

## In Brief

The evolution of advanced practice in diabetes management has emulated the advanced practice efforts of nursing groups. However, many disciplines are involved in the care and education of people with diabetes. This article reviews the expanded role of health professionals in diabetes and describes the development of a new clinical management credential for nurses, dietitians, and pharmacists with advanced degrees and advanced practice experience in diabetes.

# Evolving Roles: From Diabetes Educators to Advanced Diabetes Managers

Virginia Valentine, CNS, BC-ADM, CDE; Karmeen Kulkarni, MS, RD, BC-ADM, CDE; and Debbie Hinnen, ARNP, BC-ADM, CDE

In the mid-1970s, the first health care professionals known as “diabetes educators” provided basic patient education to complement the medical care provided by diabetes specialists. They taught patients the skills of self-monitoring, meal planning, and medication administration.

In the 1970s and early 1980s, people with diabetes were frequently hospitalized for hyperglycemia to “get their blood glucose under control.” Diabetes educators provided education for such hospitalized patients and for people newly diagnosed with diabetes. Often, this was the only diabetes education patients ever received.

Changes in insurance reimbursement policies during the 1980s led to a decrease in hospitalizations for hyperglycemia, and outpatient diabetes education programs were developed to meet the continuing need for education among people with diabetes. Still, despite the growing numbers of diabetes educators and diabetes outpatient education programs throughout the 1980s, only about 35% of patients with diabetes attended a class or program about diabetes at some time during the course of their disease.<sup>1</sup> Patients and health care professionals often cited the lack of insurance reimbursement for diabetes education services as the reason for this inadequate level of diabetes education.

The National Institutes of Health’s National Diabetes Advisory Board

(NDAB) called for the establishment of quality standards for diabetes education. This effort was to create consistency for diabetes education programs and to assist diabetes educators in meeting payors’ need for quality assurance to facilitate reimbursement.<sup>2-5</sup> In 1983, the NDAB developed National Standards for Self-Management Education, which later became the foundation for its expanded National Standards for Diabetes Education<sup>4</sup> and for the review criteria adopted by the American Diabetes Association (ADA) Education Recognition Program.<sup>5</sup>

In 1986, with the support and leadership of the American Association of Diabetes Educators (AADE), the National Certification Board for Diabetes Educators (NCBDE) began offering the certified diabetes educator (CDE) credential. In the years since, this credential has become the gold standard for formal recognition of specialty practice and knowledge.

Thus, the development of the ADA Education Recognition Program and the CDE credential provided the pathways by which both education programs and education providers could achieve recognition for upholding the highest standards of quality.

The CDE credential is available to members of the health care professional disciplines that comprise the diabetes care team, including nurses, dietitians, pharmacists, physicians,

health educators, behavioral therapists, podiatrists, and others. CDEs are now recognized as experts in diabetes education, and their role continues to expand as educators enhance their position on the diabetes team.<sup>6</sup>

Today, many CDEs provide diabetes clinical management as well as patient education. The Diabetes Control and Complications Trial (DCCT), conducted in the 1980s and early 1990s, helped to define this more advanced role and to establish the value of the multidisciplinary team for intensive diabetes management.<sup>7,8</sup> Nurses, dietitians, and pharmacists in advanced practice have filled an important need for expertise in diabetes management, often working in collaboration with physicians. This expansion in practice gave rise to the need for a new credential to formally recognize advanced preparation and clinical experience in diabetes management.

### **The Emergence of Advanced Practice Nursing in Diabetes**

The certification for advanced practice nurses (APNs) emerged in 1965, although the role APNs played had been developing for decades. The literature indicates that APNs can manage 80–90% of routine medical office visits without the need for consultation or referral. APNs are also particularly adept at knowing when to seek input, when to refer patients, and when to ask for assistance.<sup>9</sup>

The nurse practitioner (NP) role has been widely recognized in the United States. A widely cited report by the Congressional Office of Technology Assessment<sup>10</sup> found the quality of care provided by NPs to be “as good as or better than care provided by physicians” and found that NPs had “better communication, counseling, and interviewing skills than physicians have.” This high-quality, individualized care has also been documented as being cost-effective.<sup>9</sup>

The expansion in advanced practice nursing for diabetes has been dramatic since the release of the DCCT results in 1993. In the DCCT, patients had contact with their health care team once every 7–10 days. Nurses and dietitians handled most of the necessary titration and clinical adjustment of insulin, calories, and activity, much of which was performed through telephone management.<sup>11</sup> When it became obvious that DCCT nurses and dietitians were very

involved in clinical care and not just patient education, AADE realized the need to help define advanced practice nursing in diabetes.

NPs now have prescriptive authority in all 50 states.<sup>12</sup> About half of the states also issue clinical nurse specialist (CNS) licenses, and many are awarding prescriptive authority to CNSs and clinical pharmacists.

CNSs are licensed registered nurses who have a master’s degree or doctorate in clinical nursing. They are clinical experts in theory-based or research-based nursing practice within a specialty area.<sup>13</sup>

In most states, both NP and CNS licensure requires not only educational qualification but also an “advanced specialty certification.” This means potential licensees must have certification that they meet advanced practice educational standards and, in some cases, clinical practice criteria.

This requirement has posed a problem for many advanced practice nurses in diabetes. The CDE, as a multidisciplinary credential, is unacceptable to most state boards of nursing to meet the advanced practice certification requirement. Advanced practice nurses specializing in diabetes need some other form of certification to meet their state licensure requirements and to help ensure recognition and insurance reimbursement for their services. Thus, the creation of an advanced practice nursing credential specific to diabetes became an AADE goal.

### **A Multi-Organizational Collaboration**

In the early 1990s, a small group of diabetes educators with advanced practice credentials formed the Advanced Practice Specialty Practice Group within AADE. In 1993, AADE and ADA created a task force to review the role of advanced practice nurses in diabetes care. By 1995, as a result of discussions with both the Commission on Dietetic Registration (CDR) of The American Dietetic Association and the American Pharmaceutical Association (APA), the task force had recognized the need for a new credential not only for nurses, but also for pharmacists and dietitians, whose roles as advanced diabetes practitioners were gaining recognition.

In the early 1990s, CDR had developed two new credentials for registered dietitians (RDs)—one for pediatric and the other for metabolic specialty areas. Although CDR had antic-

ipated that RDs practicing in diabetes would seek the metabolic specialty credential, this did not prove true, and eventually the metabolic specialty was discontinued. In the field of pharmacy, although pharmacists had been practicing collaboratively with physicians in specialized co-management roles for some time, such roles in the area of diabetes were new and under-recognized.

AADE also held discussions with NCBDE, which decided to participate in a consultative role in the development of an advanced practice credential.

The first steps in developing a new credential are to define advanced practice within a given specialty area and to delineate the scope and standards for that practice. A document outlining the scope and standards for diabetes nursing, including advanced practice nursing, was developed with AADE’s leadership and published by the American Nurses Association in 1998.<sup>14</sup> Revisions are now underway, and similar documents for advanced practice dietitians and pharmacists in diabetes are now being refined.

To further the process and help ensure the success of the new credential, AADE formed a partnership with the American Nurses Credentialing Center (ANCC), the world’s largest certifying/credentialing organization for nurses. ANCC’s reputation for excellence lent credibility to the development and implementation process.

### **The Continuing Evolution of Advanced Practice in Diabetes**

As work began on the development of a new credential for advanced practice in diabetes, advanced practice roles continued to evolve within the dietary and pharmacy disciplines.

### **Gradual Expansion in the Role of Dietitians**

In 1995, the Diabetes Care and Education (DCE) practice group of The American Dietetic Association published a scope and standards document for dietetic practice in diabetes care and education.<sup>15</sup> The scope of practice for dietitians was further influenced by the development of nutrition practice guidelines for type 1, type 2, and gestational diabetes.<sup>16–18</sup> These evidence-based guidelines helped to delineate activities for dietetic professionals providing diabetes medical nutrition therapy (MNT).<sup>16</sup>

The DCE scope and standards document was updated in 2000 to reflect the expansion in the role of RDs in diabetes practice since 1995.<sup>19</sup>

In October 1997, AADE surveyed a random sample of its master's prepared RD members and their employers to determine the level of interest among dietitians in an advanced practice credential for diabetes management. The total number of RDs surveyed was 350. Of 138 respondents, 68% felt that they would meet eligibility criteria for the proposed credential within 5 years, and 48% indicated interest in applying for the credential within 3 years.<sup>20</sup> In 1999, the DCE group surveyed a random sample of its members regarding their interest in the credential. Of 485 respondents, 52.4% said they would be interested in applying, and 45.8% said they would not be interested in applying for the credential. The data from these surveys indicated a significant level of interest in an advanced practice in diabetes credential among RDs with advanced degrees.

RDs who provide diabetes care and education significantly expanded their scope of practice during the years when the new credential was being developed, particularly because MNT gained recognition as an integral part of the diabetes treatment regimen.<sup>21</sup> RD, CDEs continued to develop their roles by multitasking and cross-training with their nurse and pharmacist colleagues, thus positioning themselves to take on advanced-level responsibilities, such as physical assessment, regimen assessment, therapeutic problem solving, and case management, as certified advanced practitioners in diabetes.<sup>20</sup>

### **Recent Growth in the Role of Pharmacists**

Advanced pharmacy practice in diabetes management is relatively recent and was only beginning to emerge at the start of the credential development process. This role integrates the expertise of pharmacotherapy assessment, monitoring, and dosing into the complex dynamics of diabetes patient care and self-management.

Pharmacist diabetes managers provide services including medication management, compliance assessment, blood glucose monitoring, skills training on meters and injections, medication profile assessment and refinement, prospective and retrospective

drug utilization review, adverse drug reaction and toxicity screening, and pharmacokinetic dosing.

The role of pharmacists in facilitating medication plans for diabetes is more important than ever before. Hypertension, hyperlipidemia, and other comorbid conditions require extensive knowledge and understanding of pharmacology, pathophysiology, and patient-specific selection of pharmacotherapy regimens. Furthermore, the careful analysis of drug interactions and effective therapeutic dosing is a clinical skill that enhances both the level of patient care provided and clinical outcomes in diabetes.

These skills are not new in pharmacy and are summarized within the context of pharmaceutical care defined by the APA as "patient-centered, outcomes-oriented pharmacy practice that requires the pharmacist to work in concert with the patient and the patient's other health care providers to promote health, to prevent disease, and to assess, monitor, initiate, and modify medication use."<sup>22</sup>

### **The Launch of a New Credential**

In 2000, as a result of unprecedented multi-organizational collaboration, a new certification, Board Certified-Advanced Diabetes Manager (BC-ADM), was launched.

The certification process is administered through ANCC and supervised by a Content Expert Panel (CEP), which includes representatives from each of the sponsoring organizations (AADE, ADA, CDR, and APA). The CEP's responsibilities include differentiating the domains of practice for each eligible discipline, developing test content outlines, and ensuring the quality of the examination by facilitating item writing and review and test construction. The CEP also works with ANCC staff to support the effective implementation of the credential.

The BC-ADM is the first advanced practice certification offered to members of more than one discipline. It is conferred on nurse, dietitian, and pharmacy practitioners holding an advanced clinically relevant degree and having demonstrated skill in:

- performing complete and/or focused assessments,
- recognizing and prioritizing complex data, and
- providing therapeutic problem solving, counseling, and regimen adjustments for patients with diabetes.

To aid in the effort to translate this definition into a certification examination, ANCC and AADE initiated a role delineation study in 1999, the purpose of which was to determine the commonalities and differences among the eligible professional disciplines. Differences identified through this study related to the areas of:

- comprehensive physical examination;
- drug information, interactions, adverse reactions, pharmacokinetic dosing, and drug profile assessment and refinement;
- health promotion and education; and
- MNT

To address these differences, the CEP developed four versions of the certification exam—one each for NPs, CNSs, dietitians, and pharmacists. The versions share a common core of diabetes management questions, but differ in sections that cover information unique to each profession.

As of this writing, nearly 300 advanced practice nurses, dietitians, and pharmacists have earned the BC-ADM credential. The CEP communicates regularly with ANCC to refine and improve the certification examinations and the credentialing process.

One of the unique features of the certification process is an ongoing testing opportunity. Candidates who have completed the requirements and have had their applications approved can take the computerized test at their convenience at Sylvan Learning Centers, located in most major cities across the United States. Results are sent to candidates within a few weeks of their test appointment.

### **The Unique Niche of the BC-ADM**

According to NCBDE, which administers the CDE credential, diabetes self-management education is performed by health care professionals who have appropriate education and experience consistent with their profession's scope of practice. The process of diabetes self-management education is defined as:

- performance of an individualized biopsychosocial and cognitive assessment of the individual with diabetes and/or the caregivers;
- formulation of an education plan including collaboratively identified goals and objectives based on a core body of knowledge in diabetes content topics and self-care behaviors;

- implementation of the education plan based on established principles of teaching-learning theory and lifestyle counseling;
- evaluation(s) to assess the individual's understanding and utilization of diabetes management skills and knowledge, including reassessment of needs; and
- proper documentation of all education encounters.<sup>23</sup>

Thus, the CDE credential focuses on patient education, whereas the BC-ADM credential is more expansive, encompassing not only patient education, but also a broader patient care role, clinical management, and other professional/leadership activities.

BC-ADM candidates begin the certification process by meeting preparation requirements that include achievement of an advanced degree. The definition of advanced preparation varies by discipline and by the ways in which advanced practice is defined in different states. Because nursing roles are primarily defined at the state level, the requirements for advanced practice nursing are also defined by each state. Most states require advanced practice nurses to hold a master's degree in nursing, but a few have accepted a master's degree in public health or other advanced degrees. For pharmacists and dietitians, advanced practice also requires advanced preparation.

BC-ADM certification requires both practice and academic preparation. Before sitting for the exam, practitioners must have completed 500 hours of advanced practice. This combination of academic and practical preparation ensures a high level of expertise for consumers who seek care from a BC-ADM.

The BC-ADM practice requirement is different from that of the CDE not only in number of hours, but also in that the practice hours reflect all the activities of advanced professional practice. The scope of advanced clinical practice includes diabetes management skills such as medication adjustment, MNT, exercise planning, and counseling for behavior management and psychosocial issues. Assisting patients in attaining optimal metabolic control also includes treating and monitoring acute and chronic complications. The depth of knowledge and competence in advanced clinical practice and diabetes management affords an increased complexity of decision

making, which expands the traditional discipline-specific practice. Research, publications, mentoring activities, and continuing professional development are expected skill sets.

Activities that comprise the BC-ADM role include:

- collecting comprehensive client health data;
- critically analyzing the assessment data in determining or confirming a diagnosis or problem list;
- identifying expected clinical outcomes derived from the assessment data and diagnosis/problem list and individualizing expected outcomes with clients and with the health care team when appropriate;
- developing comprehensive plans of care that include interventions and treatments to attain expected outcomes;
- prescribing/initiating or implementing interventions and treatments for clients' plans of care;
- comprehensive clinical coordinating of care and case management;
- consulting to influence clients' plans of care, to enhance the clinical ability of others, and to affect change in the system of care;
- employing complex strategies, interventions, and teaching to promote, maintain, and improve health among individuals, families, groups, and communities who have or are at risk for diabetes;
- using prescriptive authority (some registered nurses and registered pharmacists), procedures, and treatments in accordance with state and federal laws and regulations to treat illness and improve functional health status or provide preventive care;
- identifying the need for additional care and making referrals as needed;
- evaluating clients' progress in attaining expected outcomes;
- developing criteria for and evaluating the quality of care and effectiveness of advanced clinical diabetes management;
- continuously evaluating one's own practice in relation to professional practice standards and relevant statutes and regulations and being accountable to the public and to the profession for providing competent clinical care;
- acquiring and maintaining current knowledge and skills in diabetes care and education;
- serving as a leader and role model for the professional development of peers, colleagues, and others;

- integrating ethical principles and norms in all areas of practice;
- promoting an interdisciplinary process in providing client care; and
- utilizing research to discover, examine, and evaluate knowledge, theories, and creative approaches to health care practice.<sup>24</sup>

### **The Potential Benefits of the BC-ADM Credential**

As mentioned earlier, nurses with advanced degrees must obtain state-level practice recognition to gain prescriptive authority and insurance reimbursement. Most state boards of nursing do not accept the CDE as evidence of advanced practice in diabetes. Earning the BC-ADM credential can help NPs and CNSs practicing in diabetes meet state-level requirements for advanced practice status.

For dietitians, the BC-ADM credential can increase advanced practitioners' credibility with colleagues, clients/patients, employers, other health care professionals, and the public. The BC-ADM also differentiates advanced practice RDs as having an advanced level of expertise in clinical diabetes management, which may aid in reimbursement issues in the future. Earning the BC-ADM may also lead to expanded roles for dietitians within their own work settings (although such roles must still fall within the scope of their state's dietary practice acts).<sup>20</sup>

Pharmacists with advanced degrees can choose to earn one of several diabetes certifications. However, the BC-ADM credential is more academically and clinically rigorous than some others. As for dietitians, the BC-ADM credential for pharmacists informs clients, health care professionals, and others that those holding it have attained expertise in diabetes education and clinical practice.

Just as no one in 1986 could have predicted the rapid growth in the importance of the CDE credential, no one today knows the future impact of the BC-ADM; however, the potential for significant impact is real.

For nurses, dietitians, and pharmacists who already have an advanced degree in a clinically relevant area, earning the BC-ADM credential is the next logical career step. For those practicing in diabetes but who do not have an advanced degree, the BC-ADM credentialing process provides a roadmap for a future career in diabetes management.



## The Evolution Continues for Dietitians and Pharmacists

The current scope of practice document for dietetics professionals defines the roles of dietetic technicians, registered; RDs; and RDs who are CDEs.<sup>12</sup> A DCE task force is defining the scope of practice for advanced practice RDs. When completed, this document will be submitted for review and approval by The American Dietetic Association and sent to a multidisciplinary group of diabetes care practitioners to ensure that it reflects the responsibilities of advanced practice RDs.

For pharmacists, legislative and practice recognition of advanced practice roles has not been uniformly adopted or defined among the states. Currently, 38 states have adopted, or are about to adopt, recognition of collaborative drug therapy management (CDTM) practices between pharmacists and physicians.<sup>25</sup> CDTM laws vary from state to state. The extent of prescriptive authority and other responsibilities differ, as does the designation for pharmacists practicing under the direction or supervision of a collaborating licensed physician. In North Carolina, for example, a CDTM pharmacist is classified as a "clinical pharmacist practitioner."

Ongoing CDTM legislative activities will allow for better delineation and qualification of roles, and the involvement of advanced practice pharmacists in diabetes management will help to ensure positive clinical outcomes for patients with diabetes.

## A New Set of Decisions

Which certification(s) do I need? From now on, this is a question many diabetes care professionals will have to answer, as diabetes educators with advanced academic preparation and clinical roles decide whether to seek the BC-ADM, the CDE, or both.

To find the answer, advanced practitioners will need to ask themselves:

- What are the unique benefits of each credential?
- Do either or both meet my employment, accreditation, or other professional needs?
- Which will best demonstrate my expertise to my patient population?
- What are the implications of maintaining one or both credentials among colleagues in a collaborative practice?
- What are the financial implications of maintaining two certifications?

- What do the credentials portray about my professional activities?

The BC-ADM certification is the culmination of years of thought and effort by many leaders in the diabetes health care community. This credential, which provides advanced practice clinicians with the opportunity to take their practice to a new level of expertise and professionalism, is likely to be only the beginning of many new opportunities for advanced practice clinicians in diabetes.

## References

<sup>1</sup>Coonrod BA, Betschart J, Harris MI: Frequency and determinants of diabetes patient education among adults in the U.S. population. *Diabetes Care* 17:852-858, 1994

<sup>2</sup>National Diabetes Advisory Board: National standards for diabetes patient education programs. *Diabetes Educ* 9:11-14, 1984

<sup>3</sup>National Diabetes Advisory Board: National standards and review criteria for diabetes patient education programs. *Diabetes Educ* 12:286-291, 1987

<sup>4</sup>Berlin N, Sims D, Belloni J, Brimberry J, Etzweiler D, Hiss R, Kramer N, Krueger K, Leichter S, Lipsett L, Pauano D: National standards for diabetes patient education programs: pilot study results and implementation plan. *Diabetes Educ* 12:292-296, 1987

<sup>5</sup>American Diabetes Association: Standards and review criteria: national standards for diabetes patient education and American Diabetes Association review criteria. *Diabetes Care* 25 (Suppl. 1):S140-S147, 2002

<sup>6</sup>Clement S: Diabetes self-management education. *Diabetes Care* 18:1204-1214, 1995

<sup>7</sup>Ahern J, Kruger DF, Gatcomb B, Pettit W, Tamborlane W, for the DCCT Research Group: The Diabetes Control and Complications Trial: trial coordinators perspective. *Diabetes Educ* 15:236-241, 1989

<sup>8</sup>The DCCT Research Group: Expanded role of the dietitian in the Diabetes Control and Complications Trial: implications for clinical practice. *J Am Diet Assoc* 93:758-767, 1993

<sup>9</sup>Lenz ER, Munding MO, Hopkins SC, Lin SX, Smolowitz J: Diabetes care processes and outcomes in patients treated by nurse practitioners or physicians. *Diabetes Educ* 28:590-598, 2002

<sup>10</sup>United States Congress Office of Technology Assessment: *Nurse Practitioners, Physician Assistants, and Certified Nurse-Midwives: A Policy Analysis*. 1986, December HCS 37.

<sup>11</sup>The DCCT Research Group: The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med* 329:977-986, 1993

<sup>12</sup>Pearson L: Fourteenth annual legislative update: how each state stands on legislative issues affecting advanced nursing practice. *Nurse Practitioner* 27:10-22, 2002

<sup>13</sup>www.nacns.org (accessed on September 12, 2002)

<sup>14</sup>American Nurses Association: *Scope and Standards of Diabetes Nursing*. Washington, D.C., ANA Publishing, 1998

<sup>15</sup>Scope of practice for qualified professionals in diabetes care and education. *J Am Diet Assoc* 95:608-609, 1995

<sup>16</sup>Kulkarni K, Castle G, Gregory R, Holmes A, Leontos C, Powers M, Snetzelarr L, Splet P, Wylie-Rosett J: Nutrition practice guidelines for type 1 diabetes mellitus positively affect dietitian practices and patient outcomes. *J Am Diet Assoc* 1:62-70, 1998

<sup>17</sup>Franz MJ: Practice guidelines for nutrition care by dietetics practitioners for outpatient with non-insulin dependent diabetes mellitus (Consensus Statement). *J Am Diet Assoc* 9:1136-1139, 1992

<sup>18</sup>Lenox S: Nutrition practice guidelines for gestational diabetes. *On the Cutting Edge* 21:15-18, 2000

<sup>19</sup>Diabetes Care and Education Practice Group: Scope of practice for qualified dietetics professionals in diabetes care and education. *J Am Diet Assoc* 100:1205-1207, 2000

<sup>20</sup>Daly A, Kulkarni K, Boucher J: The new credential: advanced diabetes management. *J Am Diet Assoc* 101:940-943, 2001

<sup>21</sup>American Diabetes Association: Standards of medical care for patients with diabetes mellitus (Position Statement). *Diabetes Care* 25 (Suppl. 1):S33-S49, 2002

<sup>22</sup>American Pharmaceutical Association: Principles of practice for pharmaceutical care. Full text can be accessed online at [www.aphanet.org](http://www.aphanet.org).

<sup>23</sup>National Certification Board for Diabetes Educators: [www.ncbde.org](http://www.ncbde.org). Accessed July 2, 2002

<sup>24</sup>Hinnen D, Smolenski MC: *A Credential is Born: Advanced Clinical Diabetes Management*. Presentation at the American Association of Diabetes Educators annual meeting in Louisville, Ky. August 18, 2001

<sup>25</sup>Cannistra J: Pennsylvania Governor signed collaborative drug therapy management bill. *Pharmacy Today*, July 9, 2002, p. 8

*Virginia Valentine, CNS, BC-ADM, CDE, is the chief operating officer and clinical nurse specialist at Diabetes Network, Inc., in Albuquerque, N.M. Karmeen Kulkarni, MS, RD, BC-ADM, CDE, is coordinator of the Diabetes Center at St. Mark's Hospital in Salt Lake City, Utah. Debbie Hinnen, ARNP, BC-ADM, CDE, is manager for diabetes services at Via Christi Regional Medical Center in Wichita, Kans; an adjunct faculty member for the graduate nursing department of Wichita State University and for the School of Pharmacy and School of Medicine, Pediatrics Department, at the University of Kansas School of Medicine in Wichita; and an associate editor of Diabetes Spectrum.*