Nutrition in Medical Education Microcredential

Nutrition in Medical Education microcredential reaffirms the vital role food and nutrition play in sustaining health and wellness, and in preventing and addressing chronic disease. The microcredential provides a curriculum framework that helps academic programs leverage existing nutrition and dietetics curricula to educate medical and health professional students. Students receive the microcredential while engaged in their degree studies. The microcredential may also serve other learners seeking nutrition education as part of their educational pathway or professional development needs.

What is a Microcredential?
A microcredential is a short-term, competency-based module or course that validates a focused set of knowledge and skills within a specific subject area. Unlike traditional degree programs, microcredentials are designed to target a small set of competencies, can be for-credit or not-for-credit, and may "stack" towards a larger academic credential. Microcredentials are awarded upon successful demonstration of defined competencies and are recognized as evidence of targeted education and attainment of specific skills, without requiring program enrollment or graduation from a broader academic program.

Repurposing Nutrition and Dietetics Curriculum as Microlearning for Medical and Allied Health Students
Nutrition and dietetics programs are well positioned to serve as microcredential providers by chunking and repurposing existing course content into discrete microlearning units or modules aligned to the microcredential competencies and other professions' competency frameworks. When mapped to defined competencies, these units become building blocks for foundational nutrition information that can be delivered to medical students, resident physicians, nurses, physician assistants, and other allied health professionals, including health coaches.

Programs can approach this in three steps:

- **Map existing course content to the competencies.** Review current course syllabi, lecture slides, case studies, assignments, and assessments. Identify content units or modules that directly address one or more competencies at the appropriate degree level. Flag any gaps for new content development.
- **Chunk content into one or more microlearning units or modules.** Group curriculum content into one or more focused units or modules addressing a single competency or tightly related group of competencies and the associated performance indicators.
- **Create new content if needed and set the curriculum (assignments, learning activities, assessments).** Organize the curriculum into units or modules. Noting, the microcredential curriculum should include learning activities related to performance indicators and method(s) to assess the

competencies. Note that several performance indicators can be addressed through one learning activity, and several competencies can be assessed with the same summative assessment. The microcredential is awarded after learners demonstrate all required competencies through summative assessment.

Nutrition in Medical Education Microcredential Competencies and Performance Indicators

The ACEND Nutrition in Medical Education competency framework below:

- is organized into three Units (Foundational Nutrition Knowledge, Nutrition Assessment & Diagnosis, and Collaboration, Referral & Patient Management)
- presents expectations at both the bachelor's level (B) and graduate level (G). The graduate-level competencies (G) list additional performance indicators to address the competence level of the microcredential. Programs must align to the microcredential curriculum to either the bachelor's or graduate-level competencies and performance indicators.
- is aligned with the ACEND curriculum competencies as well as the U.S. Department of Health and Human Services (HHS) Medical Education Nutrition Framework. The ACEND accreditation program-specific competency number is noted in the parentheses beside each microcredential competency.

The Units (e.g., Unit 1, Unit 2) are the broad content areas that describe a group of competencies and a focus area.
The Competencies are two-digit numbers (e.g., 1.1, 1.2) that describe what learners should achieve upon completing the microcredential. Competencies identify expected performance (knowledge, skill, and judgment). Summative assessments align to the competencies.
The Performance Indicators are the three-digit numbers (e.g., 1.1.1, 1.1.2) that define each competency and the expected level of performance, broken down into specific, measurable knowledge and skills that demonstrate how the competency is applied through unit/module content, learning activities, assignments, and assessments.

Unit 1: Foundational Nutrition Knowledge		
Bachelor Level Competencies and Performance Indicators	**Graduate Level Competencies and Performance Indicators**	**HHS Medical Education Nutrition Competencies**
1.1(B)Apply foundational sciences and knowledge in food and nutrition (ACEND 2022 Competencies: KRDNs 1.3, 3.1) (ACEND 2027 Competencies: DPD 1.1, 1.2, 1.3)	**1.1 (G) Apply foundational sciences and knowledge in food and nutrition** (ACEND 2022 Competencies: KRDNs 1.3, 3.1; CRDN 3.1) (ACEND 2027 Competencies: CP 1.1, 2.1, 2.5, 3.1, 3.3)	
1.1.1 Examine the role of macronutrients and micronutrients in supporting health and preventing disease across the lifespan	1.1.1 Examine the role of macronutrients and micronutrients in supporting health and preventing disease across the lifespan	• 1. Nutritional content of foods, macronutrients, and micronutrients

Unit 1: Foundational Nutrition Knowledge		
Bachelor Level Competencies and Performance Indicators	**Graduate Level Competencies and Performance Indicators**	**HHS Medical Education Nutrition Competencies**
1.1.2 Apply organic chemistry and biochemistry knowledge to make evidence-based food and nutrition decisions for individuals with nutrient deficiencies, excesses, or complex disease states 1.1.3 Identify evidence linking dietary patterns to risk and disease prevention, such as cardiovascular, renal, endocrine, gastrointestinal, and oncological 1.1.4 Evaluate the composition and nutritional quality of foods based on food and menu labeling 1.1.5 Apply knowledge of classifications, categories, and indications for commonly used nutrition-related medications and supplements (for example, weight management, hypertension, diuretics, cardiovascular disease, diabetes) 1.1.6 Demonstrate understanding of medical nutrition therapy and its alignment with medical and pharmacological treatment goals	1.1.2 Apply organic chemistry and biochemistry knowledge to make evidence-based food and nutrition decisions for individuals with nutrient deficiencies, excesses, or complex disease states 1.1.3 Identify evidence linking dietary patterns to risk and disease prevention, such as cardiovascular, renal, endocrine, gastrointestinal, and oncological 1.1.4 Evaluate the composition and nutritional quality of foods based on food and menu labeling 1.1.5 Apply knowledge of classifications, categories, and indications for commonly used nutrition-related medications and supplements (for example, weight management, hypertension, diuretics, cardiovascular disease, diabetes) 1.1.6 Demonstrate understanding of medical nutrition therapy and its alignment with medical and pharmacological treatment goals 1.1.7 Consider how pathological states alter nutrient absorption, transport, and utilization, including malabsorption syndromes, mitochondrial dysfunction, hormonal dysregulation (e.g., GLP-1, leptin, insulin), and microbiome-immune interactions 1.1.8 Examine how chronobiology and circadian rhythms affect nutrient absorption,	• 2. Pathological states affecting nutrient absorption • 3. Identifies nutrient deficiencies, recommends foods/supplements • 6. Drug-nutrient interactions • 7. Nutritional differences: minimally processed vs highly processed foods • 8. Interprets nutrition labels and menu labeling • 10. Functions of essential nutrients • 11. Principles of healthy balanced diet per national guidelines • 12. Evidence-based guidance on healthy beverage consumption • 13. Mitochondrial metabolism and energy regulation: understand nutrient-driven ATP synthesis and how overnutrition leads to insulin resistance, membranes, and hormones15. Micronutrient cofactors in enzymatic function: master how vitamins and minerals drive reactions and how deficiencies undermine function • 16. Hormonal regulation through food composition: understand how meal composition affects GLP-1, CCK, PYY, leptin, and insulin signaling

Unit 1: Foundational Nutrition Knowledge		
Bachelor Level Competencies and Performance Indicators	**Graduate Level Competencies and Performance Indicators**	**HHS Medical Education Nutrition Competencies**
	hormone regulation, and metabolic efficiency	• 18. Microbiome-immune crosstalk: understand fiber fermentation producing butyrate for gut integrity and how ultra-processed diets cause dysbiosis • 21. Chronobiology and circadian nutrition: understand how meal timing affects nutrient absorption, hormonal rhythms, and metabolic efficiency

Unit 2: Nutrition Assessment & Diagnosis		
Bachelor Level Competencies and Performance Indicators	**Graduate Level Competencies and Performance Indicators**	**HHS Medical Education Nutrition Competencies**
2.1 (B) Conduct a nutrition assessment to inform the nutrition diagnosis (ACEND 2022 Competencies: KRDN 3.1, 3.4, 3.5, 3.6) (ACEND 2027 Competencies: DPD 4.1, 4.2, 4.3, 4.4)	**2.1 (G) Conduct a nutrition assessment to inform the nutrition diagnosis** (ACEND 2022 Competencies: KRDN 3.1, 3.4, 3.5; CRDN 3.1, 3.2, 3.3) (ACEND 2027 Competencies: CP 2.2, 2.5, 3.3)	
2.1.1 Collect and interpret a comprehensive dietary intake history to contribute to the evaluation of nutrition status 2.1.2 Interpret nutrition-focused physical examination (NFPE) data using clinical criteria (e.g., ASPEN, AND) for diagnosing malnutrition 2.1.3 Assess nutrition status, considering anthropometric data and medical history 2.1.4 Identify dietary patterns and required diet modification for disease prevention	2.1.1 Collect and interpret a comprehensive dietary intake history to contribute to the evaluation of nutrition status 2.1.2 Interpret nutrition-focused physical examination (NFPE) data using clinical criteria (e.g., ASPEN, AND) for diagnosing malnutrition 2.1.3 Interpret pertinent laboratory and biomarker data (glucose levels, fasting insulin, OGTT, HOMA-IR, TG: HDL ratio, lipids, omega-3 index, vitamin D), and CGM data to evaluate nutritional status and nutritional diagnosis	• 22. Assesses nutritional status by integrating dietary history, clinical measurements (height, weight, BMI, skeletal muscle mass, visceral fat), and laboratory findings • 23. Comprehensive nutrition-focused physical examination • 24. Interprets exam data and biomarkers for malnutrition risk

Unit 2: Nutrition Assessment & Diagnosis		
Bachelor Level **Competencies and Performance Indicators**	**Graduate Level** **Competencies and Performance Indicators**	**HHS Medical Education Nutrition Competencies**
2.1.5 Differentiate between genomics, metabolic biomarkers, and genetic testing for nutrition-related disease	2.1.4 Assess nutrition status, considering anthropometric data, medical history, laboratory results, and pharmaceuticals 2.1.5 Identify dietary patterns and required diet modification for disease prevention 2.1.6 Interpret and analyze results from genetic and nutrigenetic tests to inform the evaluation of nutrition status and diagnosis	• 25. Personalized metabolic biomarker interpretation: using fasting insulin levels, oral glucose tolerance testing (OGGT), HOMA-IR, TG: HDL ratio, advanced lipid panels, omega-3 index, and vitamin D to guide interventions • 26. Continuous glucose monitoring (CGM) interpretation: analyze CGM data patterns to identify glycemic variability and guide dietary modifications and different use cases for specific populations, including diabetic patients • 27. Early warning sign recognition: interpret nutrition-related symptoms (fatigue, bloating, anxiety) and signs (brittle nails, hair thinning) • 28. Network biology disease assessment: evaluate organ symptoms as downstream manifestations of upstream cellular dysfunction • 29. Personal biomarker practicum: complete personal lab panels and build self-reflective nutrition plans with iterative testing

Unit 3: Collaboration, Referral & Patient Management		
Bachelor Level Competencies and Performance Indicators	**Graduate Level Competencies and Performance Indicators**	**HHS Medical Education Nutrition Competencies**
3.1 (B) (G) Work collaboratively with the RDN and other health professionals to support nutrition goals and positive outcomes (ACEND 2022 Competencies: KRDN 2.2, 2.5; CRDN 2.1, 2.4, 2.5, 2.6, 5.5) (ACEND 2027 Competencies: CP 5.1, 5.2, 5.4)		
3.1.1 Identify the education, roles, and responsibilities of RDNs and NDTRs 3.1.2 Identify when a referral to an RDN is required for consultation and to recommend medical nutrition therapy 3.1.3 Demonstrate ethical and professional behaviors to manage differences and conflict to achieve desired outcomes		• 39. Works with other health professionals for multidisciplinary nutrition care • 40. Makes appropriate referrals to support patient health goals • 41. Health coach and functional nutritionist collaboration: effectively co-manage patients with non-physician experts • 43. Functional medicine clinic rotations: shadow practitioners implementing food-first interventions and metabolic health approaches
3.2 (B) (G) **Co-manage patients with RDN to improve patient outcomes** (ACEND 2022 Competencies: KRDN 1.2, 2.5, 3.1, 3.6, 4.3; CRDN 2.4, 2.5, 3.1, 3.7, 3.10, 3.11, 4.4, 4.9) (ACEND 2027 Competencies: DPD 2.1, 4.3, 4.5; CP 2.4, 2.8, 3.2, 5.4)		
3.2.1 Identify when RDN consultation is required to develop and implement the nutrition care plan 3.2.2 Identify medical nutrition therapy needs and counseling strategies to create a shared vision and goals 3.2.3 Develop diet and nutrition goals and provide general diet and nutrition education based on the patient's medical diagnosis 3.2.4 Identify nutrition-related wearable devices and platforms to collect and retrieve nutrition information in a secure and ethical manner 3.2.5 Describe the regulation system related to billing and coding for reimbursable medical nutrition therapy services		• 41. Health coach and functional nutritionist collaboration: effectively co-manage patients with non-physician experts • 42. Digital health technology integration: understand and recommend evidence-based wearables and platforms supporting nutrition outcomes

Unit 3: Collaboration, Referral & Patient Management		
Bachelor Level Competencies and Performance Indicators	**Graduate Level Competencies and Performance Indicators**	**HHS Medical Education Nutrition Competencies**
		• 43. Functional medicine clinic rotations: shadow practitioners implementing food-first interventions and metabolic health approaches • 71. Billing for nutrition services, culinary medicine consultations with RDNs

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For more information on this document, contact ACEND staff: Accreditation Council for Education in Nutrition and Dietetics. 120 South Riverside Plaza, Suite 2190, Chicago, IL 60606-6995. Phone: 312/899-0040 X 5400. Fax: 312/899-4817. Email: EARN@eatright.org URL: www.eatright.org/ACEND