

Master of Public Health

Integrative Learning Experience Report

THE POWER OF PROTEIN

by

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MASTER OF PUBLIC HEALTH

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Abstract

Protein intake plays a crucial role in the overall health and well-being of cancer patients, supporting muscle maintenance, immune function, treatment tolerance, and recovery. Adequate protein consumption is particularly important for individuals undergoing cancer treatment, as they often experience increased protein and energy needs due to the effects of the disease and its therapies. Research has shown that higher protein intake can help preserve lean body mass, promote wound healing, and enhance the body's ability to withstand treatment-related side effects (Baracos et al., 2018).

One of the challenges cancer patients face is meeting their protein requirements, especially when experiencing side effects such as reduced appetite, taste changes, or gastrointestinal distress. Studies indicate that many oncology patients fail to consume enough protein to support optimal health during treatment, which can contribute to muscle loss, fatigue, and decreased treatment tolerance (Bauer et al., 2011). While cancer cachexia—a syndrome characterized by muscle wasting and weight loss—is a concern for some patients, the benefits of protein intake extend to all individuals with cancer, regardless of their specific diagnosis or nutritional status (Arends et al., 2017).

A high-protein diet, combined with targeted nutritional support, has been shown to improve clinical outcomes by reducing the risk of malnutrition and enhancing overall recovery (Weimann et al., 2017). Given the essential role of protein in healing and resilience, integrating protein-focused nutrition strategies into cancer care can support patients in maintaining strength, improving quality of life, and optimizing their response to treatment.

The initiative consisted of weekly sessions, each dedicated to a specific aspect of protein's role in cancer care: (1) muscle maintenance and cachexia, (2) immune function, (3) wound healing, and (4) nutritional support for treatment tolerance and recovery. Learning objectives for participants included understanding the importance of protein in cancer treatment, identifying protein-rich food sources, and implementing strategies to increase protein intake despite treatment-related challenges. The program was delivered through multiple educational formats, including dietitian-led presentations, informational handouts, interactive educational booths, and recipe demonstrations.

Key resources developed for the initiative included a Protein Food and Drink Handout, a Dietitian Info Card, and a Power of Protein presentation, which collectively provided practical dietary recommendations tailored to cancer patients' nutritional needs. Research supports that providing clear, visually engaging educational materials can improve dietary adherence and

patient outcomes (Bauer et al., 2011). Additionally, an educational booth was set up at the Tammy Walker Cancer Center to engage both patients and healthcare providers, increasing awareness of the importance of protein in oncology nutrition. The initiative also incorporated recipe demonstrations and food sampling to encourage patients to incorporate high-protein foods into their diets, acknowledging the common barriers of fatigue and lack of appetite that can impede proper nutrition (Mann et al., 2013).

Registered dietitians (RDs) play a crucial role in addressing the nutritional challenges faced by cancer patients. Studies indicate that individualized nutrition care from RDs can improve patient outcomes by managing treatment side effects, reducing hospitalizations, and enhancing quality of life (Weimann et al., 2017). By integrating nutrition education into oncology care, The Power of Protein initiative sought to bridge the gap between dietary recommendations and practical application, ultimately empowering patients with the knowledge and tools to meet their increased protein needs during cancer treatment.

Subject Keywords: *protein, cancer, muscle, nutrition, tolerance, recovery*

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Chapter 1 - Literature Review

Cancer cachexia is a multifaceted syndrome characterized by significant muscle wasting, weight loss, and impaired recovery, adversely impacting patient outcomes and quality of life. This condition arises from a negative energy balance and systemic inflammation, leading to decreased treatment tolerance and diminished overall survival rates. Nutritional interventions, particularly those focusing on increased protein intake, are essential in counteracting these effects and supporting patient health throughout cancer therapy (Arends et al., 2017).

Adequate protein consumption is vital for maintaining muscle mass and supporting immune function in cancer patients. Protein intake helps mitigate the catabolic processes associated with cancer cachexia, preserving lean body mass and enhancing the patient's ability to tolerate treatment. Research has consistently shown that higher protein intake is beneficial for oncology populations; however, the optimal amount and type of protein to support overall health and long-term survivorship still require further investigation (Baracos et al., 2018). National studies have emphasized that many cancer patients fail to meet their increased protein needs due to treatment-related side effects such as loss of appetite and gastrointestinal issues (Bauer et al., 2011).

Nutritional support for cancer patients addresses the negative energy balance and net protein breakdown that are characteristic of cancer cachexia. A high-energy diet rich in protein-dense foods, combined with targeted supplementation of specific nutrients, can reduce catabolic processes and activate anabolic pathways. This not only promotes muscle maintenance but also aids in recovery and resilience during and after treatment (Weimann et al., 2017).

Benefits of Increased Protein Intake for Cancer Patients

1. **Muscle Maintenance and Growth:** Elevated protein intake provides the essential amino acids required for muscle protein synthesis, crucial for preserving muscle mass and preventing further wasting. Adequate protein is especially important for preventing sarcopenia, a condition commonly observed in cancer patients that exacerbates frailty and functional decline (Cruz-Jentoft et al., 2010).
2. **Immune Function Support:** Proteins play a pivotal role in immune system function. Sufficient protein levels are essential for the synthesis of immune cells and antibodies, which strengthen the body's defense mechanisms against infections. Enhanced immune

function also facilitates better responses to cancer treatments, reducing the risk of treatment-related complications (Fearon et al., 2012).

3. **Wound Healing Promotion:** Protein is a fundamental component of tissue repair. For patients undergoing surgery or experiencing treatment-related tissue damage, ensuring adequate protein intake accelerates wound healing, reduces the risk of infection, and improves recovery outcomes (Shaw et al., 2019).
4. **Enhanced Treatment Tolerance and Recovery:** Proper nutrition, including increased protein consumption, is linked to improved tolerance of cancer therapies. Patients who receive adequate protein are more likely to endure the side effects of treatment, experience fewer complications, and recover more rapidly (Baracos et al., 2018).

Registered dietitians (RDs) play an essential role in addressing the nutritional needs of cancer patients. Studies have demonstrated that individualized nutrition care provided by RDs can improve patient outcomes by optimizing dietary intake, managing treatment side effects, and supporting overall well-being (Puppa et al., 2014). A study by the American Society for Parenteral and Enteral Nutrition (ASPEN) found that early nutritional intervention by RDs can significantly reduce hospitalizations and improve quality of life for cancer patients (Weimann et al., 2017).

The provision of targeted protein supplementation and practical dietary advice from RDs can help ensure cancer patients meet their increased protein needs, which in turn supports better treatment adherence, reduces complications, and improves overall survival rates. As cancer care increasingly integrates multidisciplinary approaches, the involvement of RDs is crucial to optimizing patient nutrition and enhancing clinical outcomes.

The Tammy Walker Cancer Center, situated at 511 S. Santa Fe in Salina, Kansas, is a comprehensive facility dedicated to delivering advanced cancer treatments and compassionate care. As part of the Salina Regional Health Center, the center offers cutting-edge radiation and chemotherapy technologies, complemented by essential support services such as rehabilitation, nutritional and dietary support, counseling, and support groups. This multidisciplinary approach ensures that patients receive holistic care tailored to their individual needs.

Melanie Leepers RN, MBA, served as my preceptor through this applied practice experience. She holds a Bachelor of Science in Biology, an ADN in Nursing, and Master of Business Administration. At Tammy Walker, Melanie works in Clinical Trials and is the Manager of the Cancer Support Services department. She has previous experience in intensive care nursing and has worked in public health her entire career.

Addressing cancer cachexia through nutritional interventions, particularly by increasing protein intake, is crucial for improving patient outcomes and quality of life. The Tammy Walker Cancer Center exemplifies this approach, integrating advanced medical treatments with comprehensive nutritional support.

Chapter 2 - Learning Objectives and Project Description

At Tammy Walker Cancer Center, hundreds of patients seek care each day. As the sole dietitian at the facility, it is not feasible for me to personally engage with every patient. Therefore, I prioritize my time by focusing on individuals who are critically ill, malnourished, or at high risk of developing malnutrition during treatment. This primarily includes patients with head and neck cancers (oral, pharyngeal, laryngeal, esophageal), gastrointestinal cancers (stomach, pancreatic, colorectal, liver), and lung cancer. Conversely, patients with breast and prostate cancer—two of the most commonly diagnosed cancers at our facility—are at a lower risk for malnutrition.

Recognizing that many patients could benefit from nutritional support but may not have direct access to a registered dietitian, I developed an educational outreach initiative to expand the reach of evidence-based nutrition information. The Power of Protein series was launched in February 2025, providing a four-week educational program for patients and caregivers at Tammy Walker Cancer Center, with each session dedicated to a different aspect of protein and its role in health. While the series was initially delivered in a limited timeframe, many of the resources developed will continue to benefit patients in the future, ensuring a lasting impact on the target population. Below, I will list and explain the several outreach efforts that I designed as part of The Power of Protein series.

Week	Content	Featured Protein Foods + Recipe
Week 1: 2/3-2/7	Area of Focus: -Muscle Maintenance and growth -Cachexia Learning Objectives: 1. Participants will explain how adequate protein intake supports muscle maintenance and reduces muscle wasting in cancer patients experiencing cachexia. 2. Participants will identify protein-rich food sources that can be incorporated into the diet.	-Animal-Based Proteins Featured Recipe: High-Protein Pudding
Week 2: 2/10-2/14	Area of Focus: -Immune Function Learning Objectives: 1. Participants will be able to describe the role of protein in maintaining immune cell production and function in cancer patients. 2. Participants will identify protein-rich food sources that can be incorporated into the diet.	-Plant-Based Proteins Featured Recipe: Air-Fried Chickpeas

Week 3: 2/17-2/21	Area of Focus: -Wound Healing Learning Objectives: 1. Participants will discuss how protein facilitates tissue repair and accelerates wound healing in cancer patients. 2. Participants will identify protein-rich food sources that can be incorporated into the diet.	-Complete Proteins Featured Recipe: No recipe/sampling this week due to weather.
Week 4: 2/24-2/28	Area of Focus: -Nutritional Support -Treatment Tolerance and Recovery Learning Objectives: 1. Participants will explain how adequate protein intake contributes to better tolerance of cancer treatment and aids in faster recovery. 2. Participants will identify protein-rich food sources that can be incorporated into the diet.	-Fortified Protein Foods and Drinks Featured Recipe: High-Protein Muffins

Content Delivery

Dietitian Info Card (Figure 2.1): This handout has become the most widely utilized and well-received resource from my project. With few exceptions, such as patients with kidney failure, the majority of my patients have increased protein requirements. Research indicates that up to 80% of cancer patients experience some degree of malnutrition, with inadequate protein intake being a primary concern (Arends et al., 2017). Protein is essential for maintaining lean body mass, supporting immune function, and improving treatment tolerance, yet many patients struggle to meet their needs (Baracos et al., 2018).

While I frequently encourage patients to incorporate more protein into their diets, I recognized that some may not be fully aware of which foods are rich sources of protein. Studies suggest that providing patients with simple, visually engaging educational materials can improve dietary adherence and nutritional outcomes (Bauer et al., 2011). To address this, I developed a clear, easy-to-read handout designed for patients to keep readily accessible—such as on their refrigerators—providing a comprehensive list of protein-rich foods and beverages. This resource helps bridge the gap between dietary recommendations and practical application, empowering patients to make informed nutritional choices during treatment.

Figure 2.1

front



Talk to a registered dietitian about nutrition and cancer

Nutrition is an important part of cancer treatment. With the onset of cancer and related treatments, nutritional recommendations can change. Proper nutrition is essential for maintaining a good quality of life, minimizing the side effects of treatment, and/or recovering from surgery.

The Tammy Walker Cancer Center at Salina Regional Health Center offers nutrition education and consultations to patients and caregivers of all cancer types.

back



Nutrition during cancer treatment

The primary goals of enhancing nutrition during cancer treatment are to:

- Prevent or reverse poor nutritional status
- Maintain dose and schedule of cancer treatments
- Manage disease symptoms and treatment-related side effects
- Maintain or improve weight, strength and energy
- Heal and recover faster

To make an appointment with the dietitian, contact:

Megan Katt, RDN, LD
Clinical Oncology Dietitian
(785) 452-4849
mkatt@srhc.com



www.tammywalkercancercenter.com

Protein Food and Drink Handout (Figure 2.2): This handout has become the most widely utilized and well-received resource from my project. With few exceptions, such as patients with kidney failure, the majority of my patients have increased protein requirements. Research indicates that up to 80% of cancer patients experience some degree of malnutrition, with inadequate protein intake being a primary concern (Arends et al., 2017). Protein plays a critical role in preserving lean body mass, supporting immune function, and enhancing treatment tolerance (Baracos et al., 2018). Additionally, muscle loss associated with malnutrition can lead to increased treatment toxicity, reduced quality of life, and poorer clinical outcomes (Cederholm et al., 2017).

While I frequently encourage patients to incorporate more protein into their diets, I recognized that some may not be fully aware of which foods are rich sources of protein. Studies show that patient education materials that are simple, visually appealing, and easy to understand improve dietary adherence and overall nutritional status (Bauer et al., 2011). To address this, I developed a clear, easy-to-read handout designed for patients to keep readily accessible—such as on their refrigerators—providing a comprehensive list of protein-rich foods and beverages. By equipping patients with practical tools to meet their protein needs, this resource has the potential to improve nutritional intake, treatment tolerance, and overall health outcomes at my facility.

Figure 2.2

Protein-Rich Foods and Drinks

Meat and Poultry

Chicken breast
Turkey breast
Lean beef (sirloin, tenderloin)
Pork (tenderloin, chops)
Lean cuts of lamb
Deer/Venison
Jerky

Fish and Seafood

Salmon
Tuna
Halibut
Tilapia
Cod
Halibut
Shrimp

Dairy and Dairy Alternatives

Eggs
Greek yogurt
Cottage cheese
Cheese (cheddar, etc.)
String Cheese
Milk

Legumes and Beans

Lentils
Chickpeas (garbanzo beans)
Black beans
Kidney beans
Green peas

Grains and Grain Products

Quinoa
Oats
Brown rice
Barley
Whole grain products (pasta, crackers, bread)

Nuts and Seeds

Almonds, Peanuts, Cashews
Peanut butter (or other nut butters)
Pumpkin seeds (pepitas)
Sunflower seeds
Chia seeds
Pumpkin seeds
Flaxseeds
Hemp Seeds

Soy Products

Tofu
Tempeh (fermented soybeans)
Edamame
Soy milk
Soy-based meat substitutes (veggie burgers, soy crumbles)

Other Protein Sources:

Protein-fortified products

- Protein drinks or powder
- Protein bars
- Protein chips
- Protein noodles
- Collagen peptides

Tips for Boosting Protein

- Add cheese
- Use milk or cream in place of water
- Greek yogurt>regular yogurt
- Add leftover or pre-cooked/canned meats to soups, casseroles, salads, omelets
- Pair peanut butter or cottage cheese with fruit or vegetables
- Add beans and peas to dishes
- Explore protein-fortified drinks and foods



The Power of Protein Presentation (Figures 2.3a, b): In my role as a dietitian, I am frequently invited to deliver presentations for a variety of audiences, including healthcare providers, patients, caregivers, and community members. This PowerPoint presentation was created to provide an overview of the key educational content covered during the Power of Protein series. It includes information on the benefits of protein for cancer patients, the different types of protein, and practical strategies for increasing protein intake to meet the unique nutritional needs of individuals undergoing cancer treatment.

Presenting this material to patients as part of Tammy Walker Cancer Center's monthly support group was an enriching experience. Research supports that cancer patients often have significantly higher protein requirements due to the catabolic effects of the disease and its treatments (Arends et al., 2017). Protein intake is critical for maintaining muscle mass, supporting immune function, and improving treatment outcomes, yet studies suggest that many cancer patients do not consume sufficient protein (Baracos et al., 2018). Educational initiatives such as this one are vital for addressing these gaps and empowering patients to make informed dietary decisions.

Figure 2.3a





Recipes and Sampling (Figure 2.4, 2.5): One common stereotype of dietitians is that we are “foodies” who love cooking and preparing elaborate meals. While this may be true for some, I have found myself to be the exception to this stereotype, as I do not particularly enjoy meal preparation or cooking. This personal experience allows me to empathize with my patients who are often fatigued from treatments, frequently out of the house for appointments, or simply too unwell to dedicate time or energy to preparing complex meals. Similarly, I relate to the caregivers who are juggling the demands of caring for their loved ones while managing their own busy lives.

Through my work, I have observed that while there is an abundance of cookbooks available for cancer patients, many of these resources do not meet the practical needs of individuals who may not have the energy or time to prepare complicated meals. In fact, studies show that cancer patients often face significant barriers to adequate nutrition, including fatigue, loss of appetite, and the lack of time or energy to prepare meals (Bauer et al., 2011). This is particularly concerning given that cancer patients have increased nutritional needs, and protein plays a critical role in maintaining lean body mass, supporting immune function, and enhancing treatment tolerance (Baracos et al., 2018).

Recognizing the gap in available resources, I aimed to provide my patients with simple, high-protein meal and snack ideas that require minimal ingredients and preparation. This approach not only addresses their nutritional needs but also makes the process of eating feel more manageable during a challenging time. To further encourage participation, I offered samples of the featured recipes, as research suggests that providing tangible, hands-on experiences can increase patients’ confidence in trying new foods (Mann et al., 2013).

Figure 2.4

Featured Recipe:

Protein Pudding



Ingredients

1 single-serve bottle protein
shake

ex: Premier Protein, Orgain, Ensure, Boost

1/2 packet pudding powder

Optional:

2 Tbsp. PB2 (powdered peanut butter)

Directions

1. Combine all ingredients.
2. Mix thoroughly with hand or stand mixer.
3. Let set in refrigerator.

Variations

- Use a variety of protein and pudding flavors.
- Top with chocolate chips, crushed graham crackers, cookies, coconut flakes, or nuts.
- Serve with a dollop of whipped cream or caramel drizzle.

Featured Recipe:

Protein Muffins



INGREDIENTS

14 oz. protein shake

5.3 oz. Greek yogurt

1 box Kodiak® Protein-
Packed Muffin Mix

DIRECTIONS

1. Add all ingredients to a mixing bowl.
2. Stir until combined.
3. Fill prepared muffin cups with batter.
4. Bake as directed on muffin mix box.

VARIATIONS

1. Try different flavor combinations of muffin mix, yogurt, and protein shake.
2. Add-in extra goodies: chocolate chips, blueberries, or diced bananas.



FEATURED RECIPE:

Air-Fryer-Roasted Chickpeas

SERVINGS: 3 (1/2 C.)

PREPPING TIME: 15 MIN

COOKING TIME: 15 MIN

INGREDIENTS

1- 15.5 oz can chickpeas

1 tsp. olive oil

seasonings

SEASONING SUGGESTIONS

grated parmesan

garlic powder

onion powder

ranch seasoning

paprika

sea salt & pepper

honey & cinnamon

bbq

chili powder & lime

tajin

DIRECTIONS

1. Drain chickpeas in a colander and preheat air fryer to 400F.
2. Roast chickpeas in air fryer for 5 minutes to dry.
3. Add chickpeas to a mixing bowl with olive oil and toss to coat.
4. Return chickpeas to air fryer for an additional 10 minutes. Check them and roast for additional time, if necessary.
5. Once crispy, add chickpeas to bowl and mix with desired seasonings.

Enjoy on their own as a snack, over salads, in a trail mix, or as desired. After fully cooling, store in airtight container for 2-3 days.

Per 1/2 cup: 6 grams protein

Recipe adapted from: Slice of Jess (www.sliceofjess.com)

Figure 2.5



Educational Booth (Figure 2.6): To promote the Power of Protein series and engage not only patients and caregivers but also other healthcare providers at our clinic, I developed an educational display at the entrance of Tammy Walker Cancer Center. The display featured bright colors and visually appealing graphics, with concise and easy-to-understand information designed to capture attention. In addition to offering educational content, I included samples and giveaways as incentives to encourage visitors to stop and interact with the booth.

My initial plan was to staff the booth for an hour each day, providing an opportunity to personally introduce myself to patients I hadn't yet met and address any questions they might have. However, I quickly realized that this was not feasible on a consistent basis due to time constraints and my clinic schedule. Despite this, I still had meaningful interactions with individuals who stopped by the table when I was present. Research has shown that interactive displays and hands-on engagement can significantly enhance patient education and improve the retention of health-related information (McDermott et al., 2016). Furthermore, healthcare providers who engage directly with patients in a friendly, approachable manner can foster better communication and improve patient satisfaction (O'Neill et al., 2016). These interactions provided valuable opportunities to increase awareness of the importance of protein in cancer care and to reinforce key messages about nutrition.

Figure 2.6



Chapter 3 - Results

At the conclusion of my project, I was pleased with the level of engagement and the impact I had on patients, caregivers, and fellow healthcare providers regarding the importance of protein in cancer care. I am confident that I was able to connect with and educate a larger audience than I typically reach through my usual content. Based on the number of handouts distributed, recipe samples taken, and attendees at my presentation, I estimate that I engaged with over 300 individuals throughout the course of the project.

Initially, my goal was to formally assess participants' knowledge and engagement using pre- and post-quizzes. However, I quickly realized that this approach was not feasible due to the health status of my target population and the challenge of capturing data from more than a few individuals at a time. Given these limitations, I adapted my assessment strategy to focus on tracking engagement metrics instead. I recorded the number of handouts distributed, the number of recipe samples taken, and the attendance at my presentations as key indicators of participation and interest.

Through this adjusted method, I observed strong engagement with my materials. Patients and caregivers frequently expressed appreciation for the practical, accessible information, and many actively participated in discussions during presentations. Healthcare providers also showed interest in incorporating my materials into their practice, further extending the reach of the project. However, a key limitation remains: while I could estimate participation, there was no way to measure the depth of comprehension or retention of the information presented. Without formal assessment tools, it is difficult to determine whether patients and caregivers fully understood the key messages or how effectively they applied the knowledge in their daily lives.

These findings suggest that while traditional assessment methods may not always be suitable for this population, alternative approaches—such as tracking interaction-based metrics—can still provide valuable insights into the effectiveness of nutrition education initiatives. Moving forward, refining evaluation methods, such as incorporating informal feedback or follow-up discussions, may help gauge the true impact of nutrition education in this setting.

Chapter 4 - Discussion

The Power of Protein project demonstrated the importance of nutrition education in oncology care, highlighting both the impact and the challenges of delivering meaningful interventions to patients undergoing cancer treatment. My findings reinforced the idea that accessible, engaging educational resources—such as handouts, recipes, and presentations—can effectively reach patients, caregivers, and healthcare providers. While I was pleased with the level of engagement, the project also illuminated key barriers to both delivery and assessment within this population.

One of the biggest challenges I encountered was the difficulty of using traditional assessment tools, such as pre- and post-quizzes, with cancer patients. Their health status and treatment-related fatigue made structured assessments impractical. Instead, I pivoted to an engagement-based evaluation by tracking participation, such as the number of handouts taken and presentation attendance. This shift in methodology underscored the need for flexible, patient-centered evaluation approaches in clinical nutrition education. It also reinforced that while quantitative data is valuable, qualitative feedback—such as patient conversations and provider interest—is equally meaningful in assessing impact.

Through this project, I also realized how valuable reusable resources can be in expanding the reach of nutrition education. The handouts and presentation materials I developed can continue to serve patients and providers beyond the scope of this initiative. However, balancing outreach work with clinical responsibilities remains a challenge. As a solo dietitian, I find it difficult to dedicate time to both patient care and proactive educational initiatives. This experience reinforced my belief that having an additional dietitian on staff would allow for expanded outreach, including more robust patient education efforts within the clinic and greater community engagement focused on cancer prevention.

Looking ahead, several next steps could further enhance the impact of this work. Translating materials into Spanish would increase accessibility for a broader patient population. Leveraging social media could also help disseminate nutrition information beyond the clinic setting. Additionally, maintaining a booth within the clinic with rotating educational topics—such as “Does Sugar Feed Cancer?” or “Alcohol Use and Cancer Risk”—could provide ongoing engagement opportunities for patients.

Overall, The Power of Protein strengthened my understanding of how to effectively educate and engage cancer patients about nutrition, despite the challenges of assessment and delivery. While this project made a meaningful impact, it also revealed opportunities for growth,

both in expanding outreach efforts and in integrating nutrition education more seamlessly into patient care. Moving forward, I hope to build upon these efforts to continue advancing the role of nutrition in cancer treatment and prevention.

Chapter 5 - Competencies

Table 5.1 Summary of MPH Foundational Competencies

Number and Competency		Description
1	Apply epidemiological methods to the breadth of settings and situations in public health practice	Through the identification of a health issue (protein malnutrition in cancer patients), assessment of patient needs, and development of targeted interventions to improve nutrition, you have applied epidemiological methods in a public health practice setting. By focusing on the cancer patient population and tailoring your educational outreach, you have used key epidemiological principles to address a significant health concern.
7	Assess population needs, assets and capacities that affect communities' health	National and internal assessment, through literature reviews and professional clinical experience, of the effects of inadequate protein intake during cancer treatment.
9	Design a population-based policy, program, project or intervention	The Power of Protein, an educational outreach effort designed to target the nutritional needs of the cancer patients of the Tammy Walker Cancer Center consisted of outputs that will be available to patients during the month of February 2025 and beyond.
18	Select communication strategies for different audiences and sectors	Create a variety of outputs utilizing different communication strategies in order to effectively reach more patients, colleagues, patient caregivers, etc., with content (oral presentation, handouts, food sampling with recipes, educational booth, dietitian info card).
19	Communicate audience-appropriate public health content, both in writing and through oral presentation.	Create a variety of outputs utilizing different communication strategies in order to effectively reach more patients with content (oral presentation, handouts, food sampling with recipes, educational booth, dietitian info card).

Table 5.2 Summary of MPH Emphasis Area Competencies

MPH Emphasis Area: Nutrition		
Number and Competency		Description
1	Information literacy of public health nutrition	The project demonstrated information literacy by sourcing relevant and current nutrition research on the role of protein in cancer care and incorporating it into educational materials. Nutritional gaps within the patient population, such as inadequate protein intake, were identified, and evidence-based resources were used to design educational interventions, such as handouts and presentations. This approach showcased the ability to efficiently gather, evaluate, and apply nutrition information to improve public health outcomes.
2	Compare and relate research into practice	Research findings regarding the benefits of increased protein intake for cancer patients were directly applied to the project. Studies indicating that cancer patients often experience muscle wasting and nutritional deficiencies (such as malnutrition and cachexia) were translated into practical interventions. For example, easy-to-follow handouts were created, and educational outreach efforts were implemented to empower patients to increase protein in their diet. This approach demonstrated the ability to take theoretical knowledge and apply it in real-world patient care.
3	Population-based health administration	The project focused on a specific patient population—cancer patients at Tammy Walker Cancer Center—and developed resources and educational outreach with the goal of improving health outcomes for this group. Interventions were designed to address the unique nutritional needs of these patients. Collaboration with other healthcare providers and staff reflected the administrative aspect of coordinating and supporting a population-based health initiative aimed at improving cancer patients' nutrition and overall health.
4	Analysis of human nutrition principles	Core human nutrition principles were applied throughout the project, particularly the importance of protein in maintaining muscle mass, supporting immune function, and enhancing treatment outcomes. The nutritional needs of cancer patients in the context of their treatment and recovery were assessed, with a specific focus on how protein could address muscle wasting and nutritional deficiencies. This demonstrated the ability to analyze and apply human nutrition principles to improve health outcomes for cancer patients.
5	Analysis of nutrition epidemiology	The project applied principles of nutrition epidemiology by identifying a significant nutrition-related issue—protein malnutrition—within the cancer patient population and developing interventions to address it. The broader impact of protein deficiencies on recovery and treatment tolerance was assessed, and evidence from nutrition epidemiology was used to guide interventions aimed at improving protein intake. This approach linked population-level nutritional trends with individual patient care.

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