November 2019

Curricular Thread Review: Nutrition

Contributors: Caroline Abercrombie, MD; Tom Ecay, PhD, Paul Monaco, PhD; Mitch Robison, PhD

Presented to MSEC: January 14, 2020

The Nutrition thread report was presented to MSEC on Sept. 15, 2015. The Office of Academic Affairs provided an update to MSEC on December 2016; all short-term recommendations had been implemented. A November 2019 Nutrition Content report assisted with updating the content coverage and recommendation follow-ups (**bold comments**). This thread review is to verify all previous recommendations are in place and to provide any additional recommendations for reporting to MSEC to ensure sufficient coverage exists.

Thread Objectives

Established in 2015 using reviewed contet standards:

NIH: Nutrition Curriculum Guide for Training Physicians (http://www.nhlbi.nih.gov/research/training/naa/products/curr_gde/index.htm)
Nutrition in Medicine: Online Nutrition Modules (http://nutritioninmedicine.org)
Nutrition Topics in Medical Schools (http://www.nhlbi.nih.gov/research/training/naa/products/faculty_courses.pdf)
Comparable curricula at other medical schools (University of Central Florida, University of Cincinnati, University of Michigan)

Mapped to corresponding Institutional Educational Objectives (IE)

http://www.etsu.edu/com/msec/documents/institutionaleducationalobjectives_latestversion.pdf

Knowledge:

1) Understand fundamental principles of nutrition: 2.2
   a) Define a fuel; name the 3 classes of fuels in the human diet (carbohydrates, fats and protein). Distinguish among the classes according to their structural features and caloric content. 2.2
   b) Outline the metabolic pathways involved in the generation of energy from fuel oxidation and explain how each pathway is regulated in response to cellular energy demand. 2.2
   c) Explain the concept of fuel homeostasis and use this concept to explain the changes of blood glucose, fatty acids and amino acid levels that occur in response to variations in timing, quantity, and type of dietary fuel intake and to variations in the intensity or duration of physical exercise. 2.2
   d) Define calorie, basal metabolic rate, respiratory quotient, and daily energy expenditure, and describe how these values are measured or calculated. Explain how each of these values is related to physical exercise, caloric balance, weight gain or loss, and the rate of fuel metabolism. 2.2
   e) Outline the pathways for synthesis and degradation of cholesterol; and explain the mechanisms that regulate these pathways in response to cholesterol intake, saturated fat, and other dietary components. 2.2
   f) Distinguish among the classes of lipoproteins involved in cholesterol and lipid transport in the blood; and explain how different genetic and dietary factors influence lipoprotein concentrations and composition. 2.2

g) Distinguish between the two types of dietary fiber; and explain the potential contributions of fiber to health maintenance. 2.2
h) Define Recommended Dietary Allowance (RDA), Dietary Reference Intake (DRI), Adequate Intake (AI), Estimated Average Requirement (EAR); and Upper Limit (UL); explain how these values are established for different age groups; and identify the population groups to which they apply. 2.2, 2.3, 3.6
i) Using the US Dietary Guidelines and MyPlate, describe the general characteristics of a healthy diet, including the recommended contribution of various food groups, good common sources of individual nutrients, foods to be consumed in limited amounts, and the carbohydrate: fat: protein distribution. 2.3, 2.4, 3.6, 3.10
j) Identify types of individuals, populations or communities at risk for specific or general dietary vitamin and mineral deficiencies or imbalances as a result of genetic, environmental, or socio-cultural influences. 2.4, 2.5, 3.9

2) Describe the role of nutrition in health promotion and disease prevention, particularly as related to chronic disease. 2.2, 3.10
3) Identify the prevalence of individuals who are overweight, obese, or malnourished in the U.S. 2.4, 2.5
4) List food categories in the MyPlate food guide and recommended number of servings in each. 2.2, 3.8, 3.10
5) List at least three common barriers to dietary change and identify effective strategies for overcoming these barriers. 2.5, 3.10
6) Describe common social, ethnic, cultural, and societal factors that contribute to the prevalence of nutritional problems and should be considered in their management. *2.5, 3.9*
7) Describe the metabolic and medical consequences of varying degrees of over- and under-nutrition. 2.1, 2.2
8) Compare and contrast the "ABCD's" (anthropometric, biochemical, clinical, and dietary intake measures) of nutrition assessment. 2.1, 2.2, 2.3, 2.4
9) Describe the impact of the altered nutritional status associated with five common acute and five common chronic diseases. 2.2, 3.6, 3.9
10) List the laboratory measurements commonly used to assess the nutritional status of patients. 1.2, 1.4
11) Describe MyPlate, explain how it could be used as a nutrition assessment tool, and give functional definitions of portion size in each category of MyPlate. 2.2, 3.8, 3.10
12) Outline a laboratory profile indicative of malnutrition, protein-energy malnutrition, iron deficiency anemia, or megaloblastic anemia. 1.2, 1.4
13) Identify the likely physical examination findings associated with over- and under-nutrition and vitamin/mineral deficiencies or toxicities. 1.2, 1.4
14) Describe the beneficial effects of physical activity and the detrimental effects of inactivity on the cardiovascular, musculoskeletal, pulmonary, neurological systems. 2.4
15) Identify the relative contribution of basal and resting metabolism, dietary thermogenic influences, and physical activity to the total daily energy expenditure (TDEE). Differentiate between moderate and vigorous activity; classify various physical activities by their energy expenditure rates. 2.2
16) List the four compartments of the body used to determine body composition. Identify different regional patterns of adipose tissue deposition and the influence of caloric intake on body fat. 2.2
17) Describe the cardiovascular and metabolic responses to short-term and long-term physical activity. 2.2
18) Explain how varying levels of physical activity influence an individual's nutritional requirements. 2.2

Skills:

History

19) Take an appropriate patient medical history, including family, social, nutritional/dietary, physical activity, and weight histories; use of prescription medicines, over-the-counter medicines, dietary and herbal supplements; and consumption of alcohol and recreational drugs. 1.1, 1.2

Physical

20) Conduct an appropriate physical examination, including anthropometrics, evaluation of growth and development and signs of nutritional deficiency or excess. 1.1, 1.2

Test Selection

21) Select and interpret the results of screening measures, laboratory tests, and diagnostic procedures appropriate to assess and manage a patient's nutrition. 1.4, 1.5

Evaluation

22) Evaluate a patient's diet and current nutritional status based on the USDA MyPlate. 1.6, 2.3
23) Identify individuals who require medical nutritional therapy and lifestyle modification. 1.5, 2.3, 2.4, 2.5
24) Integrate nutritional assessment information into an individualized nutritional management and physical activity plan for optimal health, risk factor reduction and common medical problems. 1.6

Counseling

25) Effectively counsel patients to make informed nutritional decisions consistent with adopting and maintaining a healthy lifestyle and with establishing appropriate dietary, exercise and behavioral goals. 3.8, 4.1, 4.6
26) Effectively communicate with patients in a culturally competent manner to provide accurate nutritional information and dispel misinformation. 3.8, 4.1, 4.6
27) Employ effective counseling techniques matched to the patient's level of motivation and readiness for change, encouraging the use of goal setting, identification of barriers, problem solving, self-monitoring, self-reinforcement, and stimulus control. 3.8, 4.1, 4.6, 4.7

Consultation and Referral

28) Consult with or refer to a registered dietitian or other credentialed healthcare professionals and refer to community nutrition resources as appropriate. 4.2, 4.3

Attitudes:

29) Recognize that nutrition, physical activity, and health lifestyle behaviors can have direct, substantial, and long-term effects on growth and development, health maintenance, and disease prevention and treatment. 2.2, 3.6, 3.10, 8.1
30) Demonstrate a commitment to interact with patients in a culturally competent manner that appropriately acknowledges the unique characteristics and nutritional needs of each individual. 3.8,
31) Recognize how personal, environmental, and social factors interact and impact on eating behaviors and overall nutrition. 2.2
32) Demonstrate sensitivity to biomedical and nutritional changes as well as psychological, social, and ethical issued that affect patient care. 4.7
33) Recognize the importance of using a multi-disciplinary team approach in nutritional health care. 4.2, 4.3, 4.4, 6.1, 6.2, 7.1, 7.2, 7.4
34) Recognize the importance of patient autonomy and shared decision making in the nutritional management of patients. 1.7, 4.1, 5.1, 5.2, 5.3
35) Recognize the positive role of the physician as role model for patients regarding nutrition and health lifestyles. 1.10, 4.1, 4.7
36) Recognize the importance of attention to nutritional management to enhance a patient's quality of life. 1.2, 1.6, 1.7, 2.5, 4.1, 4.7, 5.4

37) Recognize the physician's responsibility to support public health initiatives that promote community health regarding nutrition and physical activity. 3.4, 3.6, 7.2

Short Term Recommendations

1. In addition to including BMI in the didactic session for Doctoring I (PE), also include this as a skill to practice during the vital signs hands-on portion.
2. Continue to incorporate anthropometrics and dietary history in patient scenarios & assessments as feasible; encourage facilitators to include nutrition related learning issues through facilitator guides, assessment tools, and faculty development efforts.
3. Encourage integration and staging of related content between courses and clerkships as outlined in the expanded content report at the end of this review.
4. Require the inclusion of dietary history in Family Medicine Home Visit.

Long Term Recommendations

1. Develop an evidence based OSCE that includes nutritional guidelines and dietary recommendations; Doctoring I, Community Clerkship and Keystone are potential sites for placement where content currently exist.
2. Encourage students to integrate individual anthropometric data, food inventory data and blood chemistry data from Doctoring I Nutrition Sessions and CMM blood draw to develop a "picture of ideal health".
3. Expand nutrition assessments across clerkships—assess as a global objective/requirement for third year. Provide a nutrition assessment rubric and some examples for CD guidance.

Course-linked Objectives and Recommendations

Course-Linked Objectives	Current Course and Content	Short Term Essential & *Desired (italics)*	Long Term
Explain nutritional guidelines and recommendations for healthy Americans. Recognize the science underlying guidelines and their limitations.	Case Based learning (CBL) nutrition sessions 1&2: class discussions and learning issues Rural Practice of Medicine (MS-2) Anatomy biometrics lab	Introduction to Physical Exam: add anthropometrics session - **BMI introduced as a VS in intro but not included as a vital sign to be collected during the PES session of Doctoring I**	Develop an evidence based OSCE that includes nutritional guidelines and dietary recommendations. **Not Done; investigate other areas this could be placed: Doctoring I Nutritional Sessions final assessment, Keystone, Community**

Course-Linked Objectives	Current Course and Content	Short Term Essential & *Desired (italics)*	Long Term
			Include one nutrition-related patient encounter for the M3 OSCE competency – **Included in 2019 OSCE**
Explain steps in the conversion of macronutrients to usable forms of energy (ATP), including digestion, absorption, and metabolism.	Cell and Molecular Medicine Medical Physiology	Clearly identify for students existing foundational nutrition science content in current basic science courses. Label as nutrition-related content - **Done, but an ongoing process (see content report)**	
Recognize that nutrition, physical activity, and healthy lifestyles have direct, substantial, and long-term effects on growth and development, health maintenance, disease prevention, and treatment.	CBL – Nutrition Session 2 class discussions Pediatrics clerkship: taught & reinforced in each well child exam Family Medicine module that discusses overweight patient case Phil Steffy does wellness talks with students to recognize this for themselves IPE Year 2 patient scenarios include nutritional issues to be identified in a team interview (access, pregnancy, disease, disability) IGR includes one patient case a year with nutritional needs.	CBL – Nutrition Session 2 – written reflection recommended – **Done with this objective as the guiding statement provided** CBL – First Patient Case – where appropriate, encourage students to address diet/nutrition contribution to their case (obesity, coronary artery disease, degenerative joint disease, etc.) - **Is included in guidelines for First Patient Presentations**	Recommend TPN case in surgery clerkship **– Included during clinical case presentations as appropriate**

November 2019

Course-Linked Objectives	Current Course and Content	Short Term Essential & *Desired (italics)*	Long Term
Encourage students to conduct appropriate nutritional assessments on most ambulatory and hospitalized patients, when applicable, including those with acute or chronic disease as well as healthy individuals of all ages.	Community Medicine required nutrition H&P with nutritional assessment Pediatrics clerkship has a lecture on fluid requirements and TPN calculations in pediatric patients	Recommend 1 of 12 required H&Ps in internal medicine clerkship to include a full nutritional assessment, physical exam, and nutrition recommendations as it relates to the patient's disease process - **Included in note template; nutritional assessment not required; look to provide guidance and assessment tool** Recommend 1 of 3 required H&Ps in family medicine clerkship to include a full nutritional assessment, physical exam, and nutrition recommendations for an outpatient preventative health visit - **Not done**	Recommend H&P with full nutritional assessment with resident or faculty feedback for the following clerkships: surgery, pediatrics, OB-gyn, medicine. **Peds requires dietary history collection in children of all ages, determine the adequacy of the diet, and provide nutritional advice to families and patients. Common nutrition-related issues, e.g., advantages of breastfeeding, obesity, failure to thrive, and situations that require special dietary needs. Surgery & IM have required H&P, but nutritional assessment not required** Expand nutrition assessments across clerkships—assess as a global objective/requirement for third year. [Apply a nutrition assessment rubric and some examples.] * **Not done; Look to provide guidance & assessment tool**

Course-Linked Objectives	Current Course and Content	Short Term Essential & *Desired (italics)*	Long Term
Conduct an appropriately focused history and physical examination in a patient of any age, including anthropometrics. Select appropriate laboratory tests and procedures to diagnose and treat nutritional conditions such as over- and under-nutrition in hospitalized and ambulatory patients. Identify appropriate medical nutrition therapies.	Anthropometrics are introduced in CBL, Anatomy Lab Session and Intro to Physical Exam Skills; collected and calculated on a first patient and self. Practice of Medicine: IGR nutritional needs for at least one patient case per year.	*Practice of Medicine – dietary history with each patient scenario* – **Pancreatitis Case focuses on recommending enteral nutrition to prevent sepsis. Metabolic Syndrome Case emphasizing diagnostic guidelines & lifestyle changes; also includes B12 in discussion of differentials for peripheral neuropathy. Hepatitis case discusses need for safe food handling & risk of Hep A transfer.** *All CIF Cases, CBL cases, etc. include anthropometrics and dietary history with patient scenario.* ***Some*** ***CBL cases have done this.*** Ensure an appropriate physical exam and nutritional recommendations are included in the currently required community medicine clerkship nutritional assessment **– included with required nutrition H&P** Recommend 1 of 12 required H&Ps in internal medicine	Investigate the ability to add an OSCE at the end of community medicine **Not done; investigate other areas this could be placed: Doctoring I Nutritional Sessions final assessment, Keystone, Community** Recommend required H&P with full nutritional assessment, physical exam, and nutrition recommendations for one outpatient *or* inpatient (with resident or faculty feedback) for the following clerkships: surgery, pediatrics * **Peds requires dietary history collection, & diet assessment with education to patient/family. Surgery & IM have required H&P, but nutritional assessment not required** Expand nutrition assessments across clerkships—assess as a global objective/requirement for third year.

Course-Linked Objectives	Current Course and Content	Short Term Essential & *Desired (italics)*	Long Term
		clerkship to include a full nutritional assessment, physical exam, and nutrition recommendations as it relates to the patient's disease process* **Included in note template; - Included in note template; look to provide guidance & assessment tool** Recommend 1 of 3 required H&Ps in family medicine clerkship to include a full nutritional assessment, physical exam, and nutrition recommendations for an outpatient preventative health visit* **Not done**	[Apply a nutrition assessment rubric and some examples.] * **Not done; Look to provide guidance & assessment tool**
Apply nutrition recommendations specific to disease state when appropriate. Identify appropriate nutritional therapies.	Embryo (folate supplements/deficiency, glucose control in IDDM; PKU – low phenylalanine maternal diet); COL has a neural tube defect case Pathology discusses the nutritional components of some disease states (i.e. microcytic anemia, macrocytic anemia, Kwashiorkor) Biochemistry / Genetics (inborn errors of metabolism)	*Include in Pathology and Practice of Medicine courses consistently and where appropriate.* **Pancreatitis Case focuses on recommending enteral nutrition to prevent sepsis. Pathology confirmed this is being done.** Ensure appropriate nutrition recommendations are included in the already required	Recommend required H&P with full nutritional assessment, physical exam, and nutrition recommendations for one outpatient *or* inpatient (with resident or faculty feedback) for the following clerkships: surgery, pediatrics * **Peds requires dietary history collection, & diet assessment with education to patient /family. Surgery & IM have**

November 2019

Course-Linked Objectives	Current Course and Content	Short Term Essential & *Desired (italics)*	Long Term
	Physiology discusses nutrition consequences of ileal resection and pernicious anemia COL (renal failure case; dialysis patient) Pediatrics clerkship has one lecture on fluid requirements and TPN requirement calculations in pediatric patients. Included during surgery case presentations where appropriate. IPE Year 2 patient scenarios include nutritional issues to be identified in a team interview (access, pregnancy, disease). The group interviews IP healthcare team focusing in the area of patient's presentation to receive guidance.	community medicine clerkship nutritional assessment* **– each student chooses a NIM topic to present for discussion on common nutrition and physical activity (portion sizes, minutes per week of exercise for adults and children, sports supplements, etc.** Recommend 1 of 12 required H&Ps in internal medicine clerkship to include a full nutritional assessment, physical exam, and nutrition recommendations as it relates to the patient's disease process* - **Included in note template; looking for guidance on assessment** Recommend 1 of 3 required H&Ps in family medicine clerkship to include a full nutritional assessment, physical exam, and nutrition recommendations for an outpatient preventative health visit* **Not done**	**required H&P, but nutritional assessment not required** Expand nutrition assessments across clerkships—assess as a global objective/requirement for third year. [Apply a nutrition assessment rubric and some examples.] * **Not done; Look to provide guidance & assessment tool**

November 2019

Course-Linked Objectives	Current Course and Content	Short Term Essential & *Desired (italics)*	Long Term
Recognize common drug nutrient interactions.	Pharmacology: dietary modifications with Coumadin, P450 interactions, cancer chemotherapy that may block nutrient absorption Embryo (antiepileptics and folate)	Encourage recognition of drug nutrient interactions in required community medicine clerkship nutritional assessment, as it pertains to the medications of the patient (that the student is assessing) **currently discuss difficulties of people on dialysis (dietician directed) and "herbal supplements" and the best NIH source for additional information** *Encourage recognition of drug nutrient interactions in the previously recommended nutrition-focused H&P in the internal medicine & family medicine clerkships, as it pertains to the medications of the patient (that the student is assessing)* - e student is assessing) **Not done formally in IM or FM**	Encourage recognition of drug nutrient interactions in the previously recommended nutrition-focused H&P in the *surgery* & *pediatrics* clerkships, as it pertains to the medications of the patient (that the student is assessing) **Not done; addressed in case presentations as appropriate**
Demonstrate skills to counsel patients to make informed nutritional decisions consistent with adopting and maintaining a healthy lifestyle and with establishing appropriate dietary, exercise and behavioral goals.	Intro to Clinical Psych – obesity, weight loss, motivational interviewing and lifestyle behavior modification Demonstrated in well child exams in general pediatrics clinic—no current formal assessment	Communications course: Integrate into smoking/motivational interviewing* - **Done** Add diet compliance discussion to medical interpretation lecture in	Investigate the possibility of adding an OSCE at the end of community medicine clerkship **Not done**

November 2019

Course-Linked Objectives	Current Course and Content	Short Term Essential & *Desired (italics)*	Long Term
	Transitions course/MS-3 OSCE competency	Transitions course - **Included in Focused Patient Encounter large group discussion and demonstrated in the 2019 OSCE Competency**.	
Employ effective culturally sensitive counseling techniques matched to the patient's level of motivation and readiness for change, with appreciation for various behavioral change theories.	COL nutrition session 2 and Profession of Med – physician bias sessions Intro to Clinical Psych – motivational interviewing; model taught regarding readiness for change ~~Transitions course: Medical interpreter session (not nutrition but it is asking for behavioral changes using an interpreter and considering the unique cultural boundaries)~~ new case used to obtain informed consent	Communications course: Integrate into smoking/motivational interviewing * - **Done**	Investigate the possibility of adding an OSCE at the end of community medicine clerkship **Not done**
Recognize how personal, environmental, and social factors interact and impact on eating behaviors and overall nutrition.	CBL – Nutrition session 2 Class discussions	Integrate into Community Medicine Clerkship with additional learning modules **– NIM topic presentations for group discussion; Some needs assessment projects are focused in nutrition**	Community Medicine needs an assessment project **– Some projects are focused in nutrition**
Demonstrate sensitivity to biomedical and nutritional changes as well as psychological,	Profession of Medicine Lifespan Development Intro to Clinical Psych	*Integrate into Pediatrics clerkship and Family Medicine-*	

November 2019

Course-Linked Objectives	Current Course and Content	Short Term Essential & *Desired (italics)*	Long Term
life stage related, cultural, religious, social, and ethical issues that affect patient care.		*geriatrics / ELC rotation.* - **Moore emailed**	
Recognize the importance of using a multi-disciplinary team approach in nutritional health care.	Doctoring I: CBL – nutrition session 2; Profession of Medicine session IPE Year 1 foundational content; reiterated and applied in IPE Year 2	Establish nutrition-focused Inter-professional Education Project as a graduation requirement. **Not done** *ICU/surgery/IM rotation requirement to work with nutritionist/pharmacist.* - **FM provides interaction with a pharmacist**	4th yr IP elective Interest Group - **Not done** Community medicine/needs assessment **– Some projects are focused in nutrition**
Demonstrate thorough understanding and application of evidence-based information in addressing nutritional-related questions for health and disease; as well as answering questions related to contemporary trends in food, diets and nutrition. (GMOs?)		Community outreach experiential exercise as part of an interest group or Community Medicine clerkship. **– NIM topic presentations for group discussion; Some needs assessment projects are focused in nutrition** *Suggest incorporation of related topics into Biochemistry small group discussions* - **Not done - Course transitioned to TBL sessions – should encourage inclusion**	4th year or multiyear Journal club Continuation of Comm Med Needs assmt? Identify problem, then determine the best practice of addressing - **Not done**

November 2019

Course-Linked Objectives	Current Course and Content	Short Term Essential & *Desired (italics)*	Long Term
Understand the impact of serving as a positive role model for patients by maintaining a healthy personal lifestyle and by taking responsibility for your own health.	Student Affairs health & wellness activities and resources Intramural sports Phil Steffy does wellness talks with students on doing this for themselves	Provide opportunities for student health, understanding diet trends, exercise recommendations, healthy lifestyles - **CSSH Student Organization organized activities, Activity Log competition initiated**	Develop a third CBL nutrition session on activity (January/ New Year resolution) **Not Done** Journal (360 health watch App) **Not Done** **Explore the feasibility of instituting a learning Community**
Recognize the role of food in environmental and socially conscious issues.	COL – Nutritional session 2 Profession of Medicine IPE Foundational content Year 1 & 2	*Required Inter-professional activity or community outreach experiential sessions (Farmers Market, community shopping trips, farm to market tours)* * **Not done formally, but this topic has instead been integrated into the formal IPE curriculum (iHELP and Year 2 simulated patient encounters)**	
Effectively communicate with patients to provide accurate nutritional information and dispel misinformation, including information about dietary supplements, nutraceuticals, functional foods, and fad diets for weight loss, disease prevention and treatment.	Pharmacology—discussion of herbal products, alternative medicine Community medicine required nutrition H&P with nutritional assessments	Recommend an attending or resident physician to observe each *family medicine* clerk communicate accurate nutritional information during an outpatient preventative health visit (this might fit best with the patient for whom each student is recommended to do	

November 2019

Course-Linked Objectives	Current Course and Content	Short Term Essential & *Desired (italics)*	Long Term
		one nutritionally-based H&P on the family medicine clerkship) - **Not done**	

*repeated recommendation

November 2019

Curricular Outline of Current Content & Recommended Changes

Course	Current Content	Short Term Improvements	Long Term Improvements
M1			
MHGAE	First Patient BMI collection Embryo - Nutrition recommendations (Folate, Glucose control in IDDM, PKU) & potential drug nutrient interactions (antiepileptics & folate)	Be sure to highlight activity as nutrition and correlate to skills/content taught in the nutrition CBL session	
Doctoring I	(2) CBL Nutrition sessions – Guidelines, Anthropometrics, MyPlate, Food Diary, Health maintenance, Prevention, cultural sensitivity. Nutrition session II focuses primarily on socioeconomic issues & requires a reflective statement (Guidance provided: "Recognize that nutrition, physical activity, and healthy lifestyles have direct, substantial, and long-term effects on growth and development, health maintenance, disease prevention, and treatment") CBL Case on Neural Tube Defect, Renal Failure Patient on dialysis Multidisciplinary team approach for interventions	Include BMI calculation in skills session for PE session on Vital Sign collection. Continue to incorporate anthropometrics and dietary history in patient scenarios & assessments as feasible Encourage facilitators to include nutrition related learning issues through facilitator guides and faculty development sessions	Focus on communication issues related to obesity; focus on nutrition guidelines Work with CMM to have students integrate individual anthropometric data, food inventory data and blood chemistry data from CMM blood draw to develop a "picture of ideal health" Explore nutrition related OSCE to asses embedded nutritional elements; consider working with the medical library to also include assessment of their use of evidence-based resources for nutritional guidelines and dietary recommendations.

	Session on physician bias BMI introduced as a VS in PES didactic session Addressed when appropriate during the first patient case presentation CSHP – assessing readiness for change, motivational interviewing		
Cellular & Molecular Medicine	Conversion of macronutrients to ATP, including digestion, absorption, transport & metabolism Lipid Synthesis & Degradation Micronutrients (vitamins, minerals), essential amino acids Production and storage of energy; Fuel Homeostasis Contribution of basal and resting metabolism, dietary thermogenic influences, and physical activity to the total daily energy expenditure Inborn errors of metabolism and related dietary recommendations or nutritional therapies IC accumulations of nutrients due to issues with a glycogen / carb / lipid		Work with Doctoring I to have students integrate individual anthropometric data, food inventory data and blood chemistry data from CMM blood draw to develop a "picture of ideal health"

	metabolism Medical consequences of varying degrees of over- and under-nutrition Prevalence of overweight, obese, & malnourished individuals Laboratory profiles indicative of malnutrition, protein-energy malnutrition, iron deficiency anemia & megaloblastic anemia		
Cell & Tissue	GI absorption at the cellular level; correlates content with physiology		
Genetics	Inborn errors of metabolism and related dietary recommendations or nutritional therapies Covered for some autosomal recessive disorders (PKU, galactosemia, hereditary hemochromatosis)		
Lifespan & Development	Role of social issues on human development		Investigate potential for a session to build on Doctoring I's nutrition session II (CBL)
Medical Physiology	GI motility, digestion, and absorption. Conversion of macronutrients to ATP. Pernicious anemia & nutritional consequences related to ileal resection		

	Impact of disease states on energy metabolism (thyroid)		
IPE Curriculum	Benefit of a team-based approach. Importance of understanding the roles of team members (nutrition is introduced as a team member), crucial conversations, and working as a team to identify and address social detriments of health.		
IGR	One patient case per year covers nutritional needs		
M2			
Pathology	Dietary recommendations and nutritional therapies for specific disease states consistently applied where appropriate, i.e., malnutrition, malabsorption, protein-calorie deficiencies, vitamin & mineral deficiencies, eating disorders, energy storage Diseases due to IC accumulations of nutrients and related presentations		
Doctoring II	IGR – (1) session a year with nutritional needs POM - (1) case with nutritional needs (pancreatitis need for enteral nutrition to	Continue to incorporate anthropometrics and dietary history in patient scenarios & assessments as feasible	

	prevent sepsis); (1) case on metabolic syndrome diagnostic guidelines & necessary lifestyle changes; includes B12 deficiency as peripheral neuropathy differential; and (1) case on Hepatitis case discusses need for safe food handling related to Hep A	Encourage facilitators to include nutrition related learning issues through facilitator guides and faculty development sessions	
Intro to Clinical Psych	Motivational Interviewing I Didactic: Self-Efficacy, Reducing Risk Behavior, Stages of Change, Readiness to change; Decision Balance Motivational Interviewing II Didactic: Skills Training & Application Eating disorders didactic: Anorexia Nervosa; Bulimia Nervosa; Binge-eating disorder; Epidemiology, Co-morbidity, Psychotherapy	Look for ways to link motivational interviewing to nutritional sessions in Doctoring I.	
Immunology	Immuno-nutrition & mucosal immunity related to Vitamin A		
Microbiology & Virology	Pernicious anemia related to Cestodes Healthy food & disease prevention (salmonella, shigella, campylobacter)		
Clinical Neuroscience	Presentation of vitamin deficiencies & toxicities		

Pharmacology	Drug nutrient interactions, i.e., Coumadin, P450 inhibitors, chemo blocked absorption Discussion of herbal products & alternative medications		Explore opportunities to continue to build on nutrient drug interactions in pediatrics and surgery clerkships
IPE Curriculum	Benefit of a team-based approach. Importance of understanding the roles of team members (nutrition is introduced as a team member), crucial conversations, and working as a team to identify and address social detriments of health. Teams follow patients over the course of four visits; 6 different patient encounters all with nutritional elements to identify and address.		
IGR	One patient case a year covers nutritional needs of a patient		
M3			
Transitional Week (Transitions to Clinical Clerkships & M3 OSCE Competency)	Session on focused patient encounters emphasizes the importance of counseling patients on lifestyle modifications to motivate a healthy lifestyle OSCE Competency requires counseling to promote a healthy lifestyle modification; dietary history/counseling included in (1) case for 2019		Continue to look for ways to include a nutritional element in at least one M3 OSCE Competency scenario and require patient nutrition related education in performance assessment.

FM Clerkship	Case Module on overweight patient Relevant required patients include: health promotion/disease prevention in all age groups, Diabetic diagnosis Required to practice and document skills in motivational interviewing & reaching common ground to collaboratively develop a plan to help a patient with a beneficial health-behavioral change related to everyday lifestyle issues (smoking cessation, weight loss, diet change, increasing exercise, medication adherence, etc.)	Include dietary history in the home visit patient	Expand nutrition assessments across clerkships—assess as a global objective/requirement for third year. Provide a nutrition assessment rubric and some examples for CD guidance.
OB/GYN Clerkship	Didactic on Normal OB discusses patient education on new nutritional needs Nutritional assessment of normal & diabetic pregnancies, including vitamins & weight management Nutritional factors impacting fetal growth Prevention of vitamin deficiencies		Expand nutrition assessments across clerkships—assess as a global objective/requirement for third year. Provide a nutrition assessment rubric and some examples for CD guidance.
Psych Clerkship	Eating disorders?		Expand nutrition assessments across clerkships—assess as a global objective/requirement for third year. Provide a nutrition assessment rubric and some examples for CD guidance.

Community	Required nutritional assessment focused H&P Each student chooses a NIM topic to present for discussion on common nutrition and physical activity (portion sizes, minutes per week of exercise for adults and children, sports supplements, etc. Health Fair experience offers health promotion, disease prevention, & health assessment of adults. Skills training, case studies, and supervised H&P exams. Discuss difficulties of people on dialysis (dietician directed) and "herbal supplements" and the best NIH source for additional information BMI required procedure Some Needs Assessment Projects are Nutrition focused.		Work to develop a nutrition assessment rubric and some examples as guidance for integration across clerkships.
Peds Clerkship	Didactic & Child Well exams to collect dietary history, determine diet adequacy, and provide nutritional advice (i.e. breast-feeding advantages, obesity, failure to thrive, dietary needs for specific illnesses or disease processes) CLIPP Cases & Quizzes		Expand nutrition assessments across clerkships—assess as a global objective/requirement for third year. Provide a nutrition assessment rubric and some examples for CD guidance. Encourage recognition of drug nutrient interactions in the previously recommended nutrition-focused H&P as it pertains to the medications of the patient (that the student is

	Didactic – fluid requirements & TPN calculation in pediatric patients Mineral deficiencies and/or toxicities (hematology/oncology) Healthy Promotion Activity		assessing) - explore opportunities to build on Pharmacology M2 content delivered
IM Clerkship	H&P template includes dietary history.		Expand nutrition assessments across clerkships; assess as a global objective/requirement for third year. Provide a nutrition assessment rubric and some examples for CD guidance.
Surgery	Clinical cases presented cover enteral and parenteral feeding. Have a required H&P, but nutritional assessment not required.		Encourage recognition of drug nutrient interactions in the previously recommended nutrition-focused H&P as it pertains to the medications of the patient (that the student is assessing) - explore opportunities to build on Pharmacology M2 content delivered Expand nutrition assessments across clerkships—assess as a global objective/requirement for third year. Provide a nutrition assessment rubric and some examples for CD guidance.
M4			
Keystone	Required Nutrition Topic (Clinical Nutrition in Critical Care & TPN sessions offered in 2018)		Explore more application-based sessions for this content to improve staging (OSCE, case-based discussions, resource workshops to apply evidence-based guidelines)