabetes care).

opportunities to update their current level of knowledge enabling them to translate the most recent changes into practice. In order for this to be completed, the expected competencies of the generalist nurse in dealing with diabetic patients, needs to be defined and this information translated to the faculty involved in nursing education.

### Recommendations

There are several recommendations which can be made based on these findings. An initial solution is to promote interaction between diabetes organizations (e.g., American Diabetes Association) and nursing organizations (e.g., American Nurses Association) to assure that educational standards and objectives of patient care are current. Such collaboration provides a model of organizational cooperation for various health care disciplines and encourages timely translation of diabetes information to nursing practice.

A second recommendation is to develop a list of expected diabetes practice competencies that define the expectations of the general registered nurse. The competencies will provide guidelines for the diabetes practice of the generalist registered nurse. The competencies also allow for evaluation, modification, and timely update of diabetes content to reflect the rapid changes in research. This process should involve the comparative efforts of the American Diabetes Association and a professional organization designated by the nursing community (e.g., American Nurses Association). Such a process encourages **communication** between the diabetes clinical specialist and educational **experts**, drawing on the **particular** expertise of both groups. For example, a procedure for generating an initial list of competencies

might involve the diabetes nursing specialists, as well as nursing education experts. Refinement of the list will draw on the expertise of both organizations.

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