

Application for New e-Learning Graduate Certificate Program Leadership in Clinical Pediatric Nutrition

1. Title of proposed program, as well as department or program and school proposing the certificate:

The proposed e-learning certificate program entitled 'Leadership in Clinical Pediatric Nutrition' will be offered by the Department of Nutrition and Dietetics in the Indiana University (IU) School of Health and Rehabilitation Sciences (SHRS), IUPUI

2. Designation as an IU or Purdue University Graduate School Certificate:

IU Graduate School Certificate

3. Statement of purpose and rationale:

This four course (12 credit hours) e-learning certificate is designed to provide registered dietitians with specialized pediatric nutrition knowledge, clinical and leadership skills in pediatric health care. The faculty who are coordinating the e-learning certificate program have a national reputation for excellence in clinical pediatric nutrition. This has resulted from more than 20 years of national leadership through the Leadership Education in Pediatric Nutrition Program described below. The e-learning certificate program, however, is independent financially from the Leadership Education in Pediatric Nutrition Program.

The Leadership Education in Pediatric Nutrition Program is a federally funded innovative training program aimed at meeting the educational needs of health care leaders in pediatric nutrition for the 21st century. One of only three nationally funded programs in the country, the Leadership Education in Pediatric Nutrition Program is unique in that it is the only Maternal Child Health Bureau (MCHB) funded program that provides nutrition fellowships for the study of nutrition requirements for all ages-- infants, children, adolescents and those with special health care needs. This is possible because of doctoral level faculty, skilled pediatric dietitians, pediatricians and other health care providers who integrate nutrition into health care at Riley Hospital and the MCHB funded programs in Indiana.

Pediatric nutrition is recognized by the American Dietetic Association as a specialty area with leadership as an essential component of advanced practice. Graduates of the e-learning certificate program will have the educational background necessary to successfully pass the examination for Board Certified Specialist in Pediatric Nutrition, although they will be required to meet the practice hour requirement (2,000 hours) necessary for eligibility to sit for the examination.

4. The relation to relevant existing or proposed undergraduate or graduate certificate programs, if any:

The proposed e-learning certificate program provides the didactic course work offered by the graduate fellowship program Leadership Education Excellence in Pediatric Nutrition Program. Since 1978, the fellowship program has been sponsored jointly by the Department of Nutrition and Dietetics, IU School of Health and Rehabilitation, and the Department of Pediatrics, IU School of Medicine and supported by the Bureau of Maternal and Child Health, Health Resources Service Administration, US Department of Health and Human Services. The e-learning certificate courses (4 courses, 12 credits) transfer to the Master of Science in Nutrition and Dietetics.

5. A description of the target audience, including evidence of need and what proportion of students would be expected to be concurrently working towards a graduate degree at IUPUI:

This certificate will be presented in a distance learning format which will permit us to market the certificate not only to registered dietitians in the local area, but also to registered dietitians in the state and nation.

Target Audience

The course content serves seven major audiences:

- Dietitians/nutritionists who want to work in children's health care systems
- Public health nutrition workforce
- Graduate students in Maternal Child Health/nutrition graduate education programs
- National nutrition management corporations who manage registered dietitians
- Faculty in Maternal Child Health, public health and other university positions
- Dietitians/nutritionists for the First Step Program
- Women Infants and Children Program (WIC) nutritionists

A third to one-half of the students will be expected to be working toward a Master of Science degree in Nutrition and Dietetics, IU School of Health and Rehabilitation Sciences.

Need for e-Learning Program

The total **public health nutrition workforce** expanded almost 50% from approximately 6,500 to almost 10,000 between 1994 to 2000. The increase in workforce was due primarily to increased funding for Food Stamp Nutrition Education from \$5 million to \$99 million, 1994 to 2000. This funding dramatically increased the numbers of dietitians/nutritionists who provide nutrition education to 'at nutritional risk' mothers, infants and young children. About 80% of the public health nutrition work force was **nutritionists in WIC (Supplemental Nutrition Program for Women, Infants and Children)**. [Barbara Keir, RD, MPH, personal communication from the 'Survey of the Public Health Nutrition Workforce, 1999-2000' conducted by the Association of State and Territorial Public Health Nutrition Directors (ASTPHND) and funded in part through Cooperative Agreement No.59-3198-8-027, with Food and Nutrition Service, USDA]

The expanded workforce primarily includes entry-level dietitians/nutritionists without specialized pediatric nutrition or graduate public health education. The top five *perceived* training needs of the entire public health nutrition work force were 'nutrition for Children with Special Health Care Needs (CSHCN), breastfeeding, infant and preschool nutrition, prenatal nutrition and nutritional counseling/client education.' Nutrition for CSHCN was the highest training priority for professionals and breast-feeding was the highest for paraprofessionals. Furthermore, a survey by Alexander et al. [G Alexander et al. Dept of MCH, School of Public Health, U Alabama at Birmingham, 2001] reported a need for continuing education by more than 90% of the respondents in a large national needs assessment of graduate and continuing education. These respondents included all major state and local agencies who serve MCH populations. Clearly, there is a huge unmet need for continuing education for public health nutritionists and other providers of health care for mothers, infants and children.

MCH graduate education in public health and clinical skill areas was another critical need for education (Alexander et al, 2001). More than 75% of survey respondents reported that the topics of *public health leadership, systems development, program management, administration and core public health skills* were among the most important in graduate education. *Clinical skill in nutrition* was among the highest unmet critical need for professionals with graduate education, reported by 44% of respondents. The **public health nutrition workforce** needs leadership development in pediatric nutrition that focuses on public health and clinical skills.

Nutrition for the high risk infants is an important area in pediatric nutrition where there is a critical unmet need for dietitians/nutritionists who have advanced level clinical skills and leadership expertise. The most vulnerable infant populations are those who are born prematurely and those with complex medical conditions. Often these infants are cared for in the newborn intensive care unit (ICU) and discharged with ongoing, complex nutritional needs into community systems. The number of needed dietitians/nutritionists who have advanced level; specialty clinical training in neonatal nutrition is far greater than the number currently available. The annual US birth rate is approximately 4 million; 7% and 1.1% of all babies born are

low birth weight (less than 2500 g) or very low birth weight (less than 1500 g), respectively. With approximately 600 intensive care neonatal units, 700 intermediate care nurseries and many high risk infant follow-up programs in the country, a need exists for more than 600 dietitians who have advanced level expertise in neonatal nutrition. This is consistent with the National Academy of Sciences recommendations (*Food and Nutrition Board, Institutes of Medicine. Nutrition Services in Perinatal Care. 2nd ed. Washington, D.C.: National Academy Press; 1992:84-88*) that a nutrition specialist with advanced clinical training in neonatal nutrition be a member of the health care teams in intensive care nurseries and follow-up programs in the community. The two Leadership Education Excellence in MCH Nutrition Programs funded nationally that have fellowships with an emphasis on neonatal and high risk infant nutrition have trained approximately 275 fellows (dietitians/nutritionists) over the past 25 years. Advanced level, clinical training programs related to neonatal and high risk infant nutrition are needed to meet the pressing need for additional practitioners with the necessary expertise.

Unfortunately, a number of factors prevent many of the public health nutrition workforce from pursuing graduate education and continuing education. The most prohibitive barriers to graduate education include the total cost of graduate education programs that includes the loss of income while in school and the time required to complete the program (*Alexander et al 2001*). Likewise, factors that prevented continuing education were time away from work, cost, and lack of adequate staff for coverage and travel restrictions. Therefore, one of the top five recommendations was “explore and promote alternative graduate and continuing education models, e.g., distance learning” (*Alexander et al 2001*). Distance learning has transformed education in the 21st century. The newer technologies in distance education such as video-streaming, web-enhanced curriculum and e-learning tools and strategies are making it possible to overcome many of the barriers and expand access to and opportunity for ‘Anywhere Anytime’ education and learning. Based on the future needs within this field, the e-learning will remove some of the major barriers for graduate and continuing education that exist (time, cost, access, work load management) today. One of the goals of the e-learning project is to lower the instructional cost for an expanded audience by using technology education. Furthermore, the e-learning has the potential to increase quality (meet or exceed customer/student expectation of needs) and expand capacity.

6. A plan for attaining steady state enrollment. Include the number of students expected to participate in the program in the first year and an enrollment projection for the year in which steady state enrollment is expected:

We expect 10 students (4 residents; 6 non-residents) to participate in the first year of the certificate program (Fall 2007-Spring 2008), expand to 12 students (4 resident students; 8 non-resident students) during 2008-2009 and thereafter further expand based upon need and support resources. We are advertising through the following: SHRS (IUPUI) website, Pediatric RD (online) group, emails to all Children’s Hospitals and Neonatal Intensive Care Units (Directors of Nutrition and Dietetics; Directors of Pediatrics), national MCHB website, emails to dietitians/nutritionists in other MCH/nutrition graduate programs, the Pediatric Nutrition Practice Group and Public Health Group (American Dietetic Association), First Steps Providers, WIC and Public Health workforce (Association of State and Territorial Public Health Nutrition Directors).

7. A description of new resources (funding, space, equipment, etc) required and what the source of those resources will be:

The resources to support the program are already in place.

8. Proposed date of initiation of the certificate: Fall 2007

9. Person designated as the certificate head: Karyl Rickard, PhD, RD, Professor of Nutrition and Dietetics, School of Health and Rehabilitation Sciences (SHRS), IUPUI

10. Primary Course instructors and their credentials:

Karyl Rickard, PhD, RD, Professor of Nutrition and Dietetics, IU SHRS
M. Sue Brady DSc. RD, Professor of Nutrition and Dietetics, IU SHRS

Key Contributing Faculty – Pediatric Nutrition Courses

Anna Dusick, MD, Clinical Associate Professor of Pediatrics, IU School of Medicine
William Engle, MD, Erik T. Ragan Professor of Pediatrics, IU School of Medicine
Judith Ernst, RD, DMSc, Associate Professor of Pediatrics, IU SHRS
Sandeep Gupta, MD, Clinical Associate Professor of Pediatrics, IU School of Medicine
Michele Howenstine, MD, Clinical Professor of Pediatrics, IU School of Medicine
Frederick Leickly, MD, Clinical Professor of Pediatrics, IU School of Medicine
James Lemons, MD, Hugh McK. Landon Professor of Pediatrics, IU School of Medicine
Pamela Lemons, RN, MSN, Certified Neonatal Nurse Practitioner, Developmental Pediatrics,
JW Riley Hospital for Children, Indianapolis, IN
Donald Orr, MD, Professor of Pediatrics, IU School of Medicine

Key Contributing Faculty – Leadership Development Course

Stephen Bogdewic, PhD, Dr. George W. Copeland Professor and Associate Chair of Family
Medicine, IU School of Medicine
Brenda Lyon, DNS, RN FAAN, Professor of Nursing, IU School of Nursing
James Johnson, EdD, MBA Director of Credit Programs for the IUPUI Community Learning Network and
Economic Model Office at IUPUI

11. Admission requirements and procedures:

Students admitted into the certificate program must meet all requirements of both the Graduate School and the School of Health and Rehabilitation Sciences. Applicants must submit the following:

- Evidence of dietetic registration
- Official undergraduate transcripts
- 300-500 word personal statement of academic and professional goals
- Three letters of recommendation from those familiar with the applicants' academic and professional performance
- Application for e-learning certificate program 'Leadership in Clinical Pediatric Nutrition'

The minimum admissions requirements are:

- Bachelor's degree from an accredited institution
- Evidence of dietetic registration
- Total undergraduate GPA of at least 3.00 on a 4.00 scale

No credits will be accepted from other institutions to fulfill the requirements of the certificate. No undergraduate courses can be used to fulfill the requirements of the certificate.

12. Completion requirements and procedures for audit and certification:

Students must complete all required course work (the four designated courses) with a grade of B or better. Students will have 1 year to complete the certificate. The Director of the Leadership Education Excellence in Pediatric Nutrition Program will be responsible for certifying completion of all requirements and will notify the Graduate Office once all requirements have been met. The Director will ensure that the certificate information is properly recorded with university offices. Students may be granted additional time to complete the program upon consideration and approval of a written request.

13. Course list for the program including course descriptions:

- AHLT N 570 Pediatric Nutrition 3 credits
- AHLT N 572 Advanced Pediatric Nutrition 3 credits
- AHLT N 576 Leadership Development in Pediatric Nutrition (new) 3 credits
- One of the following:
 - AHLT N 574 Nutrition Management of the High Risk Infant
Newborn Intensive Care Unit 3 credits
 - AHLT N 596 Clinical Dietetics 3 credits

N570. Pediatric Nutrition I (3 credits) P: undergraduate metabolic nutrition course, or consent of instructor. An application of principles of physiology, biochemistry, and nutrition to the specialized nutrient needs and nutritional care of healthy infants, children, and adolescents and those with the most common pediatric conditions, illnesses, or disorders of broad nutritional significance.

N572. Advanced Pediatric Nutrition (3 credits) P: N550, N570, or consent of instructor. The course applies principles of physiology, biochemistry, and nutrition to the specialized nutrient needs and nutritional care of infants, both preterm and term, and patients with complex pediatric conditions/illnesses that have a significant nutrition component.

N574. Nutrition Management of High Risk Neonates and Infants (3 credits) P: N550, N572, or consent of instructor. The course applies principles of physiology, biochemistry, and nutrition to the specialized nutrient needs and nutritional care of neonates, both preterm and term, who require intensive care. Discussions will include nutrition management issues related to the infant during hospitalization, at discharge and in the home environment

N576. Leadership Development in Pediatric Nutrition (3 credits) P: N550, N570, or consent of instructor. The course is an entry level leadership development series of experiential learning activities and includes a leadership development project related to the field of pediatric nutrition for postgraduate health care professionals and fellows

N596. Clinical Dietetics (3 credits) P: N570, N572 or consent of instructor. The course consists of clinical study in specialized areas of dietetics

14. Procedures for governing the program including construction of any committee that might oversee the program:

Program oversight will reside with Karyl Rickard PhD, Director of the Leadership Education in Pediatric Nutrition Program. She reports to Jacquelynn O’Palka, PhD, Department Chair of Nutrition and Dietetics, SHRS, IUPUI.

15. Procedures for program evaluation including criteria for success:

Program evaluation and criteria for success include the following:

- 100% of the students who receive a certificate will demonstrate that they achieved the competencies and student learning outcomes defined for the program (see below)
- At 1, 2 and 5 years from completion of the certificate program, 90% of the students will have a position with leadership responsibilities for the nutritional care of infants, children or adolescents including those with special health needs. These data will be obtained with a survey. Students in a master’s or doctoral program will be included in the survey statistics when they complete their respective programs.
- Annually, the School will determine the number of enrolled students, the number who complete requirements for the certificate, the number of students who enroll in the master’s or doctoral program, and the satisfaction

of the students with the courses, faculty and the certificate program in its entirety.

Student Learning Outcomes:

Successful completion of the certificate program. At the end of the e-learning certificate program, students will be able to provide advanced level, specialty nutritional care for infants, children and adolescents including those with special health needs. All the students who successfully complete the program will demonstrate the use of the following **competencies and learning outcomes**.

- Apply normative and authoritative guidelines to the evaluation of the nutrition and feeding of infants, children and adolescents including those with special health needs
- Assess/evaluate growth and nutrient intakes (parenteral and enteral) relative to age and medical condition of infants, children and adolescents including those with special health needs using appropriate normative data.
- Create appropriate nutrition care plans for infants, children and adolescents including those with special health needs
- Create appropriate roles for the dietitian caring for infants, children and adolescents including those with special health needs
- Create appropriate strategies for improving health/nutrition care services and systems, using the five practices of exemplary leadership (Kouzes and Posner 2003)

Sound pedagogy in the discipline. This course incorporates **problem based learning** activities and a **cognitive approach** to learning. In the **cognitive approach**, students actively direct their own learning. They learn for a purpose and to achieve their goals (provide nutritional care for infants, children and adolescents with special health needs). They think about their own thinking and reassess strategies for learning (reflection journals). They collaborate with others (peer teaching, collaborative discussion with other students, experts and faculty). Information (concepts and clinical skills) are provided in a way that it is easily stored in memory (case scenarios reflect real world practice). The course also incorporates the seven principles for good practice in undergraduate education identified by Chickering (*A Chickering, S Ehrmann, Amer Assoc Higher Educ Bulletin 1996; 39:3-6*). The principles include: active learning, prompt feedback, effective use of time on task, collaborative learning, interaction with faculty, high expectations and respect for diversity. Finally, almost all of the general, research-based principles (Tom Angelo, 1993) for improving higher learning are incorporated into the course.

Synopsis of curriculum, incorporation of pedagogy into e-learning program and assessment of learning outcomes. The students will achieve the **objectives** by interactive, problem based **activities** where students are actively involved in creating nutrition care plans for infants, children and adolescents with a number of conditions or illnesses seen in the real world. Students will learn key concepts and clinical skills through **peer teaching** (evidence based articles), **synthesis of concepts and clinical skills** shared by medical-nutrition experts into their nutrition care plan for the case scenarios, and, **live, interactive discussions** (*online face-to-face in the Breeze room*). The interactive sessions in the e-learning program occur one weekend per month when students in their local area enter an online Breeze Meeting Room. Students online are seen and heard (web cameras and microphones) and participate interactively with faculty and other students in the classroom. **Assessment** of learning and achievement of the objectives will be based upon the final case scenarios and final leadership project report

- At weekly intervals, students will complete and submit *online (asynchronous)* their recommendations and rationale for nutrition care plans in two case-based scenarios.
- At monthly intervals, students will lead interactive discussions of the scenarios with all the students and faculty using a *synchronous online mode (face to face in the Breeze Room)*. This provides the students with the opportunity to interact with real world practitioners who facilitate the integration and synthesis of their knowledge into the “trade craft” of the profession (Dr. Donald Norris, author of *e-learning Revolution*). During the following week, the students will have the opportunity to revise and resubmit their nutrition care plans for the final grade in that module.
- Throughout the entire program, each student will submit a weekly journal *online* that includes reflection activities. Reflection activities allow students to monitor their learning (log the amount of time and effort

spent studying), know what they need to learn, and actively assess the effectiveness of their studying strategies. Additionally, they reflect upon their personality profiles (MBTI) and their learning as well as leadership practices.

- At the end of the Fall semester, students will submit a leadership project proposal that uses all the 5 leadership practices and present it in a *synchronous online mode (face to face in the Breeze Room)* session to the other students. At the end of the Spring semester, students will submit a final project report and present their project outcomes with lessons learned from the use of the 5 leadership practices and their personality preferences for style of leadership.