



# Improving Medical Students' Knowledge of Nutrition and the Health Impacts of Food Insecurity as Part of a Pilot Culinary Medicine Program

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## Background

Medical education historically has focused on physiology, pathophysiology, and pharmacologic therapy. Nutrition education in medical school is mostly based on micronutrient deficiencies. While this knowledge base is critical for shaping competent physicians, medical students lack the knowledge and skills to adequately counsel patients on actionable aspects of nutrition. Moreover, traditional nutritional counseling for patients operates on the often false premise of food security, which does not prepare students to understand how patients nourish themselves.<sup>1</sup> Therefore, Culinary Medicine electives have been created to remedy this gap in medical education. These courses aim to not only teach medical students how to prepare the diets they prescribe, but also provide tools to guide patient-centered and culturally competent discussions with patients.

## Objectives

The elective's goals are to:

1. Help students become more knowledgeable in discussing nutrition and food with their patients
2. Help students provide evidence-based nutritional guidance to patient populations with specific chronic conditions, such as heart disease and diabetes.

## Methods

The Culinary Medicine elective taught at the University of Michigan was first piloted in 2018 as an abbreviated and modified version of the Goldring curriculum. The second reiteration of the course continued to be available to fourth-year medical students and included both didactic and hands-on cooking lessons. A session on food insecurity was also created by the co-authors to supplement the curriculum regarding the relevance of food insecurity to health. This included a case-based discussion of the features and consequences of food insecurity, followed by a discussion with local organizations that work to address different dimensions of food insecurity, including policy and community programs. Finally, a 19-question survey was administered to students who attended in order to assess its efficacy.

This evaluation focuses on (1) the impact of the elective on participants' self-reported knowledge base on health-oriented diets and comfort in counseling patients and (2) the impact of the food insecurity session on participants' understanding of food insecurity.

Step 1

• 4<sup>th</sup> year medical students self-select into the Culinary Medicine elective through the UMMS Branches Curriculum.

Step 2

- 4-hour didactic sessions covering the following topics:
  - Food Insecurity
  - Eating for Special Diets
  - Effective Nutritional Interviewing
  - Reading Nutritional Labels
- 4 kitchen sessions covering the following topics:
  - Mediterranean Diet
  - DASH Diet
  - Portion control
  - Carbohydrate management in type 2 diabetes mellitus

Step 3

- Administer self-reported surveys before and after the course
- Administer validated surveys used by Tulane Medical School to survey course outcomes
- Evaluate outcomes

## Results

Students who enrolled in the culinary medicine elective felt that their comfort with counseling patients about the Mediterranean and DASH diets, portion control and carbohydrate counting for T2DM was improved by the end of the course. Students' self-reports indicated that they achieved their goal of learning the evidence behind commonly prescribed diets. A number of students also learned new ways to discuss diet, nutrition, and food with overweight patients. All of the students who participated in the course would recommend the Culinary Medicine Elective to their peers.

Session Topic	Comfort Discussing with Patients		
	Before	After	Percent Change
Mediterranean Diet	3.6	3.7	+2.78%
DASH Diet	3.5	3.6	+2.8%
Portion Control	3.5	3.7	+5.7%
Carb-T2DM	3.4	3.7	+8.8%

**Table 1 (above):** Percent change in self-reported comfort counseling patients about the Mediterranean and DASH diets, portion control, and carbohydrate counting after completing the University of Michigan Culinary Medicine Elective.

Extent to which students agreed with the following objectives	Agree	Strongly Agree
I feel discussing diet is an important part of Health Maintenance exams.	N = 3 (27%)	N = 8 (72%)
I feel comfortable and confident in my ability to talk to patients about diet.	N = 5 (41.6%)	N = 7 (58.3%)
I feel knowledgeable about resources I can offer to patients who need to learn tools and techniques to change their diet.	N = 6 (50%)	N = 6 (50%)
I understand the evidence behind the Mediterranean and DASH and other diets and feel confident in identifying patients who might benefit from them.	N = 3 (25%)	N = 9 (75%)

**Table 2 (above):** Percentage of students who agreed or strongly agreed to the following objectives regarding their comfort and knowledge with nutritional counseling and specific diets.

## Conclusions

Qualitative and quantitative results from a pre-post survey based on responses from six student participants indicated that the elective improved self-reported knowledge base and comfort with counseling patients about the Mediterranean and DASH diets, portion control, and carbohydrate counting for T2DM. After course completion, student self-reports indicated that they anticipate incorporating more of the evidence behind commonly prescribed diets when counseling patients. Results from the survey specific to the food insecurity session based on responses from ten participants demonstrated that students reported a deeper understanding of how food insecurity presents, what factors affect it, and how it connects to health. Students also reported an improvement in their comfort discussing access to food with patients who live in food-insecure areas and directing them to appropriate resources.

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## References

<sup>1</sup> Adams KM, Butsch WS, Kohlmeier M. The state of nutrition education at US medical schools. J Biomed Educ 2015;2015:1-7. Article 357627.