



Teaching Nutrition in the Context of Lifestyle Medicine

Robert Kushner, MD, MS
Professor of Medicine
Northwestern University Feinberg School of Medicine
Director, Center for Lifestyle Medicine
Northwestern Medicine
Chicago, IL

rkushner@northwestern.edu

Outline

- The opportunity of a new curriculum – Establishing a Lifestyle Medicine thread
- Implementation and integration
- Focusing on student self-care: the Behavior Change Plan
- Assessing outcomes

Take Away Themes

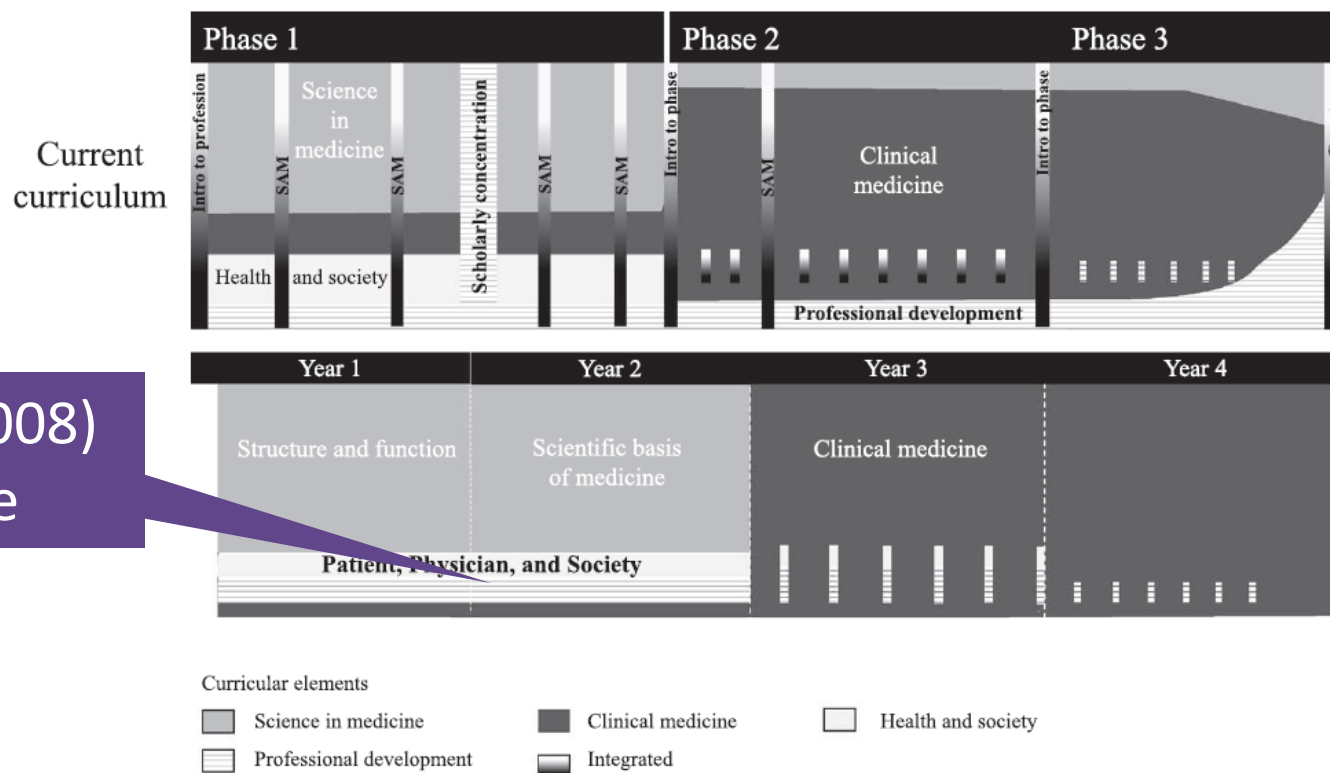
- Learners of the 21st Century must have competence in the multiple components of Lifestyle Medicine (LM)
- Embedding diet & nutrition within the context of a LM theme emphasizes the multiple components of healthy living
- Integration of LM into the organ-based modules provides relevance and contextualization
- A variety of assessments can be used to assess knowledge, attitude and skill
- The secret sauce ...

An Opportunity Arises

Article

Description and Early Outcomes of a Comprehensive Curriculum Redesign at the Northwestern University Feinberg School of Medicine

Heather L. Heiman, MD, Celia L. O'Brien, PhD, Raymond H. Curry, MD, Marianne M. Green, MD, James F. Baker, PhD, Robert F. Kushner, MD, John X. Thomas, PhD, Thomas C. Corbridge, MD, Julia F. Corcoran, MD, Joshua M. Hauser, MD, and Patricia M. Garcia, MD, MPH



Healthy Living (2008)
12 hour course

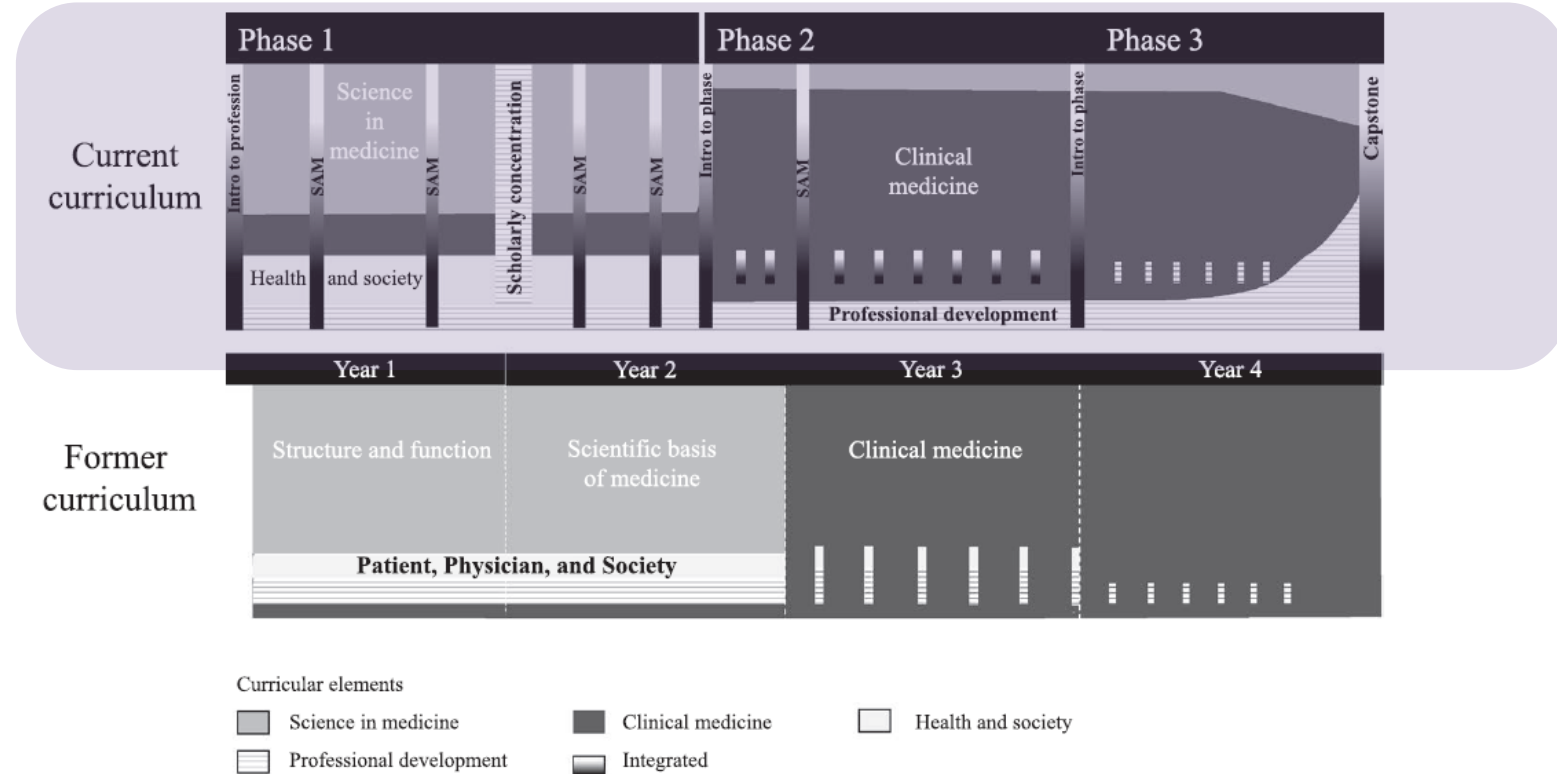
An Opportunity Arises

Article

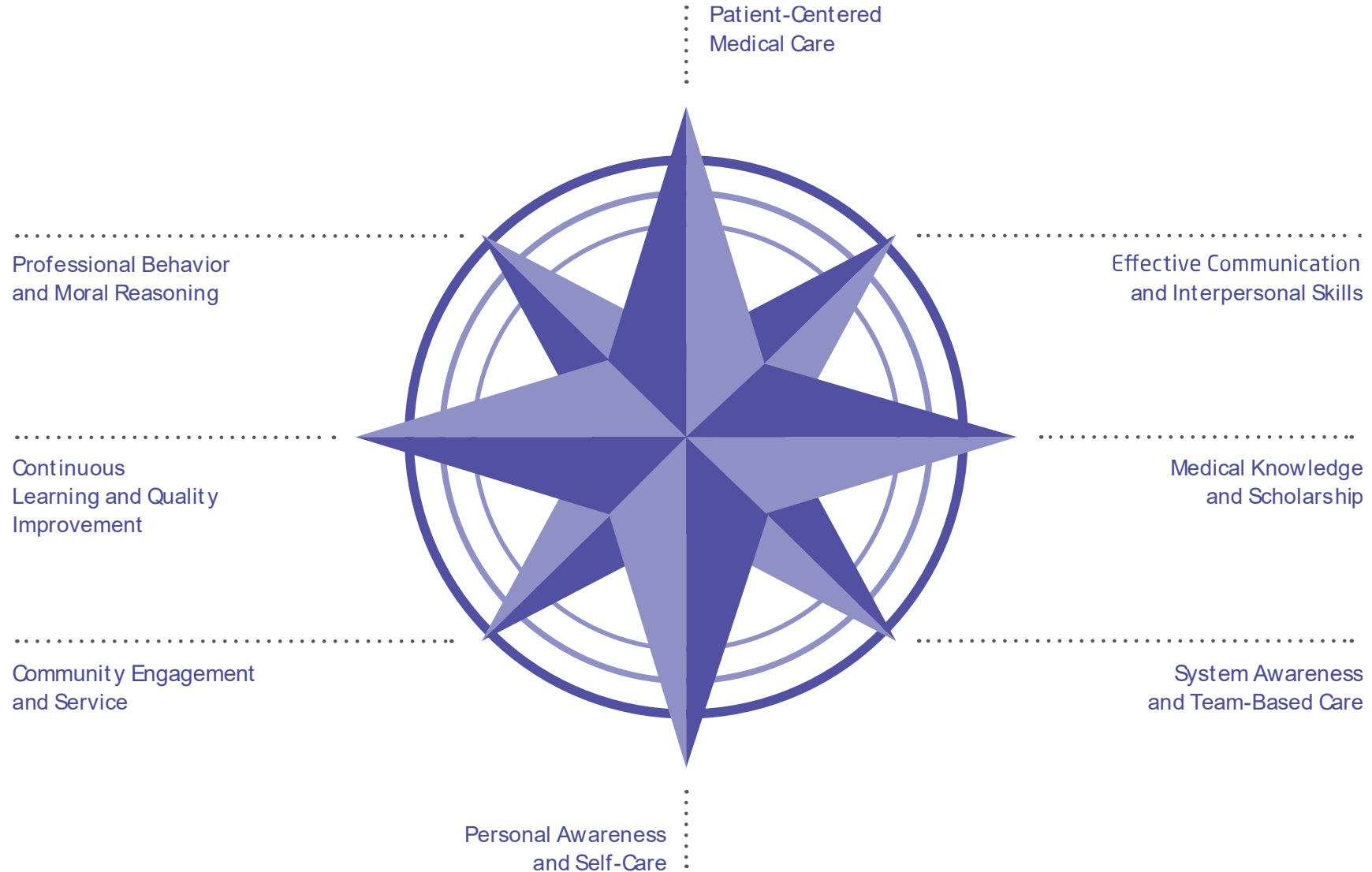
Description and Early Outcomes of a Comprehensive Curriculum Redesign at the Northwestern University Feinberg School of Medicine

Heather L. Heiman, MD, Celia L. O'Brien, PhD, Raymond H. Curry, MD, Marianne M. Green, MD, James F. Baker, PhD, Robert F. Kushner, MD, John X. Thomas, PhD, Thomas C. Corbridge, MD, Julia F. Corcoran, MD, Joshua M. Hauser, MD, and Patricia M. Garcia, MD, MPH

2010



Northwestern University Feinberg School of Medicine Competencies



Overarching goals of new curriculum

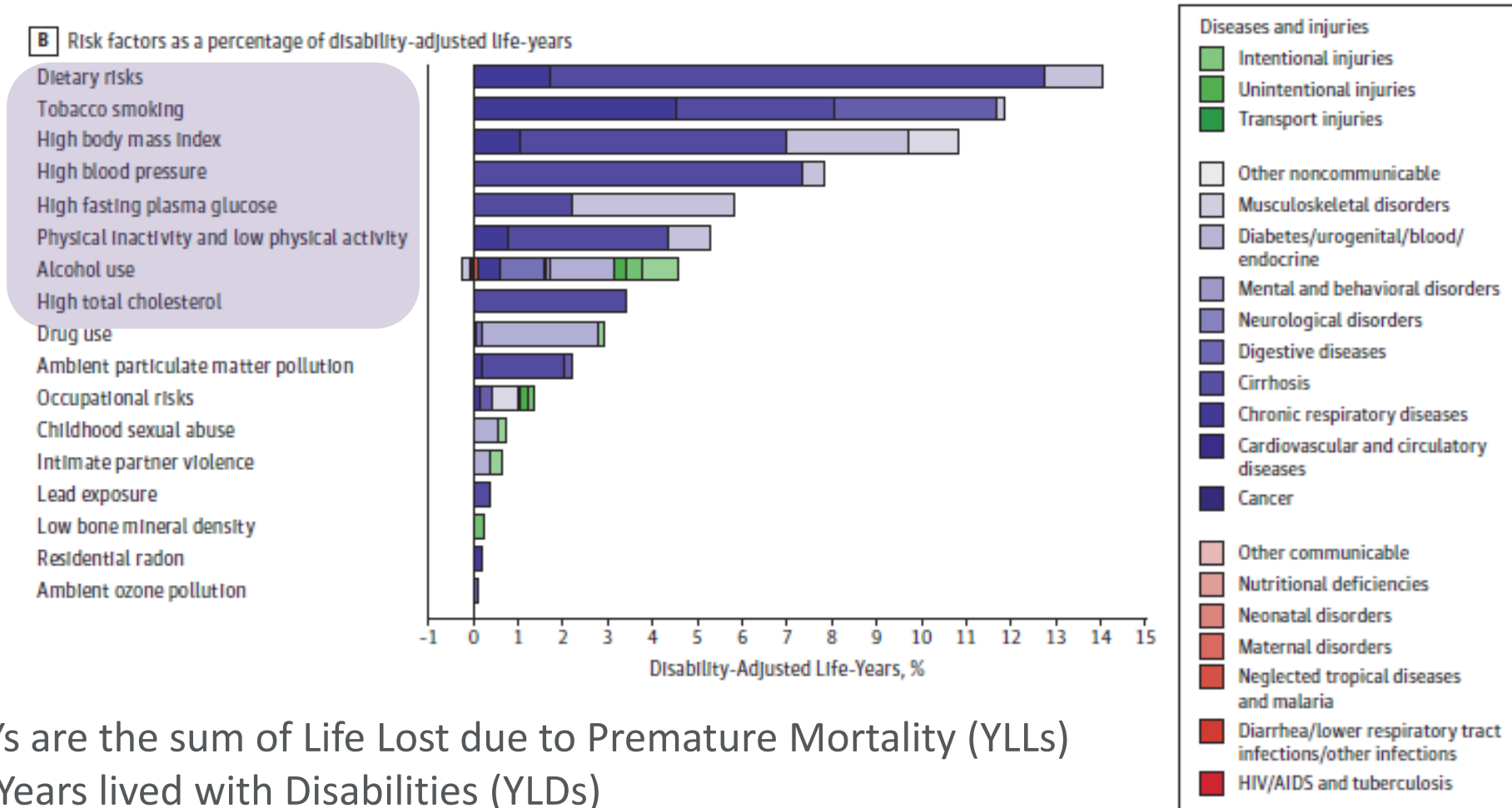
Integration of the Carnegie Report Recommendations

- Standardize learning outcomes and individualize learning processes
- Prepare physicians who are committed to excellence by cultivating habits of inquiry, innovation, and improvement
- Address professional identity formation
- Promote multiple forms of curricular integration

- ✓ **Horizontal and vertical interdisciplinary integration of healthy living**
- ✓ **Address the continuum from individual health to public health to global health**
- ✓ **Incorporate social determinants of health**
- ✓ **Promote interprofessional and team-based care**
- ✓ **Emphasize student self-care**

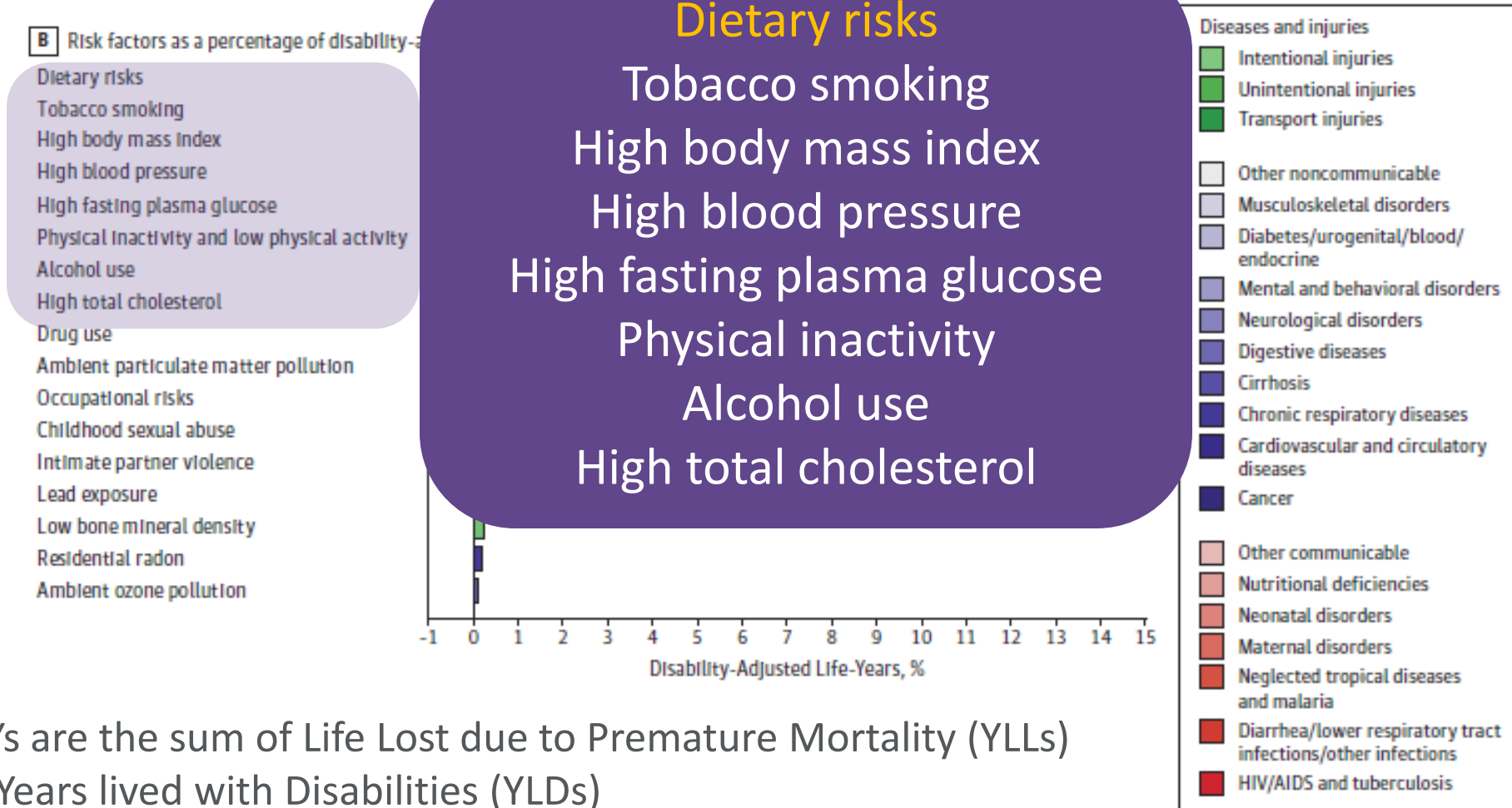
Why Integrate Diet & Nutrition into a Broader Context of Healthy Living?

Percentage of Disability-Adjusted Life-Years (DALYs) related to Leading Risk Factors in US



DALYs are the sum of Life Lost due to Premature Mortality (YLLs) and Years lived with Disabilities (YLDs)

Percentage of Disability-Adjusted Life-Years (DALYs) related to Leading Risk Factors in US



DALYs are the sum of Life Lost due to Premature Mortality (YLLs) and Years lived with Disabilities (YLDs)

Common Themes in Current Dietary and Lifestyle Recommendations

	USDA Dietary Guidelines (2015)	American Heart Association (2006)	American Diabetes Association (2014)	American Cancer Society (2012)	AHA/ACC guideline on Lifestyle Management to reduce cardiovascular risk (2014)
Healthy body weight	√	√	√	√	√
Engage in physical activity	√	√	√	√	√
Increase fruits and vegetables	√	√	√	√	√
Choose whole grains (high fiber foods)	√	√	√	√	√
Limit salt	√	√	√	√	√
Limit saturated fat, trans fat, and cholesterol	√	√	√		√
Limit consumption of alcoholic beverages	√	√	√	√	
Minimize intake of added sugars	√	√	√		√
Limit consumption of processed meat and meat products				√	√
Consume fish, especially oily fish		√			
Limit consumption of refined grains	√				

Cardiovascular Health Metrics: 4 Behaviors + 3 Biometrics

Life's Simple⁷

My Life Check was designed by the American Heart Association with the goal of improved health by educating the public on how best to live. These measures have one unique thing in common: any person can make these changes, the steps are not expensive to take and even modest improvements to your health will make a big difference. Start with one or two. This simple, seven step list has been developed to deliver on the hope we all have—to live a long, productive healthy life.

 Get Active	 Control Cholesterol
 Eat Better	 Manage Blood Pressure
 Lose Weight	 Reduce Blood Sugar
 Stop Smoking	GET HEALTHY – START NOW

http://www.heart.org/HEARTORG/Conditions/My-Life-Check---Lifes-Simple-7_UCM_471453_Article.jsp



Ideal Cardiovascular Health Metrics

Metric	Ideal Health
Current smoking	Never or quit > 12 months
BMI	< 25 kg/m ²
Physical activity	≥150 min/wk moderate or ≥75 min/wk vigorous
Healthy diet score*	4 – 5 components
Total cholesterol	<200 mg/dl
Blood pressure	<120/<80
Fasting glucose	<100 mg/dl

*Ideal diet is defined as meeting ≥4 of 5 dietary recommendations, including (1) fruits and vegetables: ≥4 servings per day; (2) fish: ≥200 g per week; (3) fiber-to-carbohydrate ratio: >1 g of fiber per 10 g of carbohydrate; (4) sodium: <1500 mg per day; and (5) sugar-sweetened foods and beverages: ≤450 kcal per week.

Changing America's Health Behaviors (Public Health)

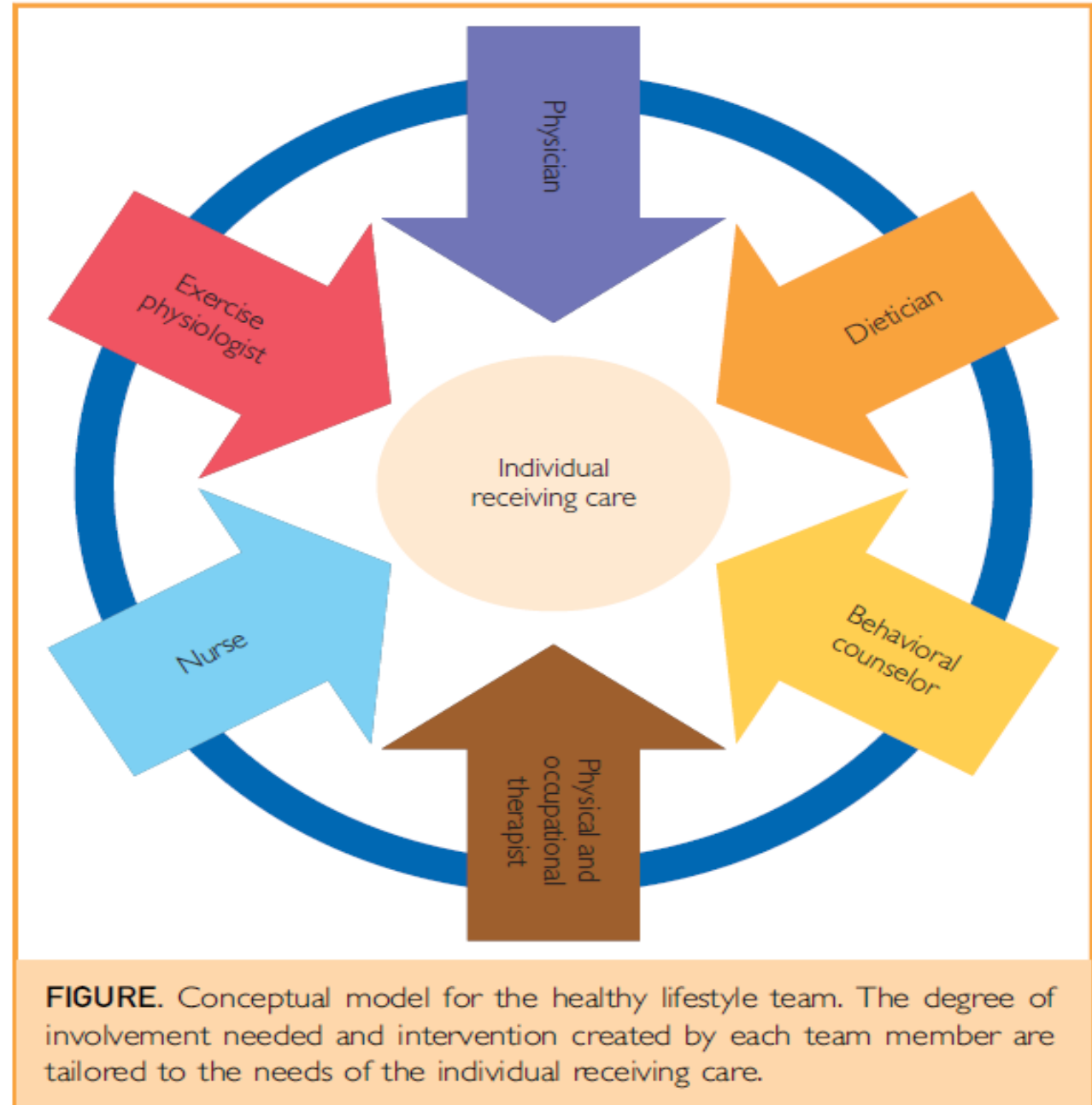
TABLE 1. Key Healthy Lifestyle Stakeholders and Their Overarching Roles

Stakeholder	Overarching roles
Professional organizations	Advocacy, championing healthy lifestyle thought leaders, dissemination of scientific knowledge and practice guidelines, professional meetings
Educational systems	Providing an appropriate healthy lifestyle curriculum at all levels of education, creating a healthy lifestyle environment within the educational setting
Government	Creating, supporting, and implementing legislation and programs that support healthy lifestyle initiatives on a population level
Health care organizations	Integrating healthy lifestyle interventions into the medical model as a standard of care
Insurance industry	Providing mechanisms for coverage of healthy lifestyle initiatives
Nonprofit and community organizations	Advocacy, creating, supporting, and implementing healthy lifestyle initiatives
Media outlets	Disseminating credible healthy lifestyle information to the lay public
Mobile health and technology companies	Bringing technological inventions/advances that support healthy lifestyle initiatives to market
Employers	Creating a healthy lifestyle environment within the workplace, offering healthy lifestyle programming to employees
Food industry	Making healthy food choices available, providing health-conscious nutrition labeling
Health and fitness industry	Providing an infrastructure and professionals capable of offering healthy lifestyle programming to the public
Individuals and families	Consumers of healthy lifestyle initiatives

How do we Change America's Health?

Intervention	Target
Infrastructure	Increase access to places for physical activity (eg., walking trails in parks)
Institutional policy	Adding salad bars to schools
Law	Ban the use of <i>trans</i> fatty acids in restaurants
Building codes	Widening sidewalks
Tax	Tobacco excise tax
Zoning regulation	Incentives for putting supermarkets in neighborhoods
Healthcare visit	Counseling the patient on choosing a healthier diet

The Healthy Lifestyle Team



Physician Competencies for Prescribing Lifestyle Medicine

Liana Lianov, MD, MPH

Mark Johnson, MD, MPH

patients are advised to lose weight only 36% of the time during regular examinations, a proportion that improves only slightly to 52% if a patient already has obesity-related comorbidities.⁷ Furthermore, only 28% of smokers reported

JAMA 2010;304:202-203

AHA SCIENTIFIC STATEMENT

Medical Training to Achieve Competency in Lifestyle Counseling: An Essential Foundation for Prevention and Treatment of Cardiovascular Diseases and Other Chronic Medical Conditions

A Scientific Statement From the American Heart Association

Hivert M-F, et al. Circ 2016;134:e308-e327



Circulation

AHA SCIENCE ADVISORY

Medical Nutrition Education, Training, and Competencies to Advance Guideline-Based Diet Counseling by Physicians

A Science Advisory From the American Heart Association

Jeffrey I. Mechanick
Robert F. Kushner
Editors

Lifestyle Medicine

A Manual for
Clinical Practice

 Springer

- 2016
- 63 authors
- 363 pages

Outline

- The opportunity of a new curriculum – Establishing a Lifestyle Medicine thread
- Implementation and integration
- Focusing on student self-care: the Behavior Change Plan
- Assessing outcomes

Integration was further accomplished by establishing Threads (areas of concentration that are “sewn” throughout the curricular elements)

Healthcare Quality & Patient Safety

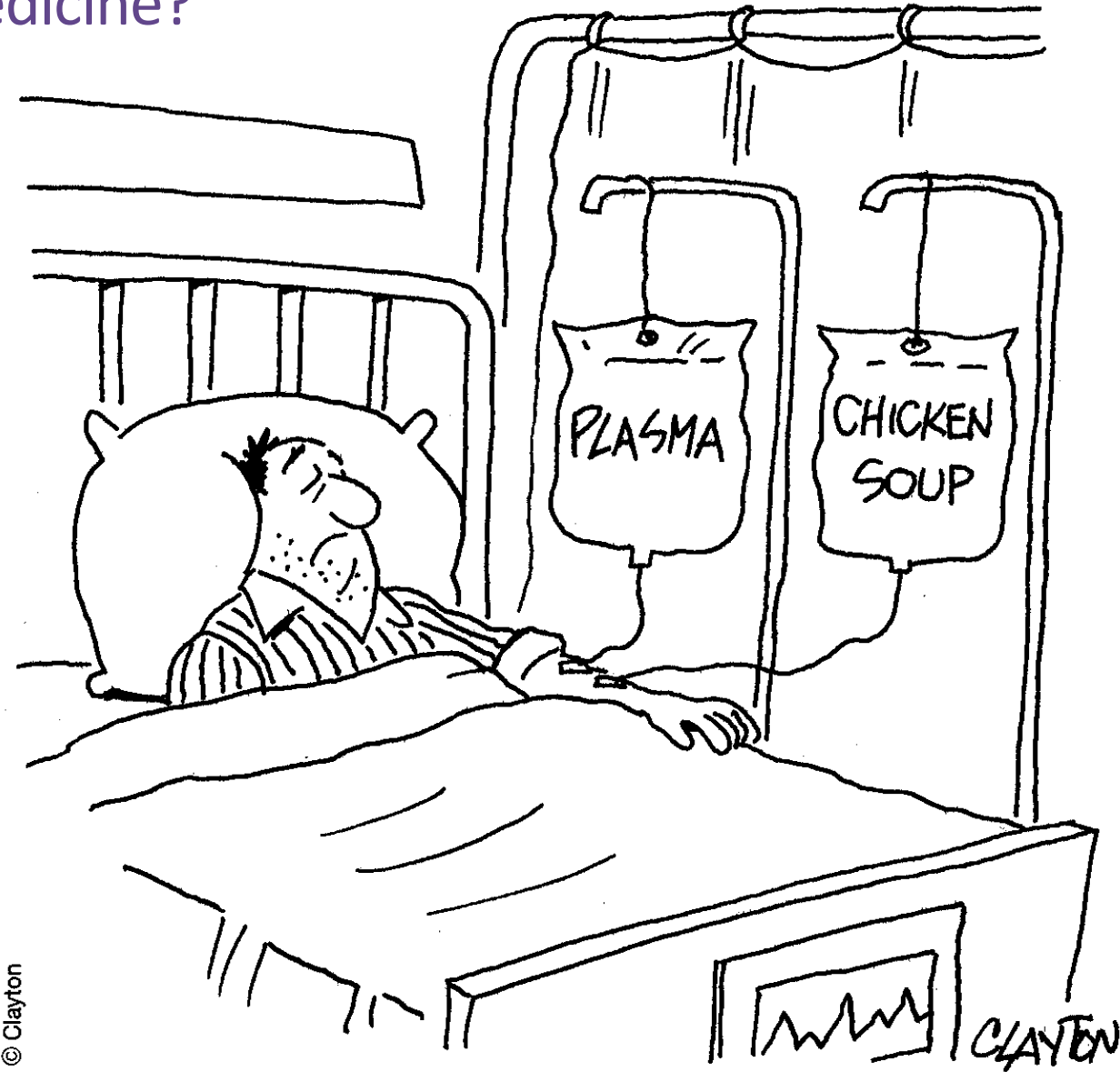
Health Equity & Advocacy

Lifestyle Medicine

Medical Decision Making & Diagnostic Testing

Teamwork & Leadership

What is Lifestyle Medicine?



© Clayton

Physician Competencies for Prescribing Lifestyle Medicine

Liana Lianov, MD, MPH

Mark Johnson, MD, MPH

- “Evidence-based practice of assisting individuals and families to adopt and sustain behaviors that can improve health and quality of life.”
JAMA 2010;304(2):202-203

The emergence of “lifestyle medicine” as a structured approach for management of chronic disease

Garry J Egger, Andrew F Binns and Stephan R Rossner

- “The application of environmental, behavioral, medical and motivational principles to the management of lifestyle-related health problems in a clinical setting.”
MJA 2009;190(3):143-145

Lifestyle Medicine at Northwestern University Feinberg School of Medicine

- The Lifestyle Medicine thread incorporates lifestyle practices into the modern medicine. Examples include self-care, **diet**, physical activity, behavior, body weight control, treatment plan adherence, coping, spirituality, mind-body techniques, substance use, sleep and socialization. These practices may serve to lower the risk for chronic disease or, if disease is already present, serve as a therapy adjunct.
- This thread brings together sound, scientific evidence in diverse health-related fields to assist the clinician in treating disease and promoting good health.
- An important aspect of this thread is also emphasizing how personal lifestyle is influenced by factors including the environment, socioeconomic factors, culture, access to care, affordability and insurance.

The Importance of Identity in a Crowded Curriculum



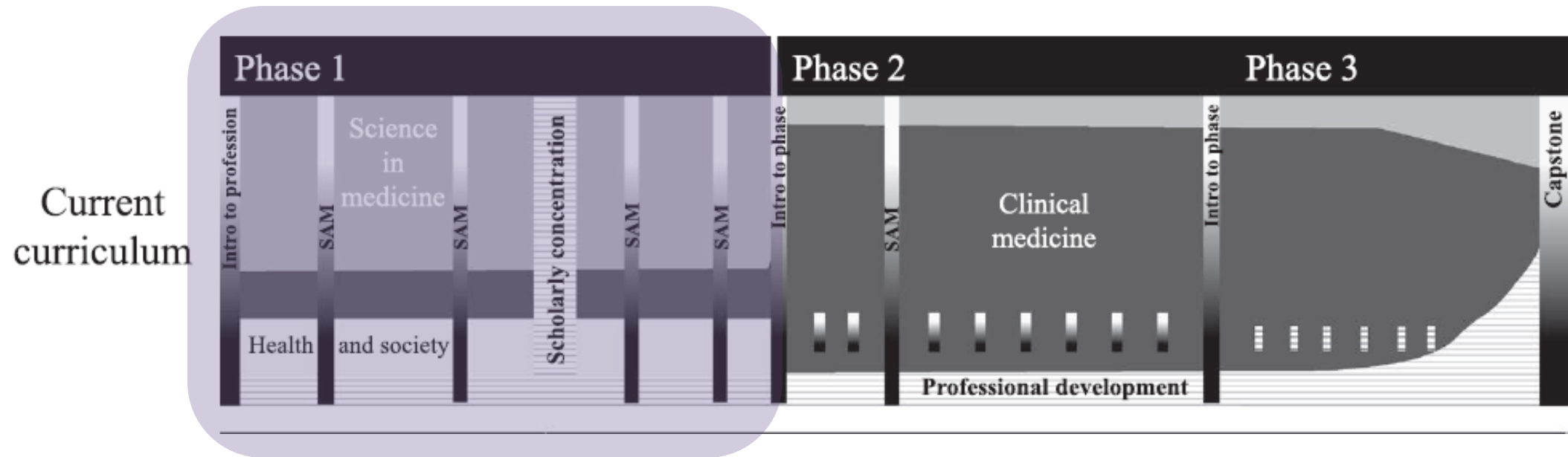
Lifestyle Medicine Thread

Lifestyle Medicine Thread Committee

Members selected to represent portfolio areas of expertise

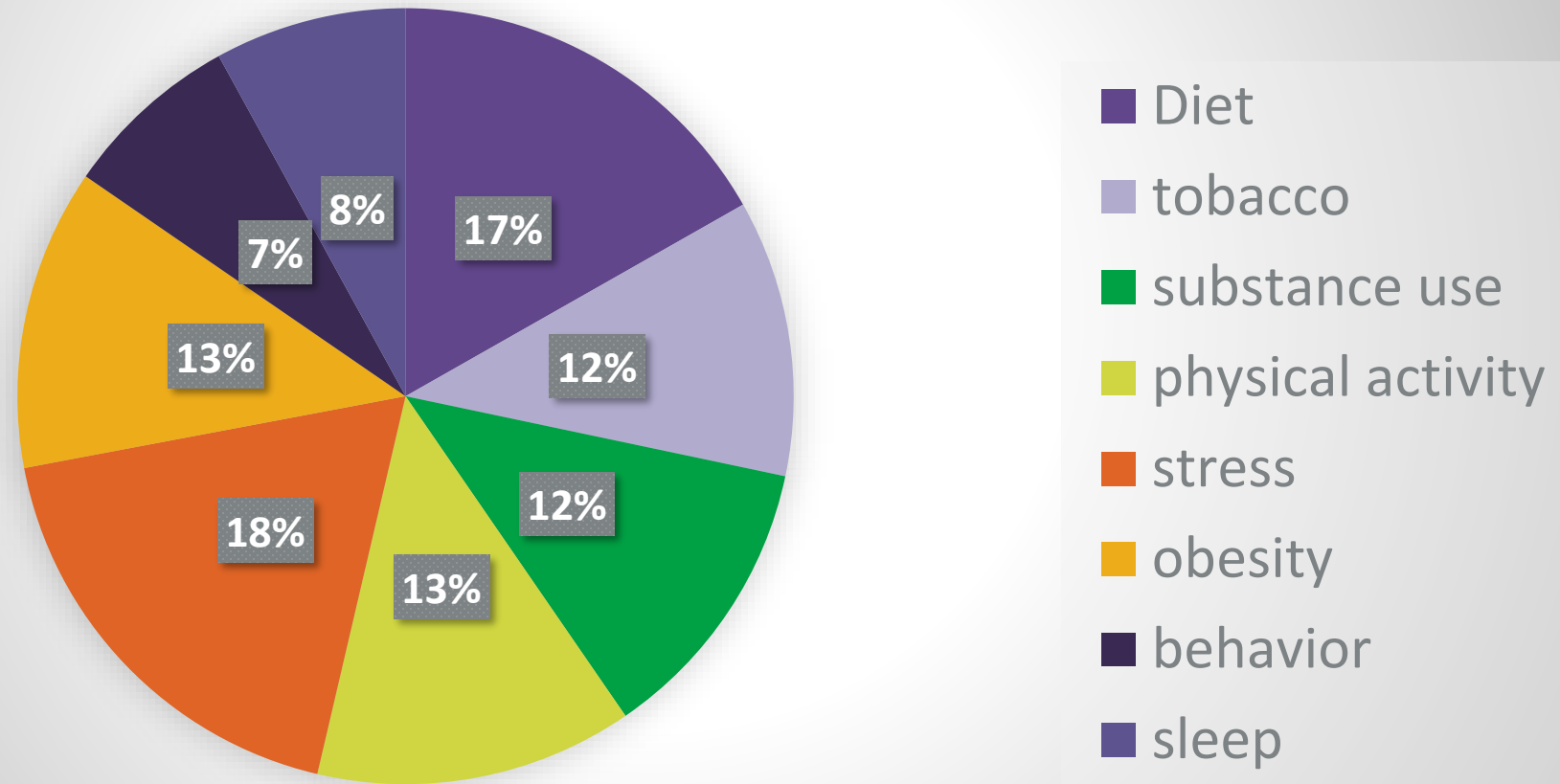
Content Area	Department/Degree
Diet and Nutrition	Preventive Medicine/PhD, RD
Physical Activity	Preventive Medicine/PhD
Smoking	Preventive Medicine/PhD
Stress	Medical Social Sciences/PhD
Sleep	Neurology/PhD
Alcohol	Psychiatry/MD, PhD
Weight	Medicine/MD, MS
Behavior	Medicine/MD, MS

Methods: Taking an Inventory - Review of Phase 1

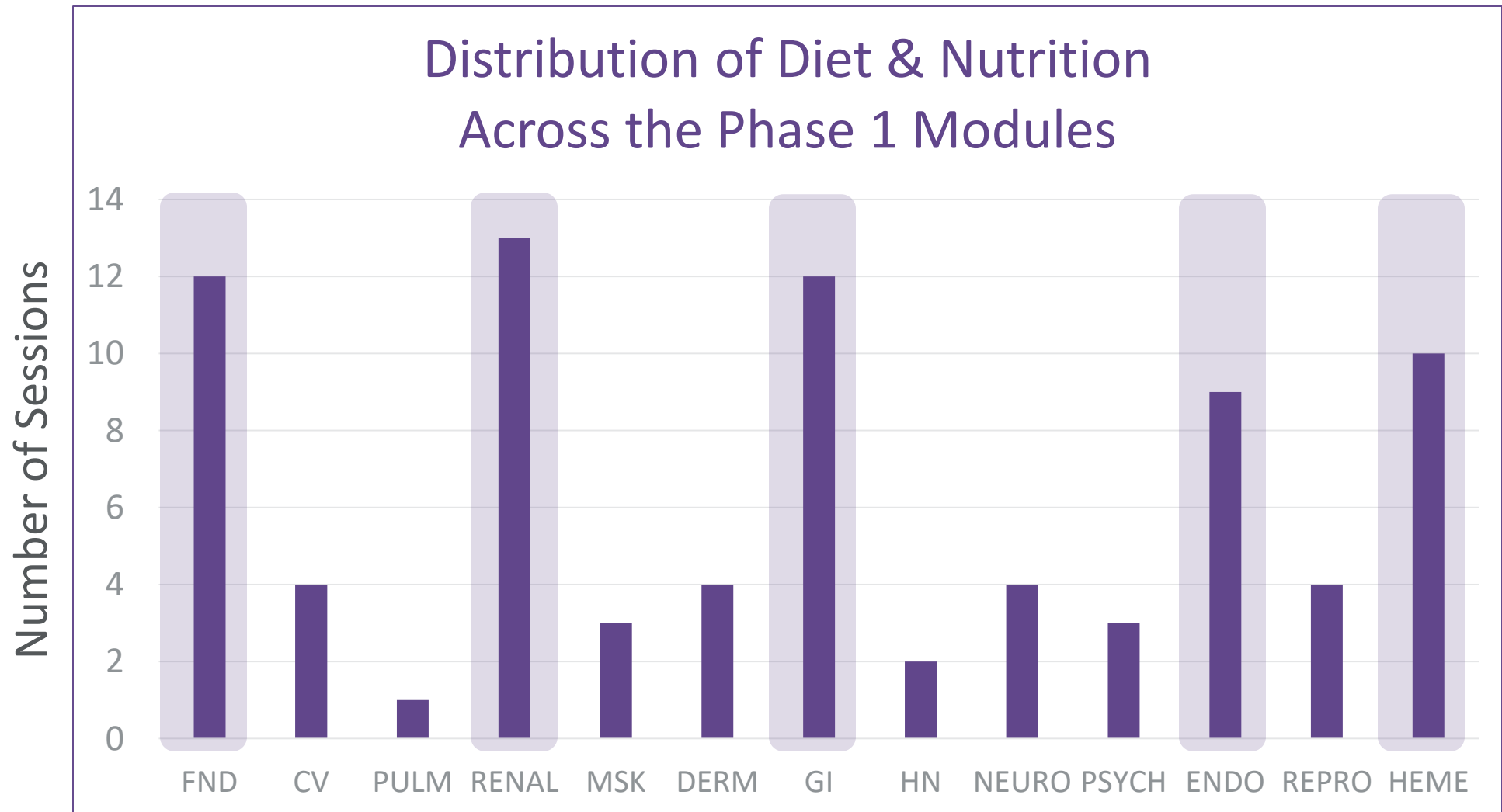


- All student learning guides from Phase 1a and 1b for the academic year 2016-2017 were converted to pdf
- Using the 'find' function and search terms, members of the Lifestyle Medicine Thread committee reviewed all learning guides for lifestyle medicine content
- Session titles, presenters, elements and content were recorded.

Lifestyle Medicine Thread Content in Phase 1



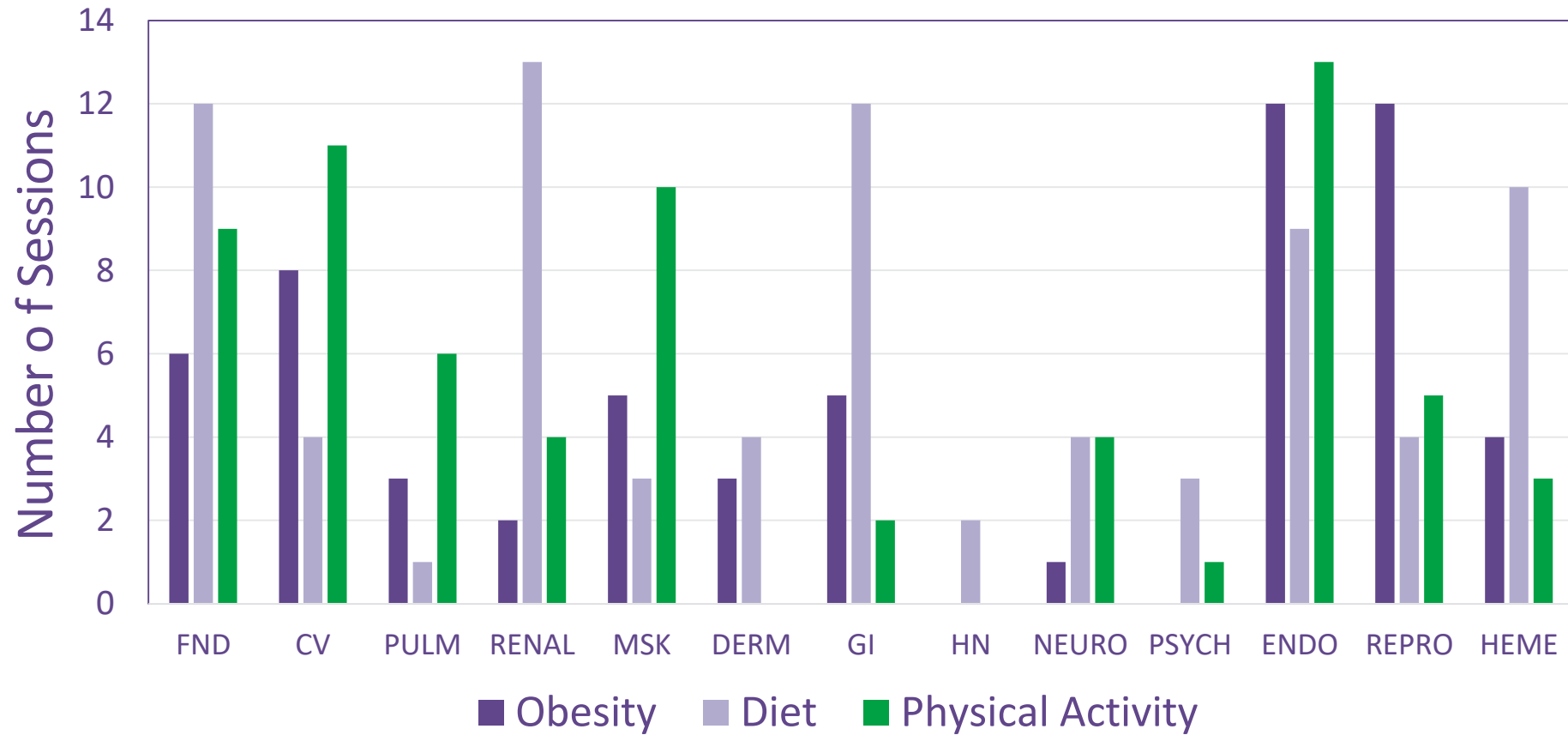
462 total sessions incorporated at least one component of the Lifestyle Medicine Tread
78 of these sessions (17%) included Diet & Nutrition



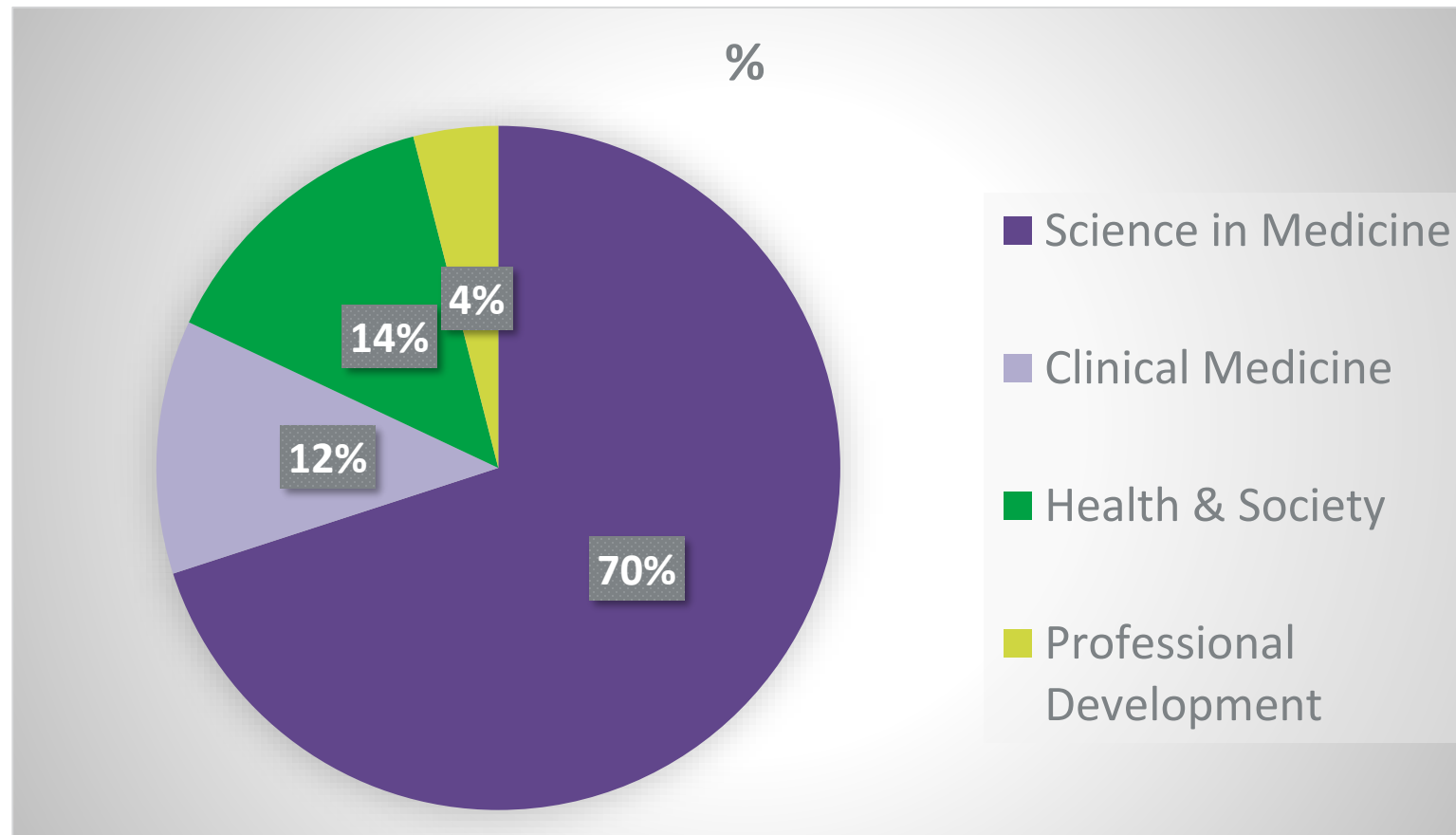
Modules (13)

(total sessions = 78)

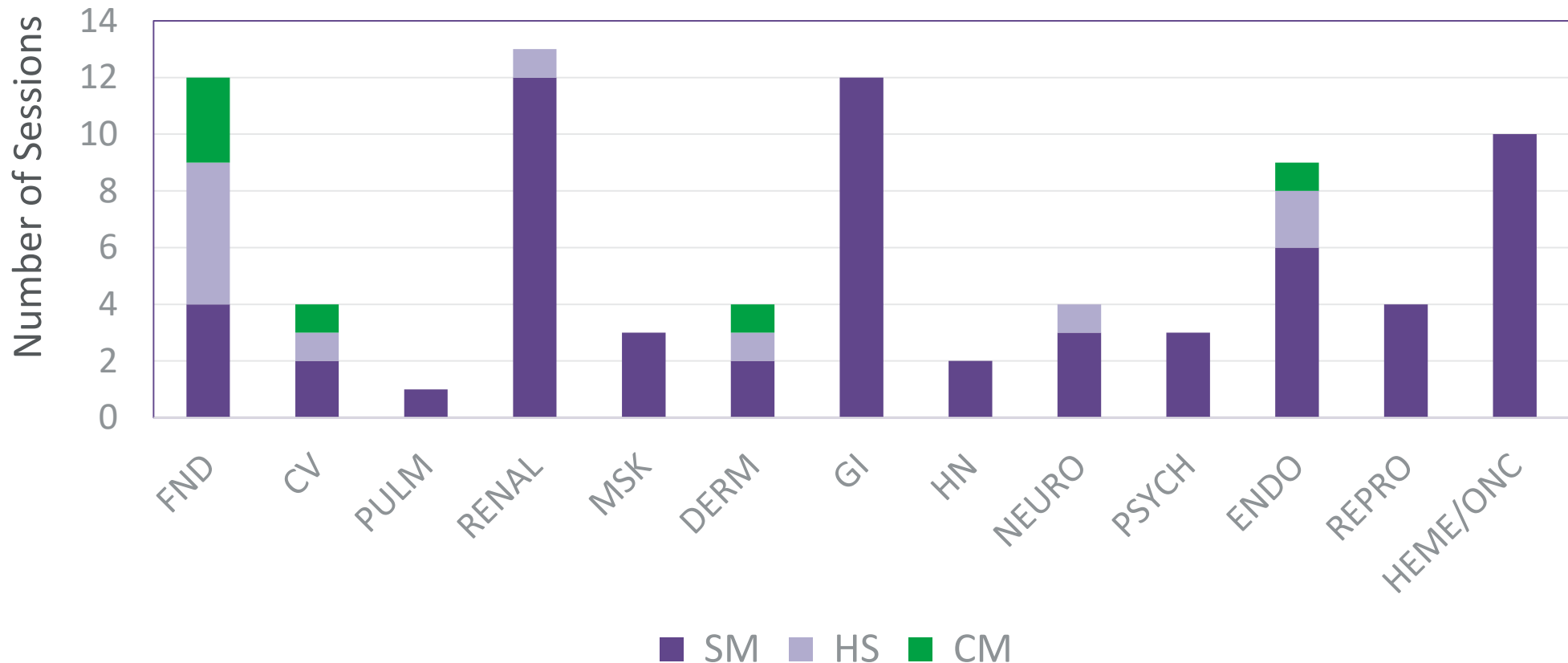
Distribution of Obesity, Diet and Physical Activity Across the Phase 1 Modules



Percent Distribution of Total LM Content Among the Four Major Element Groups



Presentation of Diet & Nutrition by Major Element Groups in Phase 1



SM = Science in Medicine (79%); HS = Health & Society (13.5%); CM = Clinical Medicine (7.5%)

Coverage of Diet & Nutrition During Phase 1a

Module	Element	Topic	Number of sessions
Foundation	HS and CM	Diet, behavior change, counseling, public policy, dietary counseling with SP	12
CVD	HS	Nutrition (SFAs), CVD, hyperlipidemia, coagulation	4
Pulmonary	SM	Cystic fibrosis	1
Renal	SM	Minerals (calcium, phosphorus) and hemodialysis; water balance, salt and hypertension, CKD and protein	13
MSK	SM	Bone development	3
Derm	SM and HS	Vitamin D	4

Coverage of Diet & Nutrition During Phase 1b

Module	Element	Topic	Number of sessions
GI	SM	Micronutrient absorption Absorption of water and electrolytes Lipid digestion and absorption Malabsorption	12
Head & Neck	SM	Vitamin A	2
Neurology	SM	Dietary triggers of headache, taste and smell	4
Psychiatry	SM	Eating disorders	3
Endo	SM, HS, CM	Appetite regulation, metabolism, obesity, diabetes, malnutrition Pediatric obesity (diet) Obesity counseling (diet)	9
Repro-GU	SM	Pregnancy, lactation, menopause	4
Heme-Onc	SM	Vitamin B ₁₂ , folate, iron and anemias	10

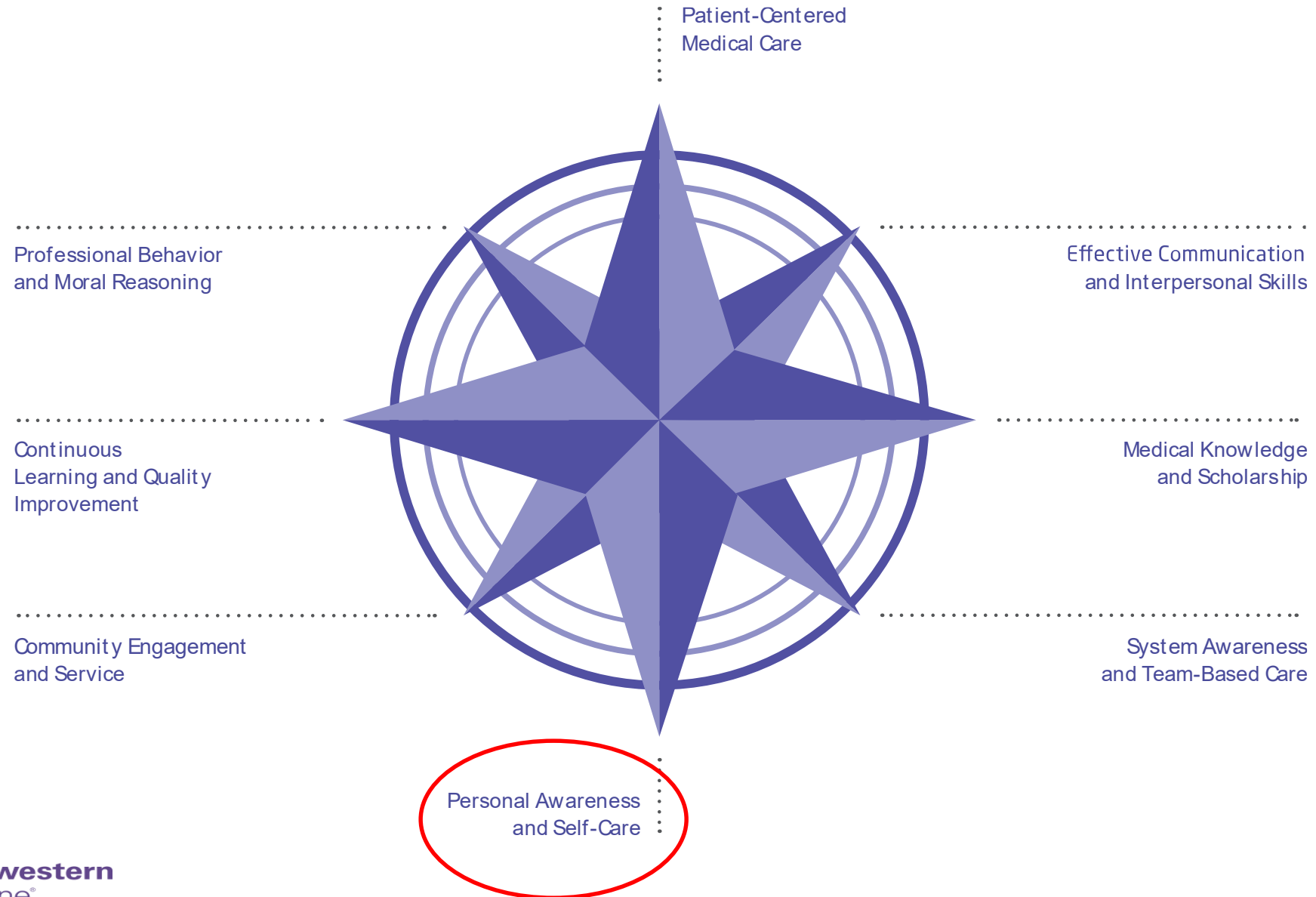
Outline

- The opportunity of a new curriculum – Establishing a Lifestyle Medicine thread
- Implementation and integration
- Focusing on student self-care: the Behavior Change Plan
- Assessing outcomes

How Important is Role Modeling?



Northwestern University Feinberg School of Medicine Competencies



Using Behavior Change Plans to Improve Medical Student Self-Care

Robert F. Kushner, MD, Sheila Kessler, and William C. McGaghie, PhD

Abstract

Purpose

To describe an innovative approach to teaching medical students the principles and practice of health behavior change and self-care using a behavior change plan (BCP).

Method

Second-year medical students at Northwestern University Feinberg School of Medicine ($n = 343$) took a required Healthy Living unit in 2008 or 2009. They completed a BCP project in which they selected a personal behavior to change (exercise, nutrition, sleep, personal habits/hygiene, study/work habits, or mental/emotional health), set a goal,

tracked progress, and self-assessed success. The authors employed a one-group posttest-only design to conduct a quantitative analysis and a qualitative evaluation of students' BCPs and their attitudes concerning the project.

Results

Among the 343 students, 299 (87.2%) set BCP goals related to exercise, nutrition, or sleep. BCP outcomes varied: 139 students (40.5%) achieved their goal, 170 (49.6%) failed to do so, and 34 (9.9%) were uncertain. Factor analysis produced two independent attitude scales: utility ($\alpha = .80$) and burden ($\alpha = .67$). Logistic regression showed that

success approached statistical significance only in the sleep behavior category and for the utility attitude scale. Qualitative case reports provide insights about BCP targets, management, and results. After completing the assignment, 274 (79.9%) of the students considered themselves to be healthier, and 281 (81.9%) indicated they would use the process again.

Conclusions

Completing a BCP is a valuable and effective exercise that enables medical students to practice the strategies and skills and experience the obstacles of changing health behavior.

Behavior Change Plan

•Goals

1. To learn the process of making a selective behavior change. “Change doesn’t just happen by wishing or wanting.”
2. Appreciate the challenges in implementing change (empathy).
3. Learn a skill that is useful in the clinical care of patients.
4. Improve your own health.

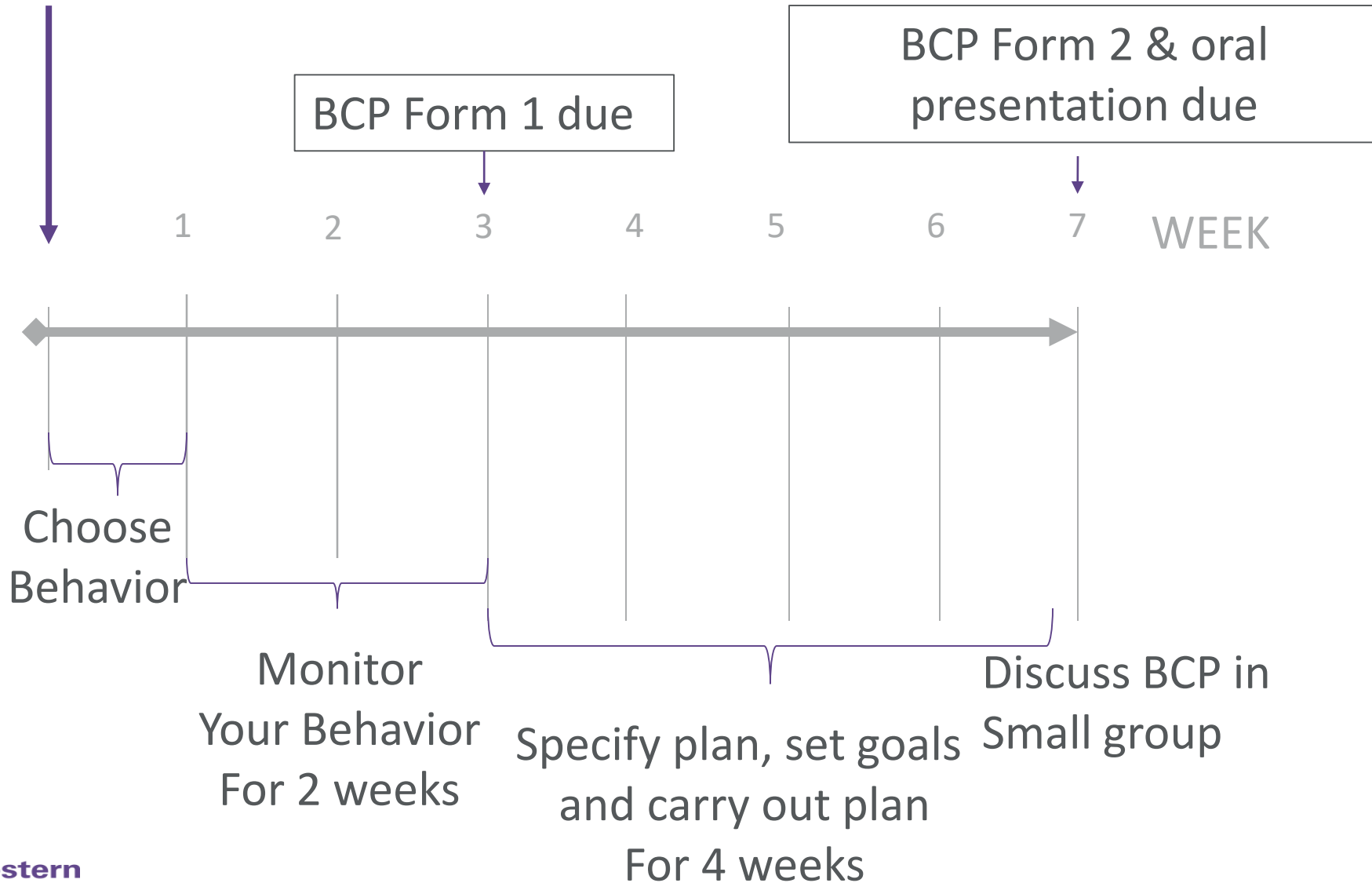
Behavior Change Plan

- Choose a behavior that is meaningful and you want to change (obtain or diminish).
- Examples:
 - Not enough fruits & vegetables
 - Too many fried foods
 - Skipping meals
 - Too much caffeine
 - Binge drinking

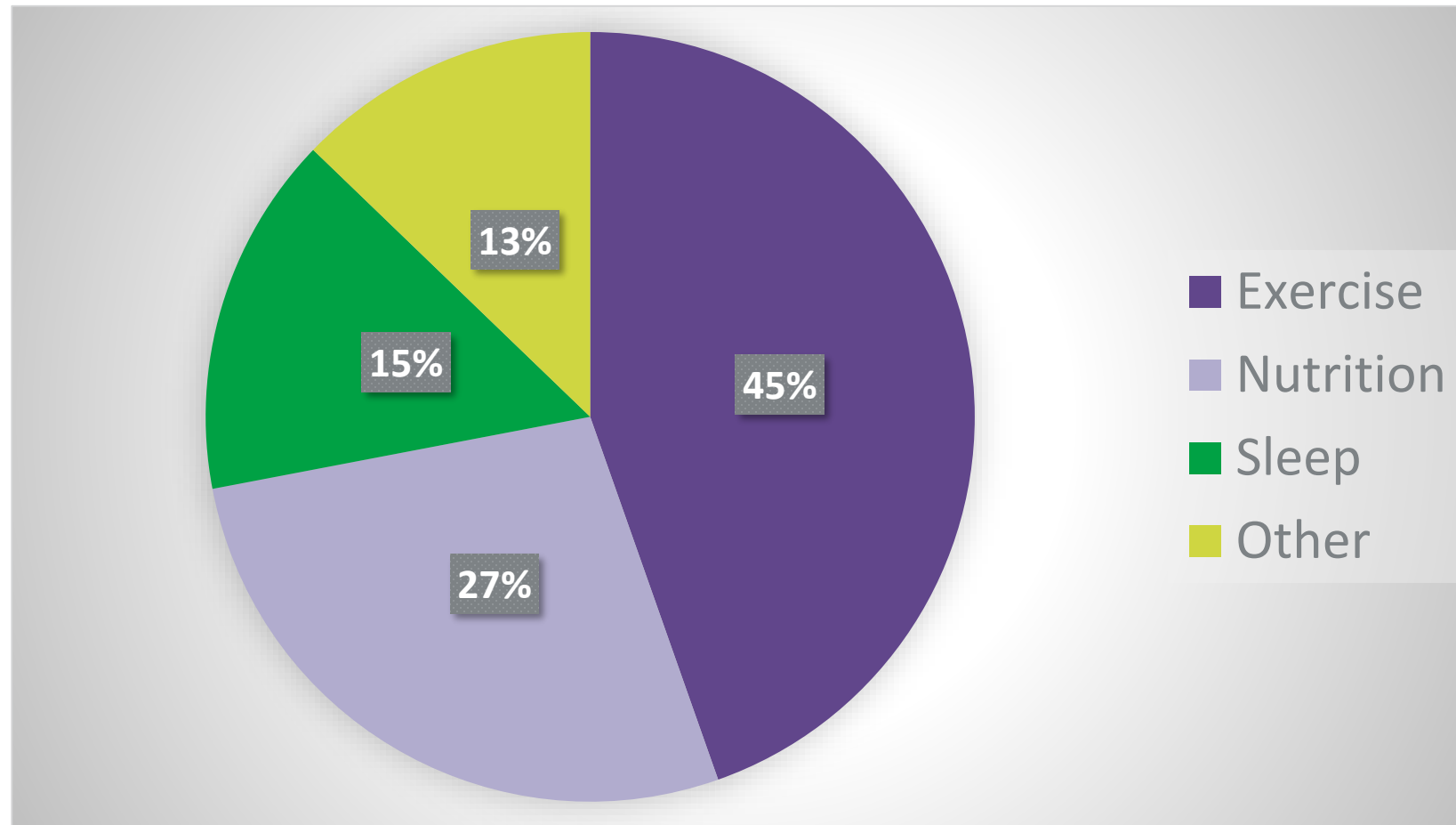
Behavior Change Plan

- Choose a behavior that is meaningful and you want to change (obtain or diminish).
- Examples:
 - Not exercising enough
 - No resistance training (weight lifting)
 - Overweight
 - Staying up too late, not enough sleep
 - Feeling stressed

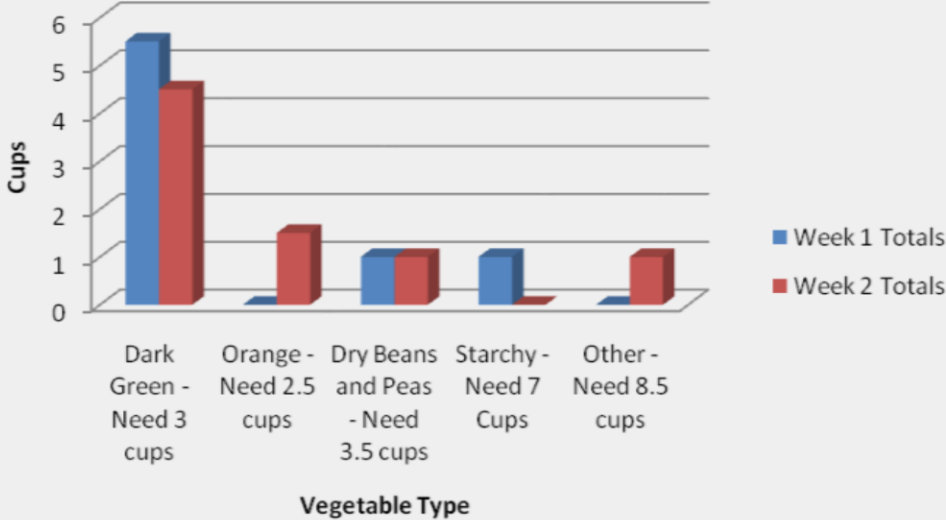
Behavior Change Plan



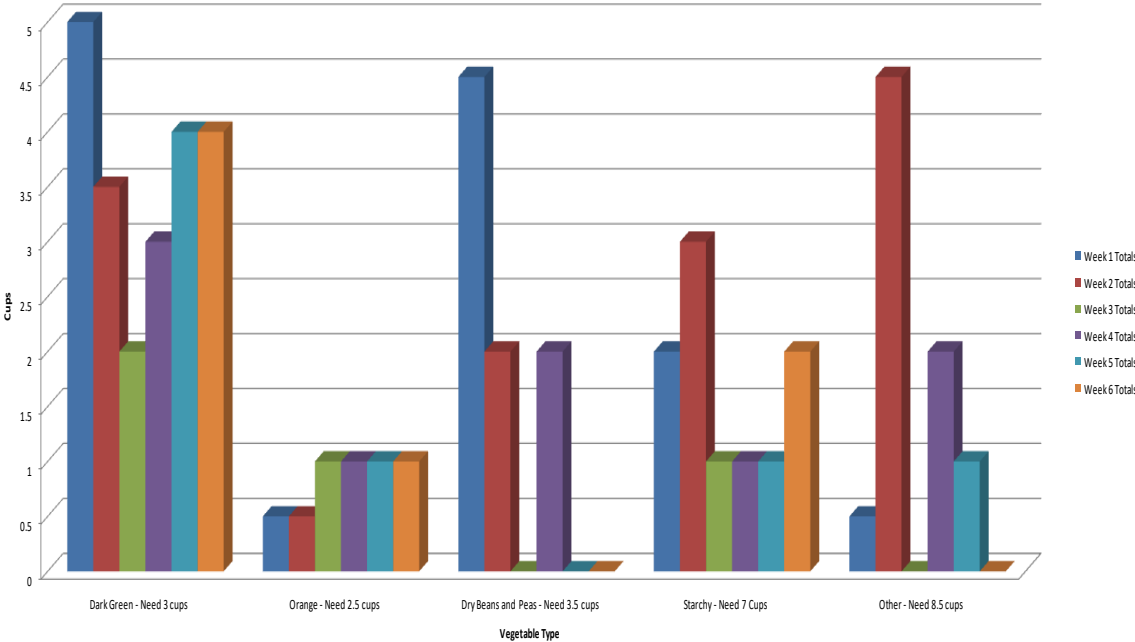
Choice of Lifestyle Medicine Components for the Behavior Change Plan

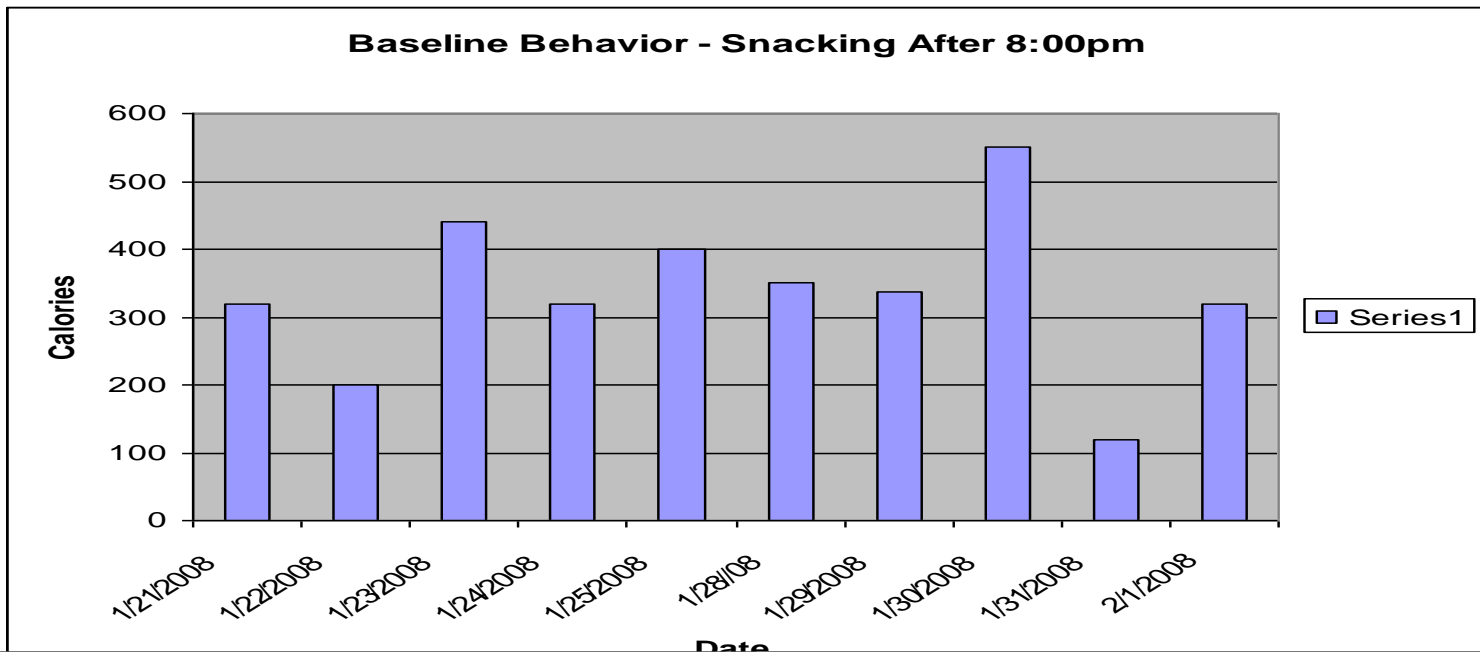


Baseline Weekly Vegetable Type Intake

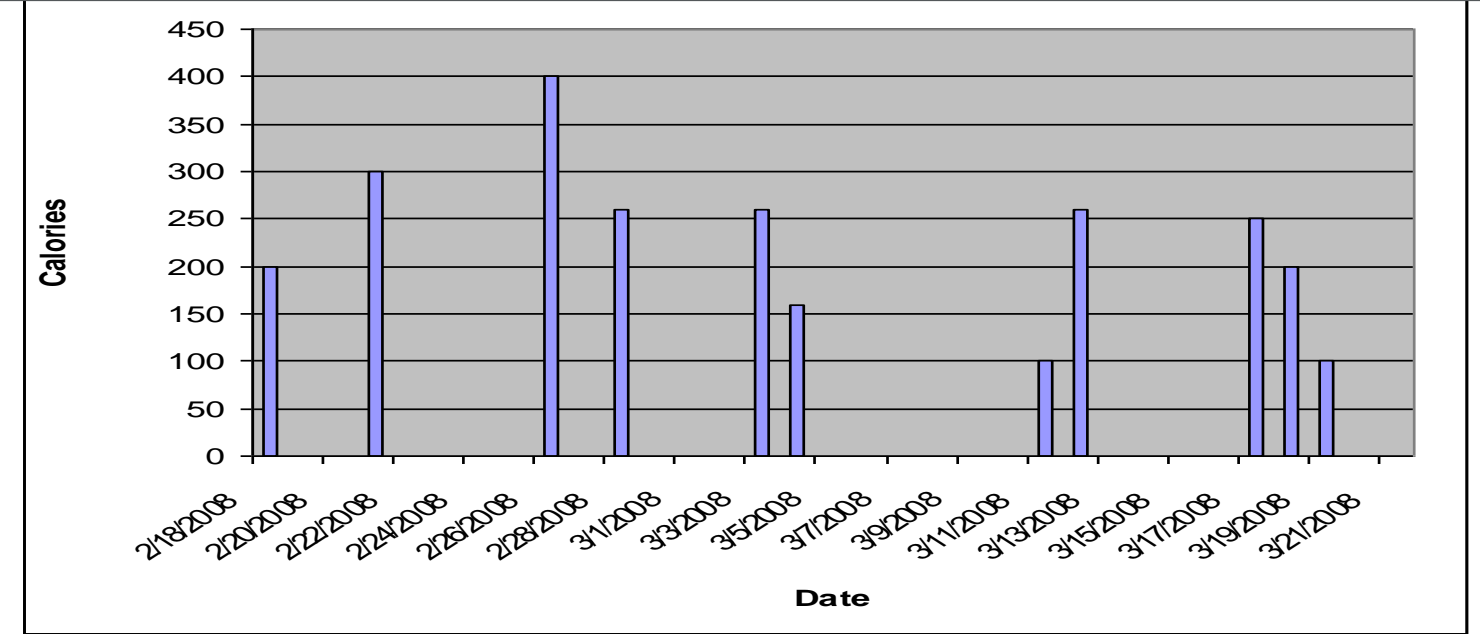


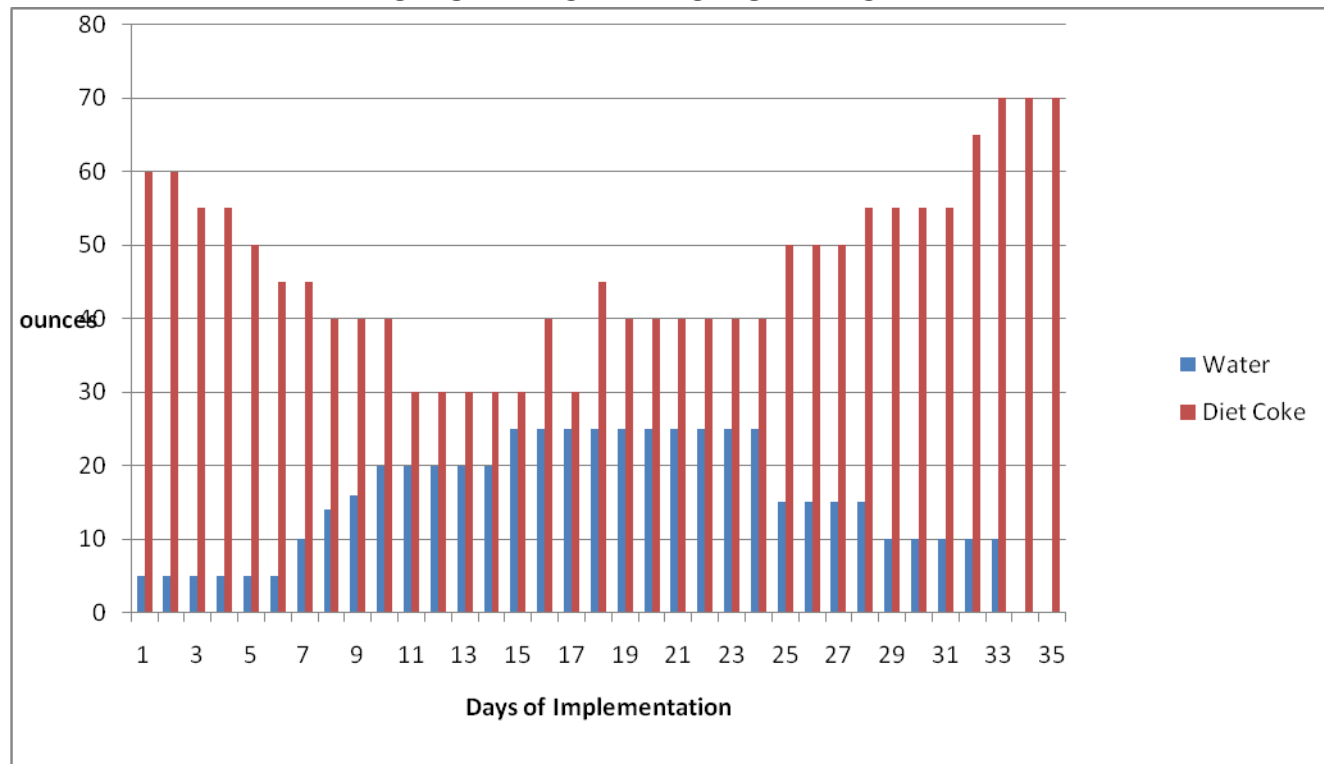
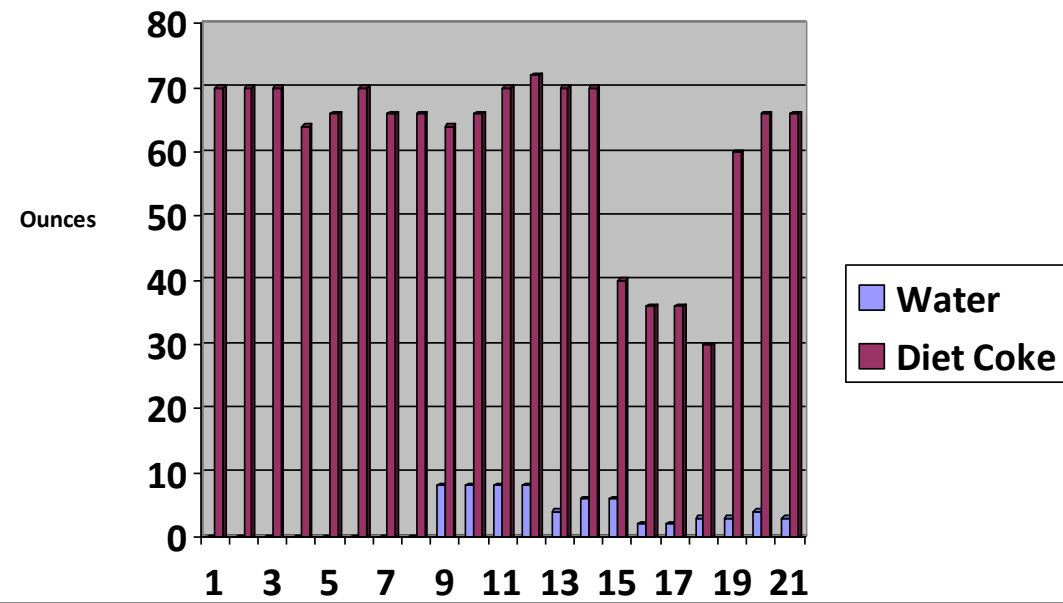
Weekly Vegetable Type Intake

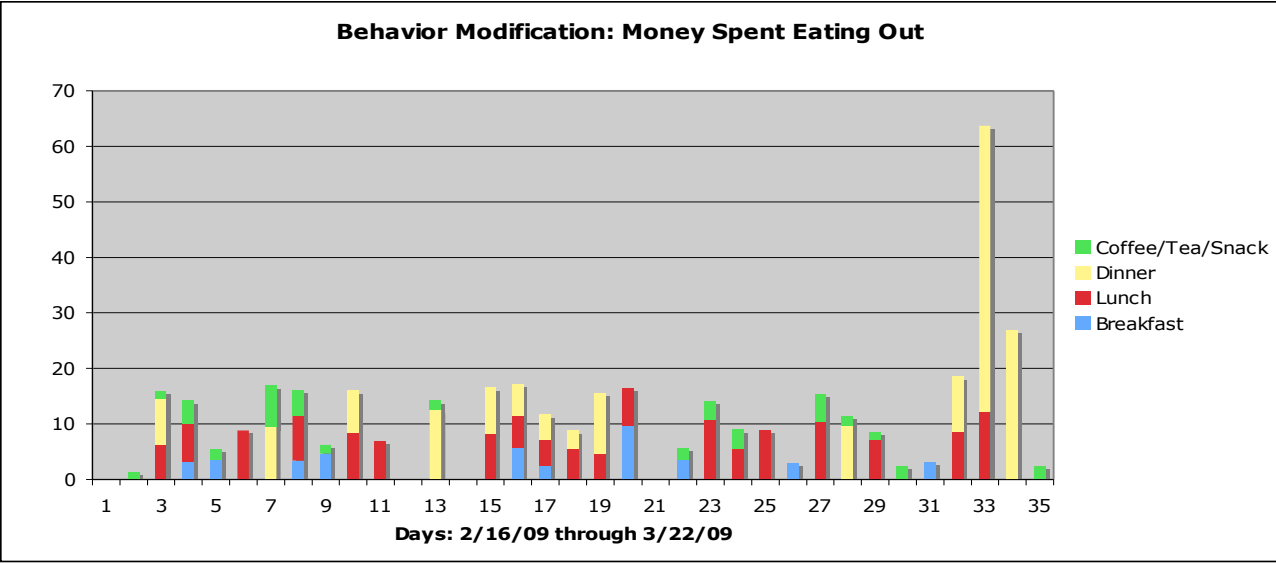
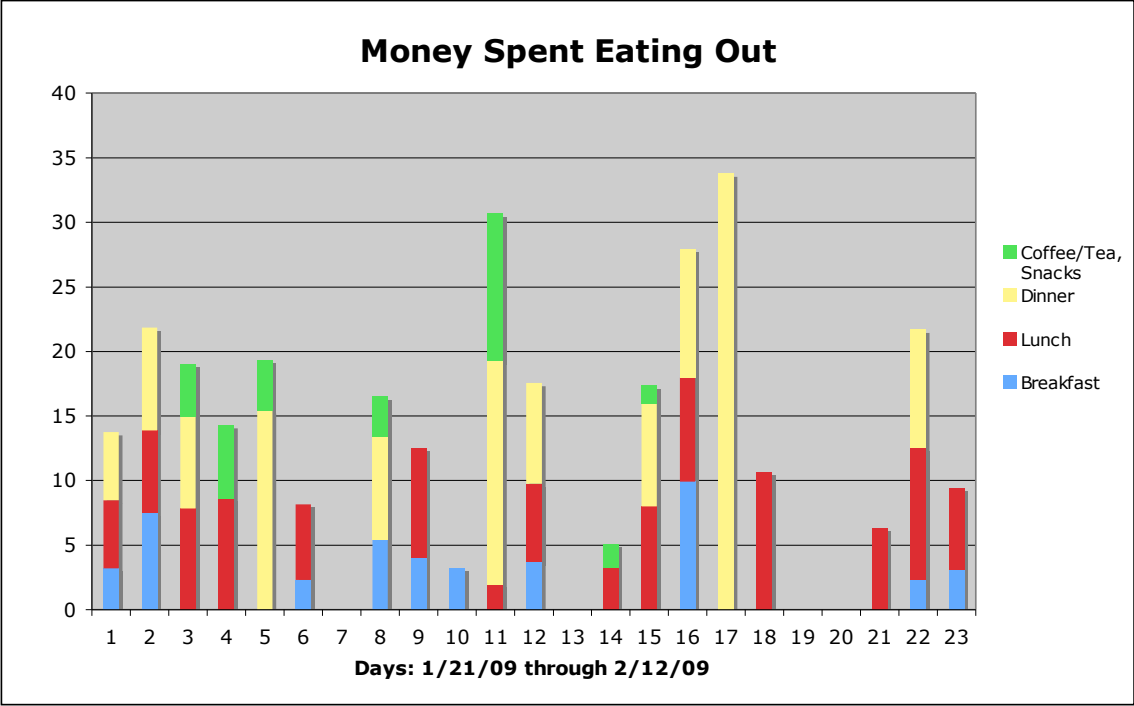




In the baseline data, 7 out of 10 nights (70%) I had ice cream or other high calorie desert at night. In the past 25 weeknights, I have only had 3 high calorie deserts at night (12%).









M Northwestern Medicine
Feinberg School of Medicine

DEPARTMENT OF PREVENTIVE MEDICINE

KEEP YOUR HEART HEALTHY PROGRAM



Osher Center for Integrative Medicine at Northwestern University

[About Integrative Medicine](#)[Education ▾](#)[Research ▾](#)[Patient Care](#)[Members ▾](#)[About Us ▾](#)[Research Map](#)

[Home](#) > [Education](#) > [Medical Students](#) > [Culinary Medicine: Cooking Up Health](#)

Education

[Undergraduate Student
Internships](#)

Medical Students

[Area of Scholarly
Concentration](#)

[Mind Body Medicine Skills
Elective](#)

► [Culinary Medicine: Cooking
Up Health](#)

[Integrative Medicine
Elective](#)

[Medical School Curriculum](#)

[Integrate Chicago](#)

Culinary Medicine: Cooking Up Health



The Culinary Medicine Course: Cooking Up Health is offered by the Osher Center for Integrative Medicine for FSM medical students. The course is intended for first-year medical students; second- fourth year students who can attend all sessions may also apply to participate. AOSC Students in Integrative Medicine are encouraged to enroll as part of our IM education track.

Culinary Medicine is the utilization of a unique combination of nutrition and culinary knowledge to assist patients in achieving and maintaining optimal health. This course is intended to

expand students' comfort in counseling patients in successful behavior change around nutrition and cooking. The "learning" portion of the course includes a combination of pre-work/videos/didactics and hands on culinary sessions- all focused on plant-based diets. The "giving-back" part of the course engages students in service learning by bringing them into Chicago Public School classrooms to administer an established grade school nutrition curriculum to children and/or families in at risk communities. Through this course participants will learn basic culinary skills, steps to create nutritious meals, relationships between food, health, and disease, and cultural competencies around nutrition.

NOTE: The Culinary Medicine elective is approved for credit by the FSM Curriculum Committee. It does not displace any elective requirements for Phase 2-3 students.

Contact Us

For additional information about any of our MD education programs, contact [✉ Nancy Heap](#).

Areas of Scholarly Concentration

The mission of the Area of Scholarly Concentration (AOSC) is to train MD students to perform a highly mentored project which culminates with the writing of a thesis. AOSC projects related to integrative medicine AOSCs can be developed through the Medical Social Sciences & Outcomes Research area of investigation. For details on past projects, see our [Areas of Research](#) section.

Make a Gift

Support the
Osher Center for
Integrative Medicine



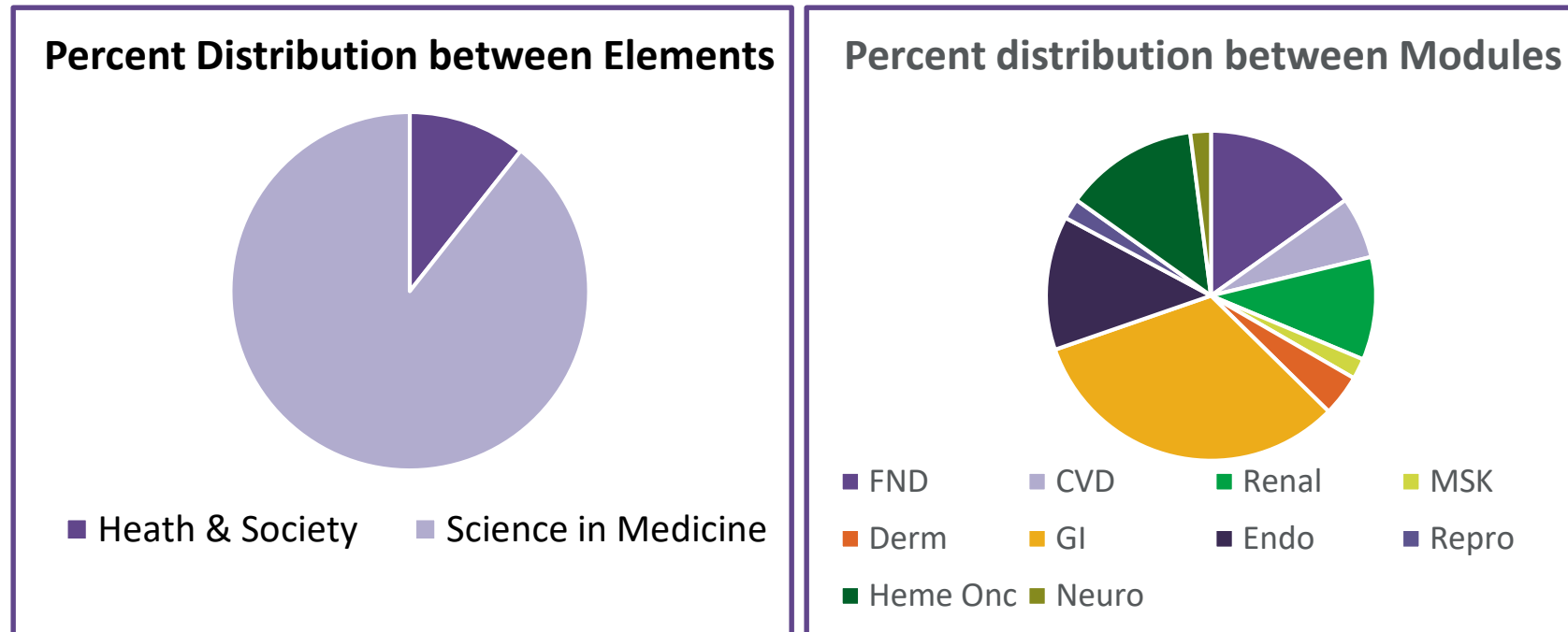
Outline

- The opportunity of a new curriculum – Establishing a Lifestyle Medicine thread
- Implementation and integration
- Focusing on student self-care: the Behavior Change Plan
- Assessing outcomes

Assessment of Lifestyle Medicine Thread

- MCQs on module exams
- Small group session during Foundation on taking a diet and physical activity history
- OSCE during Foundation (Phase 1a) on Diet, Physical activity or smoking cessation
- OSCE during Primary Care Rotation (Phase 2) on obesity counseling (diet and physical activity)
- Observation of lifestyle counseling during Keep Your Heart Healthy (KYYH) elective

Assessment of Diet and Nutrition in MCQs during Phase 1 (n=47)

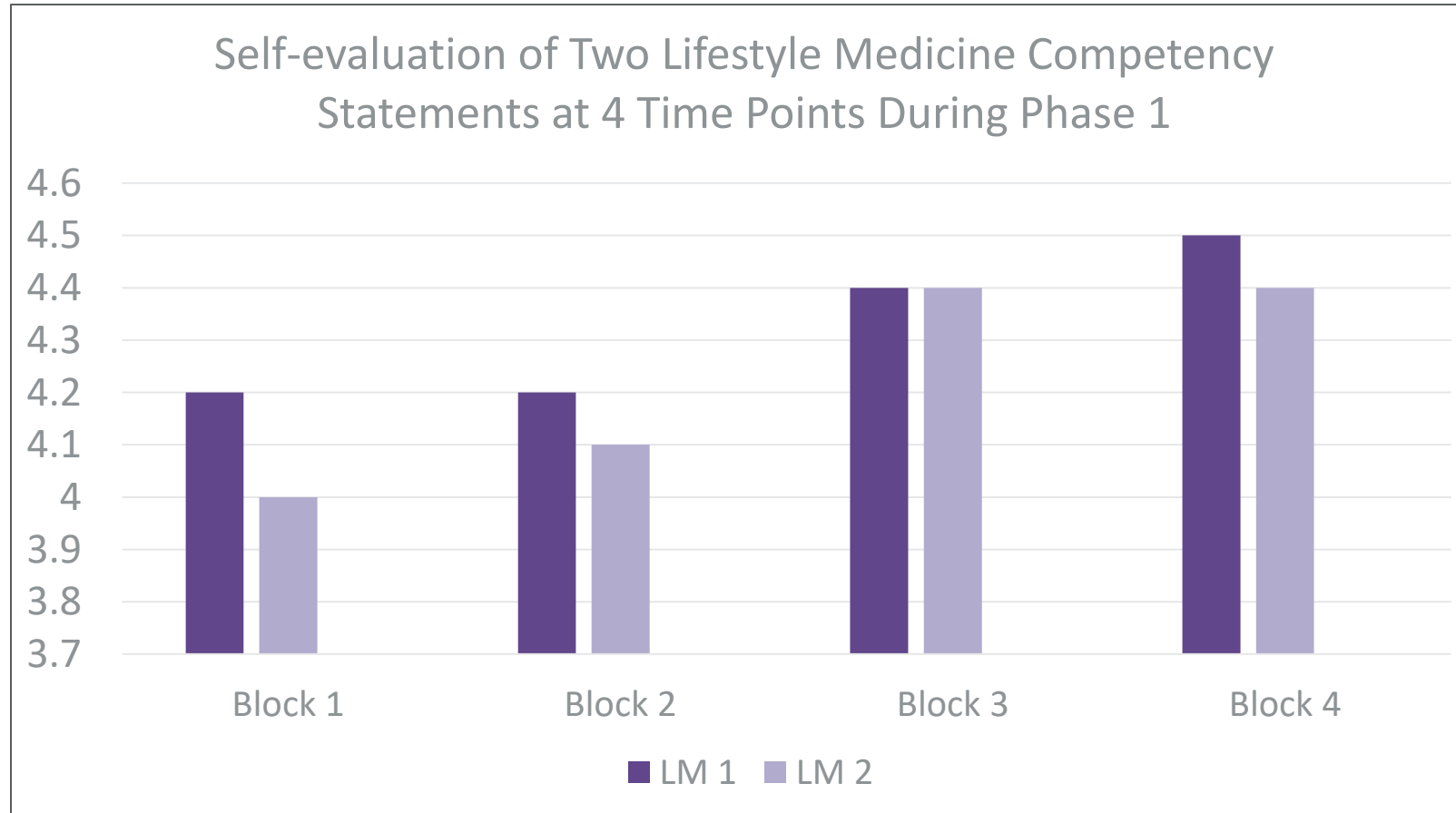


Total percent correct response = 79.9 ± 26.3

Self-Evaluation of Lifestyle Medicine Competency

Class of 2020.

5 point Likert scale



LM 1 = I can identify lifestyle and behavioral determinants of health.

LM 2 = I know how to counsel patients on lifestyle and behavioral choices.

Take Away Themes

- Learners of the 21st Century must have competence in the multiple components of Lifestyle Medicine (LM)
- Embedding diet & nutrition within the context of a LM theme emphasizes the multiple components of healthy living
- Integration of LM into the organ-based modules provides relevance and contextualization
- A variety of assessments can be used to assess knowledge, attitude and skill
- The secret sauce ...

Take Away Themes

- **The secret sauce**

- Be on alert for opportunities
- Make your case
- Gain support from leadership
- Need local champions who are knowledgeable and persistent
- Work with colleagues for full integration, and be prepared to provide peer education for reinforcement
- Make the content meaningful and interesting



Thank You!