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Cover Page Footnote

Acknowledgment is provided to my faculty mentors, Donna Zoss, Lane Yahiro, and Patti Darbshire, and to my fellow students on the hypertension team.

THE ISMAIL CENTER HYPERTENSION PROGRAM:

Application of Medical Nutrition Therapy

Lily Darbshire, College of Health and Human Sciences

ABSTRACT

Lily Darbshire is a registered dietitian nutritionist and graduate student at Missouri State University completing a master's degree in public health. During her senior year in the dietetics program at Purdue University, Darbshire was involved in a service-learning-based hypertension clinic focusing on medical nutrition therapy. This article outlines her experiences and what she learned as a result of completing the program.

THE COMMUNITY NEED

High blood pressure, or hypertension, is often called the “silent killer.” It comes with no warning signs or symptoms, yet hypertension is a risk factor for the number one killer in America—heart disease. According to the Centers for Disease Control (2015b), 1 in 3 adults in the United States has high blood pressure. Well-known contributors to hypertension include genetics, age, obesity, smoking, a high-sodium diet, and sedentary lifestyle.

In addition to obesity, hyperlipidemia and diabetes are common comorbidities in hypertensive patients. Approximately 78.6 million adults in the US are obese, thus demonstrating the need for dietary and exercise intervention (Centers for Disease Control, 2015a). Obesity and hypertension are both risk factors for diabetes, and the American Diabetes Association (2015) states that approximately 29.1 million Americans have diabetes. In addition, 73.5 million adults have excessive low density lipoproteins (LDL, or “bad cholesterol”; Centers for Disease Control, 2015c). Both diabetes and hyper-

cholesterolemia can be controlled with medications, a well-balanced diet, and moderate exercise.

The numbers for these disease states are staggering. It is clear that the American public needs assistance from health care providers in controlling conditions like hypertension, obesity, hyperlipidemia, and diabetes.

HOW I GOT INVOLVED AT THE ISMAIL CENTER

I was a sophomore at Purdue University majoring in dietetics when I first learned of the service-learning opportunity at the Ismail Center Hypertension Clinic. I was familiar with the Ismail Center as I had volunteered there, and then later worked there as an intern giving fitness assessments, taking anthropometric data, and taking blood pressures for members. I was pleasantly surprised to discover how much I enjoyed working with an older clientele and how interested they were in my personal and professional life. I heard about the center's hypertension program and the opportunity to gain hands-on experience working with clients. Then, in my junior year, I received an email from my dietetics professor about the Ismail hypertension internship opportunity for the upcoming year. I jumped at this chance to put my skills to work. I knew this experience would be invaluable preparation for my yearlong internship following graduation, which is required to sit for the registered dietitian's board exam.

THE ISMAIL CENTER

The Ismail Center originated from a Purdue University faculty member's idea to create an adult fitness center.

A. H. Ismail had a vision to improve the lives of individuals through exercise, often remarking that “exercise is nature’s medicine.” In 1999, his vision became a reality when the Ismail Center opened as a fitness facility for Purdue University faculty and staff on campus. The center expanded in 2014, adding state-of-the-art exercise equipment and relocating to a larger facility in Lyles-Porter Hall. The Ismail Center, however, is much more than just a workout facility. Students and professors have the opportunity to get involved with the Ismail Center through volunteerism, clinical practices, internships, and research. The Ismail Center website describes the facility:

The Center provides faculty a centralized facility for conducting multidisciplinary research in health, exercise and nutrition; students a clinical laboratory for acquiring and polishing technical and leadership skills; individuals a wellness center for achieving and maintaining a maximal degree of health; and the local community a resource for increasing physical activity and exercise participation. (Purdue University, n.d.)

Students are able to apply what they learn in the classroom to clients at the center.

One service-learning opportunity for Purdue students to hone their patient care skills is the Ismail Hypertension Program—a program housed in the Ismail Center. Ismail Center members with hypertension are recruited for the hypertension program through a flyer placed in the monthly newsletter, and by personal invitation following a review of their Ismail membership registration form. The hypertension flyer describes the program and

the Ismail Center director explains the details, answers members’ questions, and introduces the potential clients to the students. Members choose whether or not to participate. Select senior-level Purdue University students in applied exercise and health, nutrition science, and pharmacy work together in this interdisciplinary clinic focused on reducing hypertension and promoting the overall health and well-being of the Ismail clients. Nutrition science students are selected by Professor Donna Zoss; applied exercise and health students interested in cardiopulmonary rehabilitation and clinical services are recruited by Dr. Lane Yahiro; and pharmacy students are selected based on their participation in an advanced pharmacy practice rotation with Dr. Patricia Darbishire. Dr. Yahiro stated that the instructors look for students who are “self-motivated, detail-oriented, possess excellent verbal communication and critical thinking skills, as well being caring and compassionate.”

Although the focus for most clients is on blood pressure reduction, the group takes a holistic approach to the clients’ health and makes recommendations for all pertinent medical conditions. Students from each discipline meet with clients to gather data and provide advice based on what they have learned in the classroom. Students have opportunities to shadow one another during these assessments. The students meet individually with their instructors to hone recommendations. Then, all students and instructors meet as a group on a monthly basis to share findings and discuss general approaches to improve the clients’ well-being, and students learn from one another’s contributions. These findings are then documented and shared with the clients, and clients are encouraged to share the results with their primary care physician or other health care providers.

HOW MY EXPERIENCE RELATED TO MY COURSEWORK

Several of my courses helped prepare me for my experiences with the Ismail Hypertension Program. Human anatomy was integral when learning to perform fitness assessments. For example, knowing where the subscapula and iliac crest are is critical when taking a skinfold measurement. My dietetics courses were heavily focused on science and chemistry. These courses helped me understand the pharmacy students as they explained how the clients’ medications worked. Content from my nutrition science courses was vital when working with hypertensive patients. For instance, in my medical nutrition therapy course, we studied the basis of hypertension,

Figure 1. The Ismail Hypertension Program team, including students and faculty mentors from pharmacy, nutrition science, and health and kinesiology.

obesity, and diabetes and which diets are appropriate for each of these conditions.

MY EXPERIENCE

My experiences with the Ismail Hypertension Program will help prepare me for my future career as a registered dietitian. I now have experience applying my classroom knowledge with real people. During the time of my involvement, there were two dietetics students, two health and kinesiology students (HK), and multiple pharmacy students in our interdisciplinary group.

Prior to my first meeting with a client to discuss nutrition, the HK students had performed initial measurements on the client, including weight, height, blood pressure, and skinfold measurements. Then, my dietetics peer and I set up biweekly meetings with the client. At our first meeting, we worked on building rapport and familiarizing ourselves with the client's eating habits. Based on the health data gathered by all of the students and the client's preferences, we set long-term weight or blood pressure goals. We would then assess usual food intake with a food frequency questionnaire and ask the client to fill out a three-day food log before the next meeting. Approximately two weeks later, we would ask the client to bring in their food log; we would initiate a discussion on the client's food intake based on this log. From the log results and client preferences, we would begin developing short-term goals. We aimed to make the goals small, specific, measurable, and achievable. For example, if the client drank Coke six days a week, we would initially ask the client to decrease his or her intake to five days a week. Upon the client meeting that goal, we would initiate a new achievable goal.

Figure 2. Ismail client Edward Mikhail and Tori Padgett, who is majoring in applied exercise and health.

By the third meeting, my dietetics peer and I would have entered the client's three-day food log into Food Processor—a diet analysis program. Food Processor calculates, totals, and averages all macro- and micro-nutrients consumed each day, and compares the value to the Dietary Reference Intakes set by the Institute of Medicine (National Institutes of Health, 2014). We would analyze this data and share what we found with the client. With hypertension program clients, we often saw above-average sodium intake. We would discuss this issue with the clients and teach them how to read food labels, recognize high-sodium foods, and choose low-sodium or sodium-free options. We asked clients to limit their sodium intake to 2,300 mg of sodium per day. We introduced the Dietary Approaches to Stopping Hypertension (DASH) diet to those interested in lowering sodium intake, and at times provided sample menus for the client to try.

The DASH diet is low in sodium and high in potassium and fiber, with an emphasis on fruits, vegetables, and low-fat dairy. Evidence shows that the DASH diet helps reduce blood pressure in hypertensive patients (National Heart, Blood, and Lung Institute, 2001). At the last few meetings, my peer and I would assess how well the clients were meeting their goals, and adjust or make new goals as necessary.

Over the year, I worked closely with four clients. My dietetics peer and I met with our professor and discussed our diet analysis; goals; problem, etiology, signs/symptoms (PES) statements; and dietary approaches to reducing the client's hypertension. Then, during the monthly interdisciplinary meetings with the HK and pharmacy students, we would take turns presenting findings on each client. Together we would discuss options or approaches to reduce hypertension, and address the clients' other health care needs.

WHAT I LEARNED

Although initially I was somewhat nervous to make recommendations to clients, I quickly realized that my education had prepared me to meet this challenge. I had the book knowledge, but this experience reinforced application of the material. For instance, I saw firsthand that hypertension is a multifaceted condition—it rarely exists in isolation with no additional conditions. All of the clients that my peer and I worked with were hypertensive and/or obese, and most had diabetes. It took careful consideration to prioritize the dietary needs of each client. For example, if a client had diabetes, one consideration was how to address the

best way to increase fiber intake while controlling the carbohydrate load.

I also learned that every patient is different. While many clients shared several of the same conditions, they each had unique characteristics, lifestyles, social environments, and personalities. Coursework alone cannot compare to working with clients one-on-one. In the classroom setting, we often discuss diseases and their treatments in isolation, and our training focuses primarily on assessing clients' nutritional needs. In real life, most clients have multiple conditions that impact one another, and there may be fewer appropriate treatment options than in the textbooks. I also learned that it is important to consider what each health care discipline brings to the table. For instance, there are often significant interactions between prescription and over-the-counter medications, vitamins and nutritional supplements, and the foods a person consumes. I would never have known this if I hadn't worked with the pharmacy students. It was also very informative when the HK students would describe the client's fitness level and how much and how often the client was exercising. They had data on weight, percent body fat, waist-to-hip ratio, body mass index, oxygen consumption, flexibility, muscular endurance, and muscular strength—valuable information when meal planning. I saw how the clients benefit from the expertise of an interdisciplinary team. All of the students agreed that we learned from each other, as did the faculty members.

After working at the Ismail Center, I better understand the real barriers that people with chronic conditions face on a daily basis. It is overwhelming to take in all the advice and recommendations made by various health care providers for even one condition. As a health care provider you must be empathetic, yet objective. I learned how important it is to try and place yourself in someone else's shoes. I am a patient person, but even I was frustrated at times when a client did not take my advice or had trouble meeting his or her goals. I learned that patience, not perfection, is what we truly need as health care professionals. Many of the Ismail Center members are elderly, retired Purdue faculty, and asking them to change habits and lifestyle is not easy or desirable for them. It is also very challenging to health care providers.

Evidence of client success is measured based on a reduced resting blood pressure, maintenance of optimal resting blood pressure, an increase in the client's overall fitness assessment score, or a decrease in the number

of antihypertensive drugs the patient uses. As dietetics students, we measured our success by the clients' receptiveness to our nutrition education, and watching them make small, positive changes. We all felt that we added value to the Ismail Center through our volunteerism and discipline-specific expertise. I'm not sure what, if any, long-term impact my efforts will have, but I hope that, through my contributions, clients were able to make improvements toward a long, healthy life. I also hope they recognized that I truly cared about their well-being and took pride in being trusted. This experience gave me great insights and prepared me to embark on the last phase of my education, where I will rotate monthly to different health care settings over the final year. I know I am more empathetic, am a better listener, have more knowledge and skills, and have a greater desire to make an impact in patients' lives—all due to this experience. I encourage all students to take advantage of opportunities to apply what they learn in school.

At the end of the year, our interdisciplinary group members completed a survey assessing our experience. Students were asked to rate their agreement with statements such as "I made positive contributions to the team in assisting the client achieve his/her goals"; "This experience aided in preparation for my career"; and "I have a better appreciation of how an interdisciplinary team approach can benefit a client." We also had discussions about how to better measure our clients' short- and long-term achievements and outcomes. The instructors in each discipline are working together to determine ways to best assess these small, positive improvements in the clients' well-being.

CHALLENGES

Looking back, I would have been more proactive in attending the meetings with clients of students in other disciplines to determine overlapping goals. For example, sometimes a pharmacy student might discover that a client's caffeine intake was unusually high, even though the client did not share this with us. Likewise, a client might only mention an important aspect of medication-taking or exercise to the dietetics student. We sometimes wondered if this was intentional. Further, in a perfect world, all of the students from each discipline would have seen the client prior to our group meetings. We tried to do this, but on several occasions my dietetics peer and I were unable to coordinate a meeting with a client, while students from other disciplines had already seen him or her. I noticed that clients were often eager to meet with pharmacy students to discuss meds, but not so excited to meet with people

who want to take away their desserts. I would have to say that our biggest challenge revolved around scheduling—sometimes clients just didn't show up. In my coursework we discussed how compliance is a common issue in the health and wellness field. I felt this firsthand. Another challenge was working within a short time frame. Oftentimes clients were unable to achieve their goals in the limited amount of time we had to work with them. The Academy of Nutrition and Dietetics says that meeting nutrition goals may take up to six months (Academy of Nutrition and Dietetics, 2014).

My advice to other students would be to practice counseling with friends and family prior to seeing clients in a real setting. There are great counseling tips available through Molly Kellogg's website. Molly Kellogg is a registered dietitian and psychotherapist who provides free counseling tips for other registered dietitians both online and through books and videos (Kellogg, n.d.). I recommend reviewing and practicing these tips. Overall, this program was a great opportunity to apply my knowledge and practice my skills. I am much more confident having participated in this experience.

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To my faculty mentors, Donna Zoss, Lane Yahiro, and Patti Darbshire, and to my fellow students on the hypertension team.

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