

is quickening by the year. Practice roles and responsibilities are growing for registered dietitians in such diverse and entrepreneurial fields as public relations, sales and marketing, personal nutrition and exercise counseling, community health education, consultation in business and industry, nutrition consulting with professional sports teams, and management of multi-million dollar food service operations, to name only a few positions. Registered dietitians are deeply involved in basic and applied research, including medical nutrition therapy, nutrition genetics, metabolism, preventive nutrition, counseling and behavioral change, and food research and development. Changes in the delivery of health care, such as decreasing hospital lengths of stay and increasing numbers of outpatient surgeries, have resulted in the need for outcomes measurement and more knowledge of practice management. Practice settings are becoming more varied and include health clubs and wellness centers, community-based health promotion and disease prevention programs, long-term care, home care, and residential retirement and assisted living centers. There is increased demand for registered dietitians as multi-skilled team leaders with business capabilities in fields like executive-level healthcare, negotiation, budget, revenue generation, food merchandizing, and restaurants. Registered dietitians in the United States are skilled communicators, equally at ease speaking with patients and clients as they are marketing their value to employers, other health professionals, the public, and the news media (ADA Dietetic Education Task Force Report 2005, ADA Future Practice and Education Task Force Report 2007).

In the United States, the term “*clinical nutrition*” refers to responsibilities of registered dietitians in the area of patient care management. As shown in the previous tables the responsibility of registered dietitians is primarily in patient care in hospitals, outpatient clinics, extended care facilities, and community health settings. Responsibilities of registered dietitians in food service include marketing and directing food service operations, menu planning, ordering and procurement of food, assuring safety and sanitation, and managing employees in food preparation and service. Although registered dietitians have basic training in food preparation they are rarely involved in institutional cooking activities.

Because of the results of dietitian-conducted outcomes research over time, physicians, nurses, and other healthcare professionals recognize the registered dietitian as a knowledgeable practitioner and that nutrition care

provided by registered dietitians is essential to achieve and maintain good health, reduce incidence of nutrition-related diseases, treat specific diseases, and reduce healthcare costs.

Consistent with this change over time, the prescriptive powers of dietitians have increased. *Prescriptive authority*, often referred to as order-writing privileges, is a goal for registered dietitians. Over half of clinical registered dietitians working in acute care facilities have no prescriptive authority, 36% have dependent prescriptive authority (meaning they have authority to order diets, nutritional supplements, nutrition-related tests and nutrition-related treatments according to protocols, algorithms, policies or pre-approved criteria), and 10% report independent prescriptive authority (meaning they may act autonomously to provide the nutritional services listed above). The most commonly listed barriers to independent prescriptive authority are opposition by other healthcare professionals and liability. Prescriptive authority is believed to enhance provision of effective medical nutrition therapy for patients and potentially reduce healthcare costs associated with physician and dietitian time spent prescribing, clarifying, and implementing diet orders. Prescriptive authority for registered dietitians might also facilitate the distinction of advanced practice in dietetics (Weil et al 2008).

Provision of poor nutritional care can lead to deaths of patients especially for those receiving high technology treatments such as dialysis and enteral and parenteral nutrition support. Because liability issues are significant for dietitians involved in clinical nutrition practice, malpractice insurance is a requirement for dietitians just like it is for other healthcare professionals in the United States. The most important liability protection for clinical dietitians however is the process of *lifelong learning* that is essential to become expert and remain expert in practice. Lifelong learning and continual improvement in practice will make possible the distinction of advanced practice dietetics in the future.

Advanced practice dietetics in the United States is currently happening but its definition, identification of scope of practice, requirements for skills and competence, and educational pathway have not been clearly delineated. The ADA Dietetic Education Task Force Reports (2005, 2006) and the ADA Future Practice and Education Task Force Reports (2007, 2008) state that advanced practice dietetics requires an advanced degree as well as signifi-

cant practice experience. The outcome of a graduate program that combines clinical practice and research leading to advanced knowledge, competency, and proficiency will be the advanced-level dietetics practitioner who is fully prepared to be a leader in clinical dietetics practice and research. The ADA Future Practice and Education Task Force (2007, 2008) attempted to define advanced practice dietetics and specialty dietetics practice. Although further study may assist in refining the distinction between specialty and advanced practice, the following definitions were verified by participants in a survey conducted by the ADA Future Practice and Education Task Force in 2007.

“A specialty practitioner is an individual who concentrates on one aspect of the profession of dietetics. This specialty may or may not have a credential and additional certification, but it often has expanded roles beyond entry level practice. An advanced practitioner has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context in which he/she practices. Advanced practitioners may have expanded or specialty roles or both. Advanced practice may or may not include additional certification. Generally the practice is more complex and the practitioner has a higher degree of professional autonomy and responsibility.”

The ADA Future Practice and Education Task Force Report (2007) identified 6 areas of advanced practice dietetics: clinical health care, higher education, wellness and prevention, food and/or food production and service systems, public policy, and research. Skipper and Lewis (2006) via electronic survey found clinical registered dietitians, employers, and educators to be interested in advanced practice education and professional doctorate degrees in clinical nutrition (for more information on doctoral degrees see discussion under the section, Outcomes of the Educational System for Dietetics).

The United States therefore has a tiered level of dietetic practitioners. Advanced practice dietetics will likely require the highest education and experience and will likely offer dietitians the highest degree of autonomy in practice when implemented. Specialist practitioners currently have a high degree of autonomy, and certificate practice dietitians and registered dietitians are continually gaining autonomy. Dietetic technicians in the United States function under the direction and support of registered



dietitians and generally have very limited autonomy. The following diagram represents the tiered level of dietetic practitioners in the United States.

Dietetic technicians are generally educated in community (junior) colleges and are two year programs with 450 hours of required supervised practice experience that culminate in the Associate Degree. Currently there are 55 dietetic technician programs in the United States.

http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/career_1748_ENU_HTML.htm
 Accessed March 15, 2009

Graduates of four year didactic programs in dietetics (DPD) with baccalaureate degrees who do not take the dietetic internship (DI) may become dietetic technicians if they fulfill the hours of required supervised practice experience. The dietetic technician may take the Commission on Dietetic Registration (CDR) registration examination for dietetic technicians and become Dietetic Technicians Registered (DTRs). Dietetic technicians may be active members of the American Dietetic Association. By definition, “technician” refers to a person who has been trained at the technical level requiring less than a baccalaureate degree. A registered dietitian (RD) with the minimum of a baccalaureate degree is considered the “professional.”

The jobs and salaries of RDs and DTRs are significantly different. DTRs work more in hospitals and extended care than do RDs, significantly less in ambulatory care clinics and consultation, and about the same percentage of RDs and DTRs work in community public health. The median total cash compensation for DTRs is approximately 70% of that of RDs (Rogers 2008).

In addition to lower academic requirements and differences in jobs and salaries, the Standards of Practice for dietetic technicians is significantly less than that for registered dietitians. Educational programs in junior colleges are decreasing in number, student enrollment in programs is decreasing, the number of DTRs in the United States is decreasing, and it appears that DPD graduates and certified dietary managers (with even less formal training, often by correspondence course) are filling the need for support personnel in dietetics settings (ADA Dietetic Education Task Force Report 2005). The small number of DTRs (approximately 4,500) and the large number of DPD baccalaureate degree graduates (estimated at 60,000), and approximately 15,000 certified dietary managers, are competing for limited job positions. In 1966, educational competencies for DTR and RD education were first developed to show the relationship between the role of the dietetic technician and the role of the dietitian. Similarities are perceived to be greater than differences in stated performance for the two practice levels. This erroneous perception has resulted in role confusion on the part of both the profession and employers. Based on these trends and facts, the ADA Dietetic Education Task Force Report (2005) recommended a gradual phase-out of the DTR credential and accreditation of DT education programs.

Eligibility Requirements and Accreditation Standards for Dietetic Technicians (2008) can be accessed at the following website:

http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/CADE_16149_ENU_HTML.htm

Accessed March 13, 2009.

The DTR-RD situation in the United States can be likened to the confusing situation that exists in Japan in using the term “dietitian” which in Japan can mean registered dietitians and non-registered dietitians.

Japan

The primary function of dietitians (registered and non-registered dietitians) in Japan is food service preparation (kitchen cooking) and management of kitchen workers. Although this primary function is sometimes referred to in Japan as clinical nutrition, this distinction is a noticeable difference from the terminology used in the United States and generally elsewhere.

In Japan, pharmacists and physicians are primarily responsible for initiation and continuance of nutrition

support via the enteral and parenteral routes in hospitals or other healthcare settings. Pharmacists are responsible for compounding and determining enteral and parenteral formulas; physicians are responsible for writing enteral and parenteral orders.

It has been suggested that the preferred job of registered dietitians in Japan is a focus on nutrition assessment, planning, implementation and evaluation making it more equivalent to the role of registered dietitians in the United States, United Kingdom, and Australia. Until recent years, this would not have been possible because RDs in Japan had limited opportunity to work in the direct patient care area (i.e., patient rooms and patient care documentation stations). Access to electronic medical records in hospital patient care areas has made it more possible for dietitians to be involved in direct patient care. Although not common, some registered dietitians in Japan have worked side-by-side with physicians for many years and have achieved a reputation for excellence and authority. These dietitians along with supportive physicians and other healthcare team members have improved nutritional care for patients in Japan's hospitals and are making it possible for other dietitians to join their ranks.

The government of Japan is also making it possible for dietitians to work in home care programs and elderly care programs with emphasis on food and general diet and nutrition counseling to improve overall health and to prevent disease. Reimbursement for dietetics services is part of the government's program for nutritional care for Japan's elderly.

As the cost of treating individuals diagnosed with chronic diseases continues to rise worldwide, the United States government and an increasing number of private insurance companies in the United States and elsewhere are turning their focus to *chronic care health programs*. The dietitian's role in patient-centered chronic care health programs requires provision of medical nutrition therapy with an emphasis on patient self-care and self-management (Blackburn 2005). This practice area for registered dietitians in Japan fits well with Japan's government program to care for the elderly.

The role of food in healthcare is expanding in Japan with government regulatory assistance. *Health claims for food* fit Japan's cultural interest in, and beliefs about, the preventive properties of food. In 2004 there were 398 Foods for Specified Health Use, with government-approved

health claims. The market for functional foods in Japan is expected to be the world's largest by 2010, at 25 billion US\$ (Ohr 2005).

The role of *food in healthcare* is an exciting practice opportunity for registered dietitians in Japan, and includes much more than current responsibilities in food service and management in hospitals. Recommendations from the latest environmental scan conducted for the profession of dietetics in the United States (Jarratt 2007) are appropriate for Japanese dietitians, specifically:

- Most consumers around the world want to know how to get the best for their families from what the food system offers; registered dietitians are best suited to provide this advice in Japan.
- Dietitians in Japan can provide needed assistance to teachers in early childhood educational programs to teach children the importance of distinguishing the best choices from what the market is offering.
- For teenagers, Japanese dietitians can teach food and nutrition for health by talking the language of teenagers, which may mean through an instant message or a YouTube video.
- Parents of children – from the very young through high school – need the advice of educated registered dietitians who can relate well to those of school age and those of middle and older age, those with money and those with limited financial resources, those with low and those with high education, and those of cultural diversity.
- Registered dietitians in Japan also can be watchful guardians of the public's interest in nutrition, taste, flavor, and value. With the wonderful food products that Japan has the registered dietitian can assist the country in guarding its cultural heritage, impacting the safety and wise import of foods from other countries, and teaching the population how to incorporate nutritious foods into the culture.
- Registered dietitians in Japan have the potentially huge role in helping the public sort out the information and misinformation it receives from potentially unscrupulous entrepreneurs or food producers touting unsubstantiated claims.

It appears that the possible roles and practices of registered dietitians in Japan are endless and can be nationally beneficial. By expanding the role of registered dietitians in healthcare settings, especially with medical nutrition therapy for ill patients, use of foods (nutritious, safe, varied and beautifully displayed) to foster good appetite and good food choices, and nutritional care to prevent illness

in healthy individuals, the dietitian can be a cost-effective provider of healthcare services in Japan.

Overview of the Dietetics Education System in the United States

While there have been many curriculum updates and competencies added over the years, the basic educational requirements consisting of a baccalaureate degree and supervised practice have not changed since 1927 when dietetics education requirements were first defined for the United States.

The *profession of dietetics* in the United States is a broad discipline and is defined as:

“The integration and application of principles derived from the sciences of food, nutrition, management, communication, and biological, physiological, behavioral, and social sciences to achieve and maintain optimal human health” (O’Sullivan Maillet et al. 2005).

Dietetics education is integral to achieving the definition of the profession of dietetics. How is dietetics education carried out in the United States? Understanding the roles and processes of the Commission on Accreditation for Dietetics Education (CADE) and the Commission on Dietetic Registration (CDR) is essential to understanding dietetics education and practice in the United States.

Commission on Accreditation for Dietetics Education (CADE)

The Bylaws of the American Dietetic Association established the Commission on Accreditation for Dietetics Education (CADE) as the organizational unit to serve the public by establishing and enforcing standards for the educational preparation of dietetics practitioners and by recognizing dietetics education programs that meet these standards. This process is called *accreditation*. The purpose of CADE accreditation is *quality dietetics education* which CADE defines as:

“the ability to prepare graduates with the foundation knowledge, skills and competencies to work effectively within their communities to improve the quality and quantity of food and nutrition for all people, both now and in the future” (CADE 2006).

CADE is recognized by the United States Department of Education (USDE) and the Council for Higher Education Accreditation (CHEA) both of which affirm that CADE meets national standards and is a reliable authority on the quality of dietetics education programs. USDE and CHEA require CADE to assess quality by reviewing measures of student/graduate achievement, such as program completion, registration exam pass rates, employment, and enrollment in internships or continuing education in addition to achievement of the defined knowledge, skills, and competencies for the profession.

CADE's Standards for the dietetics education curriculum are competency-based and do not mandate specific courses or course content. Instead, the CADE-Standards define broad-based foundation knowledge, skills, and core competencies essential to dietetics practice at each level. Faculty members of dietetics education programs have the flexibility to design the curricula and courses to maximize their resources and meet the needs of students and the marketplace (CADE 2006). For supervised practice programs, competencies specific to strategic market areas are defined to prepare graduates with the ability to immediately meet evolving and diverse market needs.

The following information has been copied directly from the Commission on Accreditation for Dietetics Education 2008 Foundation Knowledge and Competencies for Dietitian Education, published in March 2008:

http://www.eatright.org/ada/files/Final_Report-2008_ERAS_3-08.pdf

Accessed March 13, 2009.

"Individuals interested in becoming Registered Dietitians should expect to study a wide variety of topics focusing on food, nutrition and management. These areas are supported by the sciences: biological, physiological, behavioral, social and communication. Becoming a registered dietitian involves a combination of academic preparation, including a minimum of a baccalaureate degree, and a supervised practice component.

The foundation knowledge requirements will be the focus of the academic component of dietitian education, either in a Didactic Program in Dietetics or a Coordinated Program accredited by the Commission on Accreditation for Dietetics Education, the accrediting agency for the American Dietetic Association. These requirements may be met through separate courses, combined into one course, or as part of several courses as determined by the college or

university sponsoring a CADE-accredited program.

Competence to practice dietetics is achieved through a CADE-accredited supervised practice component, either in a baccalaureate or masters degree Coordinated Program or a post-baccalaureate Dietetic Internship. Competency statements specify what every dietitian should be able to do at the beginning of his or her practice career. The competency statements build on the foundation knowledge necessary for the entry-level practitioner to perform reliably at the level indicated. A concentration area is added to the basic competencies so that a supervised practice program can prepare graduates for identified market needs. Thus, all entry-level dietitians will have the basic competencies and additional competencies according to the concentration area completed."

Routes to Registration Eligibility

Dietetics education and the pathways to registration eligibility (to become a Registered Dietitian) are complex. Currently there are two pathways for registration eligibility in the United States: the Coordinated Program and the Didactic Program in Dietetics plus a separate Dietetic Internship. Colleges and universities, the primary sponsors of dietetics education, support multiple dietetics education programs because of these different options.

Coordinated Program (CP)

The Coordinated Program route to registration eligibility began at The Ohio State University in 1962 (American Dietetic Association 1984 Study Commission Report). Within the four years of undergraduate education, both the didactic and the 1200 hours of supervised practice experiences are included. A CP may also be at the graduate degree level. Of the total 55 CPs in the United States, approximately 75% are housed in a university with another CADE-accredited dietetics program. Graduates of CPs who are verified by the program director are eligible to write the Commission on Dietetic Registration (CDR) registration examination for dietitians; see discussion under the section Dietetic Registration and Licensure.

A list of the CPs, their state and university location, sponsoring department, address, contact person, emphasis, enrollment per class, degree granted, estimated cost of annual tuition, and other information for each program can be found at the American Dietetic Association website that follows:

http://www.eatright.org/cps/rde/xchg/ada/hs.xml/career_2193_ENU_HTML.htm

Accessed March 2, 2009.

Eligibility Requirements and Accreditation Standards for Coordinated Programs (2008) can be accessed at the following website:

http://www.eatright.org/cps/rde/xchg/ada/hs.xml/CADE_16149_ENU_HTML.htm

Accessed March 13, 2009.

Didactic Program in Dietetics (DPD) Plus Dietetic Internship

The DPD is offered at a college or university and is a four-year baccalaureate degree program or a longer (1-2 extra years) graduate degree program that includes the required dietetics coursework to meet the knowledge requirements set by CADE. Although there are likely some practice experiences within these four years, the 1200 required hours of supervised practice experience is not part of the program; these hours will be achieved in a subsequent dietetic internship.

With the advent and growth of *distance education technologies*, more and more “non-traditional” students are entering dietetics education programs, especially the DPD programs. Non-traditional students are usually those who are second-degree students, older students, part-time students, students of cultural diversity, or students who must hold a paying position and care for families while working on an undergraduate or graduate degree. Many of these students do not go on to complete the dietetic internship, however many others do and often are employed in public health initiatives, in rural programs, and provide nutrition counseling in culturally-diverse populations.

When students successfully complete and graduate from the CADE-accredited DPD they are verified by the program director and may apply for dietetic internships to establish eligibility to write the CDR registration examination for dietitians. During the last year of the student’s DPD, faculty members provide information to students about dietetic internships and write letters of recommendation for students. The student then applies to one or more dietetic internships of their choice and awaits acceptance. Of the 228 DPDs, 68% are housed in colleges and universities that also support a CP and a dietetic internship. A list of the DPDs, their state and university location, sponsoring department, address, contact per-

son, enrollment, degree granted, estimated cost of annual tuition, and other information for each program can be found at the American Dietetic Association website that follows:

http://www.eatright.org/cps/rde/xchg/ada/hs.xml/career_2192_ENU_HTML.htm

Accessed March 2, 2009.

Eligibility Requirements and Accreditation Standards for Didactic Programs in Dietetics (2008) can be accessed at the following website:

http://www.eatright.org/cps/rde/xchg/ada/hs.xml/CADE_16149_ENU_HTML.htm

Accessed March 13, 2009.

Dietetic Internship (DI)

To apply to a DI, individuals must complete at least a bachelor’s degree and CADE-approved coursework requirements from a Didactic Program in Dietetics (DPD). A DI must provide at least 1200 hours of supervised practice, under the direction of qualified preceptors, and is usually completed in 6-24 months depending on the availability of a part-time schedule or requirement of graduate credit. Of the 246 DIs, approximately 70% are affiliated with a university or academic health center. Individuals completing the DI who are verified by the program director are eligible to write the CDR registration examination for dietitians.

Appointments to DIs are awarded on a competitive basis and most use a national computer matching process. Programs not participating in computer matching accept applications only from individuals employed by the sponsoring organization. Prospective applicants must contact program directors for current information, including application deadline dates. Programs will provide application forms and detailed information on program requirements, tuition, and financial aid upon request. A list of the DIs, their location, department, address, contact person, annual enrollment, program length, emphasis, estimate cost of tuition, computer matching dates, and other information for each program can be found at the American Dietetic Association website that follows:

http://www.eatright.org/cps/rde/xchg/ada/hs.xml/career_2191_ENU_HTML.htm

Accessed March 2, 2009.

Eligibility Requirements and Accreditation Standards for Dietetic Internships (2008) can be accessed at the following website:

http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/CADE_16149_ENU_HTML.htm

Accessed March 13, 2009.

Benefits of Coordinated Programs

Recommendations by colleges and universities in the United States include a focus on *meaningful learning* wherein students understand the relevancy of information presented in didactic courses *through integration of content into supervised practice* (Greater Expectations National Panel 2002). Faculty autonomy and higher satisfaction among dietetics educators occur when experiential teaching methods are conducive to student learning. Faculty and student dissatisfaction is associated with inadequate time and resources, need for course improvement, and lack of control (Short and Chittooran 2004). CPs often meet these recommendations better and address these factors better than do “DPD Plus DI” programs.

Coordinated Programs are somewhat more able than “DPD Plus DI” programs to integrate theory into practice by building on courses, i.e., using content learned from a lower level course to teach more in-depth content in a higher level course. For example, a basic chemistry course is generally taken by students prior to an organic chemistry course which is generally taken prior to a biochemistry course in a DPD program. This may also occur in a CP program but very often universities offer special courses for students in a CP program that integrate concepts learned from basic and organic chemistry earlier into a biochemistry course. Some universities also offer CP students an additional course that runs concurrently with the biochemistry course to apply concepts in anatomy, physiology, and biochemistry to the science of clinical nutrition. Biochemistry courses for CP students may also integrate concepts of pathophysiology that are being taught in the general physiology course that is often taken simultaneously. Medical nutrition therapy courses taught by CP faculty members build on the applied biochemistry and pathophysiology courses by making therapeutic modalities consistent with anatomy and physiological problems.

Medical nutrition therapy courses frequently begin with problems in food ingestion such as obesity, undernutrition, stroke, thermal burn, and esophageal stenosis, etc. before proceeding to food digestion problems such as ulcers of the gastrointestinal tract, pancreatic exocrine dysfunction, abdominal achlorhydria, lactose intolerance,

diarrhea, and constipation, etc. After learning the medical nutrition therapy for ingestion and digestion problems, faculty members then teach medical nutrition therapy for problems in nutrient utilization such as diabetes and other endocrine diseases, hematology, oncology, liver disease, and renal disease. Specialized nutrition treatment modalities such as dialysis and nutrition support via enteral and parenteral routes, are then introduced.

Similarly basic food science courses precede microbiology, food science, principles and art of cooking for one person to hundreds of people, followed by implications for client and public education.

One benefit of the coordinated program educational model is the knowledge that is learned in courses is applied in the hospital or other healthcare setting as soon as possible after the classroom teaching has occurred. As is often possible, students may learn the pathophysiology of diabetes mellitus and the biochemistry of carbohydrate utilization one week in both physiology and biochemistry classes, the medical nutrition therapy for Type 1 and Type 2 diabetes mellitus in clinical nutrition classes the following week, and then apply the *science* supporting the development of a nutrition care plan and the *art* of teaching the nutrition care plan to a patient with diabetes the following week in the hospital. Prior to direct contact with patients, students may practice skills in interviewing and counseling on other students in a simulated environment. Such integration, soon after learning concepts and theories, is highly instructive and helps students retain and use the information in practice.

DPD program directors and faculty members also try to integrate knowledge with practice during medical nutrition therapy courses by simulating clinical experiences through case studies, students interviewing students, and other hands-on type activities and assignments. As can be anticipated however, when students complete coursework in DPDs and wait several months to be fully immersed in applying knowledge learned in DIs, there may be significant remedial assistance that DI program directors and preceptors must provide to DPD graduates when they enter the DI. Directors and preceptors of DI programs note that it is difficult to teach students who enter their programs with varying levels of knowledge and ability to translate that information into practice (CADE 2006). It takes considerable accountability and work on the part of DI program directors to assure proficiency in both knowledge and competency. Establishment of

admission criteria and monitoring student progress throughout the entire educational process is easier for CP program directors (where students are in only one program) than for DPD and DI program directors (where students are in more than one program).

Evaluation of students in CP and “DPD Plus DI” programs is determined in many ways. Programs assess quality by reviewing measures of student/graduate achievement, such as program completion, registration exam pass rates, employment, and enrollment in internships or continuing education in addition to achievement of the defined knowledge and competencies for the profession. The university and supervised practice institutions identify which courses and rotations meet these knowledge and competencies, and faculty members and preceptors sign off at the end of each course or rotation when the student has met these requirements. Students are asked to identify and record their own goals and objectives for courses and rotations that will enable them to self-assess their achievement of the knowledge and competency requirements. Students are also required to manage a personal portfolio identifying the knowledge and competency requirements and when and how they met these requirements.

In the United States, 40-50 percent of DPD graduates do not apply or are not accepted to DIs. Many of these graduates go on to be employed in dietetics jobs but do not practice at the competency level of registered dietitians. As the number of these people increase the distinction between their jobs and the registered dietitian jobs and scope of practice becomes blurred. Confusion for the public, the healthcare system and the dietetics profession then occurs. Implementation of the CP that includes the didactic and the supervised practice experiences in one program can lessen the incidence of this problem, better meet the needs of students and the payer for dietetics education, and better prepare dietetics practitioners of the future (ADA Dietetic Education Task Force Report 2005).

It must be recognized, however, that CPs generally do not admit as many students to the program per year as do DPDs. The integration of coursework into supervised practice experiences in CPs takes considerable time to plan and coordinate, and a higher faculty-to-student ratio is usually required for this type of program. The number of faculty in DPDs and the number of preceptors in DIs is determined by the sponsoring university and practice

institution respectively and is based on the expertise and performance level of faculty members and preceptors, the number of students, and the financial infrastructure of the university, and practice institution. The requirements of CADE are only that an adequate number of faculty members or preceptors are available to achieve knowledge and competency requirements. CPs may be a more expensive program for universities to operate although the cost to the student may be no higher.

The type(s) of educational program implemented is at the discretion of the college or university. Multiple routes to registration eligibility in the United States make decisions difficult for colleges and universities, create confusion about the credential for those entering the profession, and create competition among practitioners who have been educated in different programs requiring different number of years for completion. Innovation and flexibility in programs are enhanced when there is only one type of educational program at a college or university. CADE does not recommend of one type program over another.

Knowledge and competency requirements were updated in 2008 by CADE. They are listed in Appendix A to provide a comparison of knowledge statements versus competency statements. One might, however, question if it is possible to teach (or learn) such a large amount of knowledge (which is expanding yearly through research) and teach (or practice) the large number of competencies (which employers continually expect to be higher) within a four-year undergraduate program. This is an issue that the American Dietetic Association has grappled with for the past five years through the work of two dietetic education (and future practice) task forces (ADA 2005, 2006, 2007, 2008). Likely the final answer has not yet been written for the dietetics profession in the United States.

Accompanying documents describe the dietetics education programs at Kansas State University (focus on food service management), Georgia State University (focus on clinical nutrition), and Johns Hopkins/Bayview Medical Center (focus on public health). Appendices in each of these documents provide lists and descriptions of courses in four-year Coordinated Programs and graduate degree coordinated programs that meet the knowledge and competency requirements for graduation and registration eligibility. Please note that CADE does not require specific courses but relies on the individual college or university

providing the CP program to meet the knowledge and competencies prior to the student's graduation.

Cooking and Culinary Arts

Cooking and culinary arts have been promulgated by CADE (2008) in the following knowledge requirement, i.e.,

"course content must include techniques of food preparation and application to the development, modification and evaluation of recipes, menus and food products acceptable to diverse groups (SK 5.1),"

and in the following competency requirement through supervised practice experience, i.e., the graduate must be able to

"coordinate procurement, production, distribution and service of goods and services (SP 3.6)."

There are, however, no courses that require students themselves to be proficient in food preparation. Students must know the techniques of cooking and how to coordinate the work of others, but graduates are rarely called upon in the work environment to actually perform cooking skills. If the college or university program has a food service management emphasis, or if the dietetic internship has an emphasis in food service management, more time may be spent by students learning and performing cooking skills.

Many colleges and universities in the United States teach courses in *hospitality management* that are often offered in the same department as courses in dietetics, especially DPD programs, as well as in departments (or colleges) of business. Students who study hospitality management take business courses (e.g., budget, revenue, marketing, management, etc.) along with food production and service courses, and basic nutrition courses. Most colleges or universities do not prepare students to be chefs. Much of the chef education in the United States is via culinary arts schools in major cities in the United States and internationally. Culinary arts schools provide extensive education and practice in cooking, food ordering and procurement, food safety and sanitation, and hospitality management, but limited education and practice in nutrition and dietetics.

A growing trend in the United States is an increased

importance of and opportunity for highly trained chefs to be employed in kitchens in hospitals, nursing homes, and private care homes. New positions for chefs include caterer, banquet manager, restaurant management, restaurant ownership, hotel and restaurant management or ownership, and private chefs for very wealthy persons, for cruise ships, or for railways. Although chefs are not required to be registered dietitians, many do complete CPs or "DPD Plus DI" programs and sit for the CDR registration exam for dietitians before they go to culinary arts schools. Other chefs who are not eligible to sit for the CDR registration exam for dietitians but have completed a baccalaureate degree program that is accredited by CADE or have completed an associate degree program for dietetic technicians approved by CADE can still join ADA as active members and often do so to develop networking contacts and to expand their knowledge and opportunities for employment.

http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/home_4909_ENU_HTML.htm

Accessed March 13, 2009.

Outcomes of the Educational System for Dietetics

Entry-level dietetic practice is at the novice or beginner level in the United States as well as the United Kingdom and Australia. The novice and beginner level are the lowest levels on a continuum of "novice" to "beginner" to "competent" to "proficient" to "expert" and requires a minimum of a baccalaureate degree for dietitians in these countries. Some European and Asian countries do not require the baccalaureate level and may offer a two to four year educational program for dietitians.

Regardless of the type of educational program in the United States (CP or "DPD Plus DI"), United Kingdom, or Australia (didactic plus one year mentorship), knowledge of graduates is overall good and supervised practice experiences are adequate to achieve the novice or beginner level of competent practice.

Some employers in the United States however indicate entry-level registered dietitians are not meeting their expectations, and expectations may be rising because of several factors, e.g., improved entry-level competence of other healthcare professionals, cost of healthcare, and changing needs of healthcare. Employers today look for employees who take risks, look at the big picture, think critically, work well in teams, exhibit confidence in dealing with physicians, and can supervise others (Skipper et

al 2008).

Employers cite practice and knowledge deficiencies by entry-level registered dietitians. They are asking for entry-level dietitians with more hands-on practical experience who are also knowledgeable about healthcare organizations; they want entry-level dietitians to be better educated for growing clinical focus and need to deal with better-educated consumers; and they cite limited resources for on-the-job training as a reason for increased entry-level education (Skipper et al 2008). Today's entry-level graduates often need to be followed by hiring dietitians and be mentored by practicing dietitians to improve practice and self-confidence.

Employers say not enough time is spent in teaching students how to use management principles in daily practice. Employers request graduates learn more about fundamental business competencies in entrepreneurship, finance and budget, supervision and human relations, persuasive communication, strategic vision, ethical and legal issues, outcomes research, cost-effectiveness, and evidence-based practice (ADA Dietetic Education Task Force Report 2005; American Dietetic Association Future Practice and Education Task Force Report 2007).

Summarily, and succinctly stated, the ADA Future Practice and Education Task Force Report (2007) notes,

"As the profession evolves, entry-level RDs need to be prepared to 'hit the ground running' in their first positions, as lengthy mentoring programs and professional 'hand-holding' are unlikely in today's fast-paced business environment. The vision of future practice for the entry-level RD is exciting and challenging. The bar for success is being raised constantly, as markets expand and evolve and as workplace expectations rise. Entry-level practitioners must be ready to face the future with confidence and competence."

To address these multiple issues of competence in practice, CADE, in keeping with its mission to prepare competent entry-level dietetics practitioners, has recently changed the number of required hours in supervised practice experiences to 1200 from the 900 that had been required since dietetics education began in 1927. It is also expected that a higher exam pass rate will occur in the future because an increased number of supervised practice hours has been shown to correlate with a higher exam pass rate for entry-level RDs (Skipper et al 2008).

Virtually all registered dietitians in the United States hold at least a bachelor's degree, with 45% holding master's degrees and 3% holding doctoral degrees (Rogers 2008). Entry-level practice for many other healthcare professionals in the United States is at the master's degree or practice doctorate level because of the recognition of expansion of knowledge and need for deeper and wider expertise on the part of their practitioners. For example, pharmacists must now obtain the Pharm D (Doctor of Pharmacy), physical therapists must obtain the DPT (Doctor of Physical Therapy), occupational therapists must obtain the OTD (Doctor of Occupational Therapy), and audiologists must obtain the AudD (Doctor of Audiology) degree for entry-level practice. Nursing associations in the United States are also considering raising the entry-level degree requirements for nurses. The educational standard for registered dietitians mandates fewer years of academic and clinical education than do similar standards for other healthcare professionals. Recommendation to require a graduate degree to enter dietetic practice was proposed many years ago and again in 2005 and 2006 (ADA Dietetic Education Task Force Report 2005, ADA Final Dietetic Education Task Force Report and Recommendations 2006), but was not enacted. Australia and the United Kingdom also have chosen to keep their entry-level requirement at the four-year baccalaureate degree.

It has been frequently suggested that a graduate degree program may attract a more diverse base of students who have had time to explore a variety of career options while in undergraduate programs. A graduate degree requirement for entry into several healthcare professions has increased diversity, although not highly, and has increased the total number of students entering these professional educational programs, although increasing the number of students took a few years. *Career flexibility* upon graduation has increased with a higher level of education due in large measure to the ability to differentiate professionals from support personnel. A higher-credentialed practitioner and a more diverse employee base may result in enhanced customer satisfaction, enhanced employer satisfaction, and enhanced image and salary.

The American Dietetic Association conducts a "compensation and benefits survey" for members every five years; the last one was conducted in 2007 (Rogers 2008). Median hourly wage for RDs in 2007 was \$25.48 and median total cash compensation for full-time employees

in position at least one year was \$53,300 in 2007. Education beyond the bachelor's degree continues to be associated with wage gains, and earning a PhD (doctor of philosophy degree) is associated with even more notable gains. Having one or more specialty certifications, such as certified diabetes educator (CDE), certified nutrition support dietitian (CNSD), or other Certified Specialist credentials offered by the Commission on Dietetic Registration, is associated with an increased median wage. Also strongly associated with compensation are membership in the American Dietetic Association (77 percent of practicing RDs are members of ADA), number of persons directly and/or indirectly supervised, budget responsibility, years of dietetics experiences, where one is employed, and area of practice. Wages for RDs tend to be highest in the practice areas of food and nutrition management, consultation and business, and education and research; wages tend to be lower in the areas of acute care (inpatient), ambulatory care (outpatient), and community. Most importantly, to achieve wage gains, it is important that experience reflect increasing responsibility (Rogers 2008).

The Essentiality of Lifelong Learning

While it is the responsibility of dietetics education programs to teach students the didactic content and provide supervised practice experiences that are essential to help students practice safely in the healthcare or other arena that they find employment, it must be acknowledged that it is impossible to teach students everything they need to know for professional success throughout their careers. Therefore educators must also teach dietetic students how to learn, how to access resources, and how to interpret information for themselves. Lifelong learning is essential and must be a self-initiated goal of every dietitian.

After graduation, colleges and universities are not required in a systematic way to update or improve the knowledge and skills of their graduates. Many continuing education opportunities, however, are provided by universities as well as other organizations such as local, state, and national dietetic associations. Universities often offer seminars to commemorate the legacy of educators and leaders in education, highlight research and good practice by program graduates and faculty members, and bring notice to the university administration of such good work for reasons that might include impacting image and improving budget.

Dietetic Registration and Licensure

The Commission on Dietetic Registration (CDR) is the credentialing agency for the American Dietetic Association. The CDR protects the public through credentialing and assessment processes that assure the competence of registered dietitians.

More than 80,000 dietitians and dietetic technicians in the United States and the world have taken CDR exams over the past several decades. CDR currently awards seven separate and distinct credentials: Registered Dietitian (RD); Dietetic Technician, Registered (DTR); Board Certified Specialist in Renal Nutrition (CSR); Board Certified Specialist in Pediatric Nutrition (CSP); Board Certified Specialist in Sports Dietetics (CSSD); Board Certified Specialist in Gerontological Nutrition (CSG); and Board Certified Specialist in Oncology Nutrition (CSO). The Commission's RD/DTR certification programs are fully accredited by the National Commission for Certifying Agencies (NCCA), the accrediting arm of the National Organization for Competency Assurance (NOCA) based in Washington, D.C. This accreditation reflects achievement of the highest standards of professional credentialing.

CDR may credential advanced practice dietetics in the future. Traditional master's and doctorate programs are designed to prepare dietitians for academic careers. These programs do not typically contain coursework in advanced counseling theory, nutrition physical assessment, nutritional pharmacology or pathophysiology, nutritional diagnosis or intervention theory, nutrition services delivery, or outcomes measurement that would enhance the skills dietitians use daily (Skipper 2004). Task forces studying advanced practice dietetics will recommend a definition of advanced practice and qualifications for the credential before CDR undertakes the task of making the credential available for qualifying professionals.

It is the *registration credential* that dietitians seek to receive and maintain. Registered Dietitians are individuals who have:

- completed the minimum of a baccalaureate degree granted by a regionally accredited college or university in the United States, or foreign equivalent;
- met current minimum academic requirements and pre-professional experiences as approved by the Commission on Accreditation for Dietetics Education (CADE) of the American Dietetic Association;
- successfully completed the Registration Examination for Dietitians;
- remitted the annual registration maintenance fee;

and

- accrued 75 units of approved continuing professional education every five years.

Source: <http://www.cdrnet.org/certifications/rddtr/rd-definition.htm>

Accessed March 6, 2009.

Another credential that many dietitians in some States of the United States are required to have for employment is *licensure*. Although supported by the American Dietetic Association, state licensure and state certification are state-specific credentials, not national credentials, and are entirely separate and distinct from registration or specialty certification by the Commission on Dietetic Registration.

Licensure is a reflection of a State's desire to protect the public of that particular State through defining scope of dietitian practice and protecting the title, usually the title of Licensed Dietitian, or LD. Licensure and the conduct of outcomes research may help registered dietitians obtain reimbursement for services at the state or national level. Forty-six of the fifty states of the United States have laws that regulate dietitians or nutritionists through one of three credentials: licensure, statutory certification, or registration.

Source: <http://www.cdrnet.org/certifications/StateLicensure.htm>

Accessed March 6, 2009.

Licensure is the strongest of these three credentials with statutory certification and registration being less protective. Licensure statutes include an explicitly defined scope of practice; performance of the profession is illegal without first obtaining a license from that state.

Dietetics practitioners are licensed by states to ensure that only qualified, trained professionals provide nutrition services or advice to individuals requiring or seeking nutrition care or information. Non-licensed practitioners may be subject to prosecution for practicing without a license.

Source: <http://www.cdrnet.org/certifications/licensure/index.htm>

Accessed March 6, 2009.

After licensure is achieved it is the licensed dietitian's responsibility to obtain continuing education to maintain the credential. If the licensed dietitian does not do so, the dietitian may be presented to ethics and/or practice com-

mittees of a state's Board of Dietetics and licensure may be revoked due to poor practice or practicing without a license.

Recommendations for Dietetics Education in Japan

(The following recommendations and vision are based on current practice and education in the United States and Japan as perceived by the author and are solely the opinions of the author.)

Change is happening in dietetics education in Japan. Dietetics education standards and models for dietetics education have been developed with the support of many individuals and organizations, including the Japan Ministry of Health, Labor and Welfare; the tireless efforts of many future-oriented individual dietitians in Japan; the prestigious Society for Nutrition Care and Management; many members of the Japan Dietetic Association; and many innovative university administrators and faculty members.

Current Process of Dietetics Education in Japan

Dietetics education in Japan is offered at many junior colleges and universities and may be a two or four year educational program. Supervised practice experiences are included within these programs but currently are approximately four weeks (or 160 hours) in length with very little if any direct patient-care experiences. Because food and food service is culturally important in Japan and in its healthcare institutions, much of the four weeks experiences is spent in food service, food preparation, and management. Following a four-year dietetics education program and some work experience, dietitians are able to take the registration examination administered by the government of Japan. Following a two-year dietetics education program at junior colleges and three years of work experience, these graduates can also take the RD exam.

Dietitians who hold the Japan RD credential may perform nutrition assessment. The importance of this is that the government pays insurance money to the hospitals that have RDs who perform nutrition assessments. If the hospital has a "dietitian" but not an RD, the "dietitian" can perform the nutrition assessment but the government will not pay insurance money to the hospital. To maximize reimbursement therefore, hospitals need RDs. Unfortunately one RD in a hospital is perceived to be

adequate for assessment and nutrition care planning for all patients. In the United States, one Registered Dietitian per 100 patients is the accepted standard for care; a lower ratio results in poorer nutrition care. For excellence in patient care and reduction of healthcare costs, hospitals need RDs who have expertise in performing nutritional assessment and who also can develop an appropriate individualized nutrition care plan, implement the plan, monitor patient progress, and evaluate the plan, making changes as necessary to improve patient care and outcomes wherever the patient and family reside.

It is therefore important for Japan to differentiate the education and the practice of the “dietitian” from that of the Registered Dietitian. It appears that the education and practice of the Japan “dietitian” may, at most, be equivalent to the DTR in the United States, meaning the “dietitian” is educated and practices at a lower level than the Japan RD. It also appears that the education and practice of the RD in Japan is significantly lower than the education and practice of the RD in the United States. Without a definition for practice and a significant upgrade in dietetic education for the RD in Japan, confusion will continue to exist, and there will be a significant hindrance to the development of excellence in clinical nutrition practice in Japan.

In addition to the obvious differences in education and practice, the *RD examination* is also very different in Japan and the United States. Japan’s RD examination consists primarily of knowledge-related science-type questions in chemistry, biochemistry, food, and food service. The RD exam in the United States tests theory and science but tests it primarily as it is related to practice. The format of the United States exam is primarily one of problem solving and critical thinking that includes many clinical case studies and practice-based scenarios that tests the student’s knowledge of how to work with and counsel employees, patients, families, employers, and other healthcare professionals. The purpose of the RD exam in the United States is to test the student’s achievement of competencies that should have been mastered in the supervised practice experience, thus validating the dietetic education process and the educational institution’s goal of developing competent practitioners. Perhaps the RD exam in Japan should be more competency-based to hold faculty members and students accountable for both knowledge and practice.

A longer and more in-depth supervised practice experi-

ence, especially in clinical nutrition (via medical nutrition therapy and the nutrition care process), will be essential to improve clinical practice in Japan. It is also likely that the government can improve knowledge and practice simply by increasing the rigor and quality of the examination and focusing a significant portion of the examination on clinical application of knowledge and skills.

New dietetics education programs with a focus in clinical dietetics and medical nutrition therapy are underway in Japan. At Kanagawa University of Human Services, for example, a coordinated program is being offered at the baccalaureate level with the minimum 160 hours supervised practice experience but the desire to raise the number of hours in supervised practice is strong. Recognizing that a university cannot raise the number of credit hours for a baccalaureate degree, consideration is being strongly given to decreasing the number of courses (especially in cooking) and increasing the number of supervised practice hours. This is difficult, but not impossible to accomplish; a major limiting factor is the low number of prepared preceptors in Japan to teach and supervise students in the clinical area. Michiko Sugiyama PhD RD, Professor at Kanagawa University of Human Services, also wishes to implement a master’s degree program to develop specialists in clinical nutrition; significant supervised practice experience hours will be required to develop competent practicing specialists.

Other programs are studying alternative ways of educating dietetics students such as Minami Kyushu University in Miyazaki City. Kaoru Ito PhD RD, Professor at Minami Kyushu University, has taken a twelve month sabbatical and has studied the baccalaureate degree coordinated program and the master’s degree coordinated program at The Ohio State University in the United States. She will return to Japan in May 2009 and will continue to offer the master’s degree program in research at her university which is necessary to support clinical practice with new knowledge. Dr. Ito should be a significant player in achieving the desired changes in dietetics education throughout Japan.

Miyuki Sunaga, MS RD, Associate Professor at Seitoku University has also studied the coordinated program in medical dietetics at The Ohio State University and has additional education in continuing professional education and support for young dietitians in the workplace from Royal Prince Alfred Hospital in Australia; she will also be instrumental in changing dietetics education in

Japan. Michiko Sugiyama PhD RD, Norimasa Hosoya MD PhD, Teiji Nakamura PhD RD, Toshi Goda PhD, and Kayoko Adachi MS RD, among others, have visited universities in the United States and have knowledge of the importance of clinical dietetics in overall healthcare in Japan. In addition several professors from the United States have been to Japan on sabbatical leaves or shorter leaves from their universities to help guide Japan faculty in changing dietetics education, including Wanda Eastman from New Mexico State University, Riva Touger-Decker and Julie O'Sullivan Maillet from University of Medicine and Dentistry of New Jersey, Judith Gilbride from New York University, and Nancy Hudson from University of California, Davis.

In addition, several students from Japan are studying in universities in the United States including Nana Matsumoto, Kazuko Hoshino, Keiko Miyamoto, Rie Miyauchi, Takuji Suzuki, and Yoko Ichikawa and upon graduation many will sit for the CDR examination for registered dietitians in the United States. These highly educated Japanese dietitians will be of significant assistance in developing new dietetics education programs in Japan with a focus on clinical dietetics. These and other foreign-educated graduates, such as Masako Arisawa with Abbott Japan, also can be helpful as preceptors for dietetics students and as educators for other Japanese dietitians to serve as preceptors.

Recommendations for Successful Long-term Dietetics Education

It is difficult to make recommendations for developing successful dietetics education programs for a country and a culture that are significantly different than one's own – a challenge faced by this author. Although every attempt has been made to assure the accuracy of the information presented in this document, the quality of any recommendations is likely proportional to the accuracy of the information that is thought to be known as well as to the information that is not known.

In the United States, recommendations to support change are generally accepted and implemented when substantial information to support change is identified and internalized, and when application can be envisioned. The American Dietetic Association therefore gathers information from a variety of sources on a continual and a periodic basis and uses this information to proffer recommendations with substantial supporting

evidence.

Although obtaining the indepth information via the following studies may not be possible at this time to use in making changes in dietetics education in Japan, it is recommended that Japan begin in the near future to consider conducting several ongoing and periodic studies that would contribute knowledge necessary to make decisions regarding dietetics education in the future. The following seven studies are recommended:

1. An *environmental trends study* to identify the national trends that impact dietetics education and practice in Japan. Such a study of environmental trends in Japan can be compared to trends that impact dietetics education worldwide.
2. A *market needs study* to identify existing and future opportunities for practice of registered dietitians in Japan.
3. A *dietetics professionals needs assessment study* to better understand the practice and career issues facing dietetics professionals and to provide opportunities for volunteer leaders and staff of the Japan Dietetic Association and the Society for Nutrition Care and Management to improve value of the organizations; improve current programs, products, and services that are offered; guide in development of new offerings; and set strategic direction consonant with the profession's needs (Rogers 2005).
4. An *audit of practice* of dietetics practitioners to provide quantitative measures of what entry-level "dietitians" and registered dietitians do in practice (Rogers 2006). These data will provide information for the development and validation of the RD exam in Japan.
5. A *periodic review of dietetics education standards, principles and criteria, and knowledge and competencies* that define curriculum requirements based on environmental trends, market needs, professional practice, and stakeholder input that will be available from the previously described studies. Standards and competencies can then be revised as needed with the assurance that the revisions will improve both education and competence of practicing dietitians.
6. The *scope of dietetics practice* for the Japan registered dietitian will need to be identified and differentiated from the scope of practice for the non-registered "dietitian".
7. After identifying the scope of dietetics practice, it

will be necessary to develop *Standards of Practice in Nutrition Care and Standards of Professional Performance* such as those developed in diabetes (Kulkarni et al 2005), behavioral health (Emerson et al 2006), oncology (Robien et al 2006), nutrition support (Joint Standards Task Force 2007), management of food and nutrition systems (Puckett et al 2009), and sports dietetics (ADA Dietitians in Sports 2009) in the United States to describe a competent level of dietetics practice and professional performance and by which the quality of practice and service can be evaluated (Kieselhorst et al 2005). These Standards can be general standards for entry-level practice, and can also be developed for specialty and advanced practice dietetics. They may also be developed for non-registered dietitians to differentiate practice of registered dietitians from non-registered dietitians such as dietetics practitioners in Japan with less than a four year baccalaureate degree.

Trusting that the information in this document is accurate and that the knowledge gained from results of the seven recommended studies previously discussed will add new and necessary information over time, the following recommendations for dietetics education in Japan are offered at this time.

1. Recommend that the *four-year baccalaureate degree* be the minimum level for entry-level dietetics practice.
2. Recommend that the baccalaureate degree and the dietetics education curriculum be rigorous and *focus on medical nutrition therapy* and its supporting science so that registered dietitians can work side-by-side with physicians and other healthcare professionals in hospitals, other healthcare institutions, and community healthcare programs to promote wellness and prevent disease, treat disease with appropriate medical nutrition therapy, and reduce national healthcare costs and justify reimbursement for services.
3. Recommend that the preferred dietetics education model for obtaining the baccalaureate degree with focus in medical nutrition therapy be the *coordinated program (CP) model* similar to that implemented at The Ohio State University and other universities in the United States. The CP is recommended for Japan in order to (1) have time for students to meet the pre-determined knowledge and competencies through sequencing of learning via coursework and practice opportunities that build upon each other without unnecessary overlap, and (2) to avoid the disconnect that can easily exist between didactic education and supervised practice when didactic is taught via didactic programs at universities and supervised practice experiences are obtained the following year either in or outside universities. As is also true in the United States, there will be varying degrees of faculty member expertise in relevant science and technology of food and health courses, and keeping up with new knowledge will be difficult for faculty members, practicing dietitians, and clinical preceptors in Japan.
4. Recommend that *900 - 1200 hours of supervised practice experiences* be required and be of high quality as part of the coordinated program model with the majority of these hours spent in institutions where medical nutrition therapy across the continuum of healthcare is applied. For reciprocity with the American Dietetic Association, 1200 hours of supervised practice experiences will be required.
5. Recommend that universities modify their baccalaureate degree curriculum to include *fewer courses in cooking and more courses in medical nutrition therapy and the nutrition care* process and that these clinically-focused courses be reinforced in significantly more hours required for supervised practice experiences.
6. Recommend consideration be given to modifying the model in Australia where successful completion of a one-year formal supervised practice experience is required post-baccalaureate degree through a *mentor relationship* between a student and a practicing dietitian who is a member of the Dietitian Association of Australia for purpose of developing competence in practice.
7. Recommend significant educational *opportunities be made available to teach practitioners how to be preceptors* for dietetics students. The effectiveness of supervised practice experiences is highly dependent on the ability of programs to find competent, well-trained experienced preceptors. Dietetics educators in the United States and elsewhere in the world find this task to be challenging. As dietetics education moves toward graduate degree level expectations with an expanded supervise practice component, finding qualified preceptors may become even more difficult. Other healthcare professions such as pharmacy, occupational therapy, and physical therapy in

the United States have developed continuing professional education programs, including certificate programs, to build a large base of qualified preceptors. The Commission on Dietetic Registration in the United States is exploring these models and may develop certificate programs for preceptors of dietetics students.

8. Recommend significant educational *opportunities be made available to upgrade Japanese educators knowledge in medical nutrition therapy* (and the supporting sciences) in traditional and non-traditional healthcare institutions. The movement in Japan to provide dietitians to community-based and nontraditional food service practice settings will require a high degree of independence and preparation that many current Japanese faculty members and practitioners may not possess.
9. Recommend an *upgrade to a graduate degree requirement for entry-level practice in the future* (requiring a minimum of five to six years of education) after a build-up of a large cadre of excellent practitioners in medical nutrition therapy has been achieved. This build-up of excellent practitioners should occur in institutions and programs such as in hospitals, outpatient clinics, dialysis centers, home-care, and long-term care homes for aging where nutrition for health and wellness and medical nutrition therapy for treatment of disease is the focus with patients and their families. The importance of building a substantial infrastructure of preceptors and a market research base of opportunities for practice cannot be underestimated.
10. Recommend a *continuation of master's degree programs* that prepare Registered Dietitians to conduct human and animal nutrition research.
11. Recommend *development of master's degree programs to educate specialists in nutrition care* (such as in nutrition support, neonatal intensive care units, and dialysis), which will require a significant increase in supervised practice experiences especially in those universities with access to large hospitals that provide excellence in teaching, research, and practice. The success of specialist training will depend on the quality of preceptors available to guide student's education, practice, and research. For those in Japan who believe entry-level practice should be at the graduate degree level, a compromise that might be wisely considered at this time could be offering the graduate degree to those practicing registered dietitians who want to study for a specialist practice

or conduct research.

12. In light of healthcare changes worldwide, the importance of conducting research to decrease healthcare costs and improve outcomes cannot be overemphasized. Few Japanese RD faculty members may be able to teach a master's degree level curriculum that includes clinical outcomes and human or animal research. Thus, it is important for Japan to *build a cadre of registered dietitians who hold doctoral degrees and can conduct and teach outcomes research*.
13. Recommend establishing the *requirement for continuing education to achieve lifelong learning* that will constantly upgrade performance and outcomes of dietetics practitioners.
14. Recommend Japanese university faculty members be granted *sabbatical leaves* to receive hands-on learning by attending classes and talking with program directors and faculty members in the United States and in other countries where dietetics education is well developed. Many opportunities exist in a variety of universities in the United States (small universities, large universities, CP programs, DPD programs, dietetic internships, master's degree programs, and doctoral degree programs) and in the United Kingdom and Australia as well. The pathway taken by Dr. Kaoru Ito from Minami Kyushu University, May 2008 - April 2009, has been very beneficial to understanding the importance of rigor, quality, and supervised practice experiences in dietetics education and the ability to develop dietetics education programs in Japan that will serve the profession well into the future. Dr. Ito would be an excellent consultant to the Japan Ministry of Health, Labor and Welfare.

A Vision Required for Success

A well-honed vision for dietetics education in Japan is necessary for government and university leaders and practitioners who will collaboratively develop educational programs to prepare students for successful dietetics practice today and the future. Suggestions for the basis for such a vision might include, among others, the following criteria:

1. Government leaders, university administrators, program directors, and faculty members in Japan will be committed to the knowledge that the work of registered dietitians in nutrition care, including medical nutrition therapy and the nutrition care process, is

important for the health of the Japanese people and for Japan's healthcare system.

2. Japanese program directors, faculty members, and supervised practice experience preceptors will commit themselves to lifelong learning and continual improvement in performance and outcomes.
3. Dietetic students will believe that the work of the registered dietitian in Japan is important; that knowledge is essential; that competencies can be developed; that performance and outcomes must be continually evaluated; and that successful outcomes will be rewarded.
4. Dietetic students will commit themselves to lifelong learning, constant improvement in performance, and a willingness to be preceptors and mentors to future dietetic students.
5. An overall goal that should propel progress toward achieving a well-honed vision for dietetics education in Japan is that the government, physicians, and other healthcare professionals will (1) ask registered dietitians for nutrition care recommendations for maintenance of health and medical nutrition therapy for treatment of disease in a variety of patient care settings, and (2) hold registered dietitians accountable for excellence in nutrition care practice. Such a goal can be achieved when expertise is developed and practice outcomes prove the status is earned.

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- Charlette R. Gallagher-Allred, PhD, RD, LD
International Nutrition and Health Care Consultant
7016 Willow Run Drive
Dublin, Ohio 43017 U.S.A.
Tel and Fax: 614.799.8996

Dietetics Education in Japan and United States: Current Situations and Opportunities with Recommendations for Japan

日本とアメリカにおける栄養士教育： 現状と今後の展望、そして日本への提言

Charlette Gallagher-Allred, PhD, RD, LD
International Nutrition and Healthcare Consultant

監訳 須永 美幸 杉山 みち子

本研究の目的は大きく3つに分けられる：

1. 日本とアメリカにおける登録栄養士 (管理栄養士) の、現在と今後の実践活動の機会を確認する
2. アメリカにおける栄養学の教育プロセスの確認をする
3. そして日本での栄養士教育への提言を行う

事実情報に関しては参考文献の詳細を記載しており、本書の提言は著者個人によるものである。

登録栄養士の現在と今後の実践活動の機会について

アメリカ合衆国

- 1917年に米国栄養士会が設立された頃の栄養士の職務は、病院内の入院患者への食事提供が主な仕事で、看護師の管理下で働き、食事療法は食事投与回数の変化が主な手段で、科学的知識は限られた範囲のものであり、決して高度な知識を有していると言えるもの

ではなかった。(ADA 1985)

今日の実践活動の内容は初期に比べ劇的に拡大した。下記の表は今日の登録栄養士が職務の実践活動をしている環境、役職、仕事環境と雇用分野をまとめたものである。(Rogers 2008)

登録栄養士の実践活動分野	(%)
臨床栄養学 - 救急患者または入院患者	30
臨床栄養学 - 外来患者	15
臨床栄養学 - 長期療養	10
コミュニティー・地域	11
食事・栄養マネジメント	12
コンサルテーション、ビジネス	11
教育・研究	6

登録栄養士の役職 (出現率順)	(%)
臨床栄養師	17
臨床栄養師、長期治療	10
女性、乳幼児、小児特定補助栄養プログラム栄養士	5
一般外来対象栄養士	4
糖尿病専門の外来対象栄養士	4
食事・栄養サービス部門長 (ディレクター)	4

個人開業の栄養士－患者・クライアントのケア	4
臨床栄養マネージャー	3
臨床栄養師（腎臓に関するスペシャリスト）	3
外来対象栄養士（腎臓に関するスペシャリスト）	3
栄養サポート栄養士	3
公衆衛生栄養士	3
登録栄養士の雇用環境	(%)
病院	33
長期療養、在宅ケア	11
地域・公衆衛生	9
クリニック、救急ケア	12
コンサルテーション、契約サービス	10
大学教員	4
登録栄養士の雇用分野	(%)
非営利組織	40%
営利組織	31%
政府	18%
個人開業	9%

登録栄養士の実践活動内容や役割だけが初期と比較し拡大しているだけでなく、年を追うごとにその拡大のスピードも増してきている。また登録栄養士の実践活動内容や責務も、多岐で起業的要素の濃い分野で成長しており、広報活動、セールス・マーケティング、個人栄養・運動コンサルティング、地域の健康教育、ビジネスや産業でのコンサルティング、プロスポーツチームでのコンサルティング、大規模な飲食サービス業におけるマネジメントなどが挙げられ、これらはほんの数例である。登録栄養士は臨床栄養療法、栄養遺伝学、代謝学、予防栄養学、コンサルティングと行動心理学などの栄養基礎・応用研究と、食事に関する研究発展に深く関与している。入院期間の減少や日帰りの手術など、ヘルスケアの治療形態の変化が結果として、より高度な実践活動管理や成果測定のニーズを増しているといえる。また実践活動環境も、ヘ

ルスクラブや健康センター、地域に根ざした健康増進・予防プログラム、在宅ケアや老人ホーム、介護施設などと多岐に渡ってきている。そして登録栄養士にも、富裕層を対象としたヘルスケアや、交渉、予算計画・管理、収益管理、フードサービスの商品化、食品販売促進、レストラン経営など、ビジネスマインドを持ち、マルチなスキルを持ったリーダー的な人物が求められるようになってきている。アメリカにおける登録栄養士は非常に高いコミュニケーション能力を持ち、患者やクライアントと上手く話せるだけでなく、雇用主や他の医療従事者、公共やメディアを相手にしても、栄養士の価値を売り込むことができるコミュニケーションスキルを持ち合わせている。（2005年米国栄養士会教育調査特別委員会；2007年米国栄養士会今後の実践活動と教育に関する調査特別委員会報告書）

アメリカには「臨床栄養学」という言葉が存在し、これは患者のケアマネジメントの分野における登録栄養士の責務のことを指す。前出の表にある通り、現在の登録栄養士の主な職責は病院内、外来患者向けクリニック、長期型医療施設や地域の医療施設での患者ケアである。飲食サービス業における登録栄養士の職責としては、マーケティング、サービスオペレーションの運営・管理、メニュー作成、食品の注文、調達、食品上の安全と顧客満足度の保証、調理・サービス部門のスタッフ管理などが挙げられる。登録栄養士は基本的な調理技術は備えているものの、実際に調理活動に関わることは殆どない。

長きにわたり、栄養士による数々の成果が発表されてきており、医師、看護師や他の医療従事者は、登録栄養士は豊富な知識を持ち、その栄養士によるケアが健康の維持、