STATEMENTS

Wellness: Pharmacy Education's Role and Responsibility

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The root cause of most chronic diseases in America is self-inflicted through an unhealthy lifestyle including poor diet, insufficient exercise, inability to maintain a healthy weight, tobacco use, and excessive alcohol consumption. Americans' ability to adhere to healthy lifestyles appears to be declining.^{1,2} The pharmacy profession, while positioned to provide an answer to this problem, has done little. In addition, academic pharmacy's primary focus is on drugs and diseases with limited instruction in the area of wellness. It is time for pharmacy education to step up and take a leadership role in enhancing the wellness of Americans.

Keywords: wellness, obesity, curriculum development, disease prevention, population health

INTRODUCTION

Most adult and some pediatric chronic illnesses in America are self-inflicted. We neither eat the most appropriate foods nor do we consume them in the proper amounts. Most individuals lead a sedentary life with insufficient exercise. Tobacco use should be nonexistent and alcohol consumption should be curtailed in many individuals. If our eating habits and exercise patterns remain as they are now, obesity may become the number one actual cause of death for Americans. Whose responsibility is it to assist Americans in changing their lifestyles? Certainly all health professionals must be involved in promoting and facilitating change, but pharmacists, because of the strategic location of their practices within the community and ease of accessibility by patients, should be one of the primary change agents. In addition, schools and colleges of pharmacy should do a better job in preparing our graduates to accept this important public health challenge.

A CASE FOR WELLNESS

Michael Pollan stated in his book, *In Defense of Food*, that "it is easier, at least a lot more profitable, to change a disease of civilization into a lifestyle than it is to change the way that civilization eats."³ This disease of civilization is diabetes and it has been brought on by an epidemic of overweight and obese individuals in the United States. Approximately one-third of the American population is at ideal body weight (defined as body mass index or BMI

<25), with another one-third overweight (BMI >25<30), and the final one-third obese (BMI >30).⁴ This 1/3, 1/3, 1/3 phenomenon also applies to Americans' commitment to exercise; about one-third of the US population exercises faithfully, another third occasionally, and one-third exercise rarely.⁵ In general, we are a nation of individuals who overeat, eat the wrong foods, and exercise insufficiently. This lifestyle has contributed to a nation of people looking for a "quick fix" to healthy living with the easy solution often being a medication to produce a normalization of a biological indicator such as cholesterol, blood pressure, or serum glucose.

In addition to diabetes and hyperlipidemia, overweight, obese and under-exercised individuals also have an increased frequency of elevated blood pressure, premature cardiovascular disease and stroke, and an increased risk for numerous cancers.^{6,7} In men these cancers include esophageal, stomach, colorectal, liver, gallbladder, pancreatic, prostate, kidney, non-Hodgkin's lymphoma, multiple myeloma and leukemia. In women, they include uterine, cervical, ovarian, breast, colorectal, liver, gallbladder, kidney, non-Hodgkin's lymphoma and multiple myeloma. Obese and overweight individuals also have increased frequencies of developing pulmonary disease, osteoarthritis, sleep apnea, nonalcoholic fatty liver disease, and gallbladder disease; additionally women have a greater frequency of polycystic ovary syndrome, and men have a greater occurrence of premature testosterone decline with erectile dysfunction. These conditions also require numerous medications. It appears we have produced a nation of individuals taking billions of dollars of medications for self-induced conditions.

Although heart disease, malignant neoplasm, and cerebrovascular disease are the leading disorders producing death, the *actual* causes of death from these diseases are

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tobacco, poor diet/physical inactivity, and alcohol consumption.⁸ All 3 of these causes can be reduced by modification of personal lifestyle, ie, not smoking, eating properly and getting adequate exercise, and not drinking alcohol or at least limiting alcohol consumption to recommended moderate amounts. There is an overwhelming amount of scientific evidence supporting the value of daily exercise and a proper diet of whole grains, vegetables, and fruits for the prevention and treatment of major chronic diseases.⁹

Only a small portion of adults ages 40-73 years report adherence to 5 healthy lifestyle habits. These 5 healthy lifestyle habits are regular physical activity, not smoking, eating 5 servings of fruits and vegetables daily, moderate or no alcohol consumption, and maintaining a healthy weight. Approximately 70% of adults engage in regular physical activity and less than 25% consume at least 5 fruits and vegetables a day.¹⁰ The frequency of adults who adhere to all 5 lifestyle habits has decreased from 15% for the period of 1988-1994 to only 8% for the period 2001-2006.¹¹ Another study published in 2005 reported that only 3% of adults were compliant with 4 of these healthy habits.¹²

People have always been a product of what they eat and their level of physical activity. Our great grandparents primarily ate fruits, vegetables and whole grains. Most were eaten "in season" and beef and pork were usually eaten in greatest quantities in the winter months. In addition, most of our predecessors had significantly greater levels of physical activity than we do today. Americans now eat a disproportionate amount of less expensive, highly processed foods produced from a limited source of government price-subsidized, crops, primarily corn, wheat and soy.¹ We eat refined grains, hydrogenated oils, meats produced on corn-based feeds, plus added sugar and fats and then wonder why people gain weight and get sick. One in 4 Americans eats at least 1 meal a day at a "fast food" restaurant. The Western diet coupled with a lack of adequate exercise has produced a society with a greater frequency of common, chronic diseases compared to people eating more traditional whole food diets.¹³⁻¹⁵

Henry David Thoreau stated, "For every thousand thrashing at the leaves of evil, there is one striking at the root." For our purposes, this metaphorical evil is overweight/obesity, minimal exercise, and increased frequency of chronic disease. Thrashing at the leaves is our rush to treat the resulting medical disorders with medications, and hacking at the root is changing Americans' lifestyles to one where proper eating with sufficient exercise is commonplace. How do we reverse this negative cause and effect phenomenon and what is the role of the

pharmacist in producing this change? What should pharmacy education do to promote pharmacist intervention for healthier living?

A CASE FOR WELLNESS EDUCATION IN SCHOOLS AND COLLEGES OF PHARMACY

As a profession pharmacists and pharmacy education do a mediocre job at best of promoting and enhancing wellness to society. Limited, localized exceptions to this general statement can be found in the literature. Lenz et al from Creighton University School of Pharmacy and Allied Health Professions have published extensively on promoting lifestyle change to enhance wellness.¹⁶⁻¹⁹ In 2007, they reported from a survey of 89 schools and colleges of pharmacy in the United States that only 4 schools had a required, limited scope, lifestyle/wellness course with 3 of them being in nutrition and 1 in smoking cessation.²⁰ Seven respondents offered at least 1 elective course directed to the following topics: nutrition, smoking cessation, weight loss, and alcohol use. This survey indicated that only 4.5% of schools of pharmacy have a limited-focus, required course in wellness or lifestyle change and another 7.9% have at least 1 elective course. At the time of the survey, approximately 88% of schools and colleges of pharmacy did not have a required or elective course related to the aspect of wellness or lifestyle change. The above data may be misleading as wellness education may have been integrated into the pharmacy curriculum at these schools and colleges, such as in problem-based therapeutics courses, pharmacy practice laboratories, and other therapeutics courses. However, relatively few schools may offer a comprehensive, holistic curricular approach to teaching preventive medicine or wellness. Indeed further studies are needed for a more accurate determination.

A few isolated reports teaching lifestyle change as a means to prevent illness do appear in the pharmacy education literature. In the *My First Patient Program* at Butler University College of Pharmacy, first-year student pharmacists evaluate their own health status and prepare a lifestyle plan to change areas in their lives where their activity and diet is less than optimum.²¹ A similar program has been in place at the University of Kentucky for over 15 years where first-year students are taught the concepts of lifestyle change and how to prepare a personal wellness plan, and then have second and third year student pharmacists coach these students regarding making changes in their own lives.²² Lifestyle counseling has also been reported in advanced pharmacy practice experiences (APPE) at Duquesne University and Virginia Commonwealth University.^{23,24} However, the actual number of pharmacists who counsel patients on wellness

and lifestyle change appears minimal. The irony of this is compounded by the easy access and interaction a pharmacist has with patients on a daily basis, both through general (via displays, materials, etc) and personal encounters (via prescription services, counseling, etc).

The pharmacist's apparent lack of formalized wellness instruction produces a limited wellness knowledge base and may limit the pharmacist's ability to advise patients on lifestyle change. In addition, many patients may feel that lifestyle change is not important because a drug can make up for personal health transgressions. While the pharmacological treatment of illness is an important aspect of a pharmacist's education, it is safe to say that while necessary, this information alone is insufficient to address the epidemic of inappropriate lifestyles in America. Overall, the current pharmacy curriculum focuses primarily on illness rather than wellness.

This lack of attention and educational background in wellness and disease prevention also enables student pharmacists to marginalize any therapeutic emphasis on lifestyle change. We have seen students list the medical problems of an extremely overweight patient and neglect to list obesity as a problem. Often, obesity may be the patient's *primary* problem. If weight is identified as a problem and then addressed in the patient's management plan, the student pharmacist's note may simply state, "Recommend proper diet and exercise." This means that the wellness prescription may often be left to the discretion of the patient and at the next visit to the physician or pharmacist, a patient lifestyle change is unlikely to have occurred. Months go by, the patient continues to take expensive medications, and the primary problem—obesity caused by a poor diet and insufficient activity—remains unchecked. All this occurs at a tremendous cost to the \$2.2 trillion healthcare system.²⁵

Our ability to produce lifestyle change is further hindered when most insurance plans do not pay for weight loss and exercise programs or offer incentives for individuals who exercise, eat right and are at ideal body weight. Perhaps insurance programs should not pay for weight loss and exercise programs as this may be something patients should do on their own initiative. However an obese, metabolic syndrome patient with diabetes, hyperlipidemia, hypertension, congestive heart failure, osteoarthritis, GERD, and sleep disorders may have monthly medications costing upwards of \$1000 whereas the monthly cost of a once-weekly trainer and a multiple day exercise program at most health clubs averages around \$200 per month. While achieving ideal body weight on a proper diet with sufficient exercise may not eliminate all medications, it could greatly reduce them and, in addition, the patient would experience a higher

quality of life. Indeed, blood pressure, serum glucose and serum lipids might be normalized.

The minimal emphasis placed on wellness within the pharmacy profession is further established by a review of pharmacy journals. An informal analysis by the authors of 3 month's issues of 11 pharmacy journals demonstrated that, out of a total of 490 published articles, only 9 were related to some aspect of wellness or preventive medicine. During this 3-month period, for every 54 articles published in pharmacy journals only one (2%) dealt with wellness. The lead articles in the June 2009 issue of America's Pharmacist reported on pharmacists who are recognizing patient care and business opportunities in health promotion and wellness.^{26,27}

A CURRICULAR MODEL

What then should colleges and schools of pharmacy do to enhance the pharmacist's professional role for promoting wellness? Without injecting another course into an already over-stuffed curriculum, we suggest 4 steps that would produce a pronounced effect on wellness preparation for student pharmacists. With such a program, the culture of pharmacy might become more balanced between an emphasis on wellness and a focus on treating illness.

First, upon entrance into pharmacy school, all first-year student pharmacists should undergo a personal health assessment, including weight, diet, exercise and sleep patterns. Students should be assessed for vision acuity, bone density, blood pressure and blood glucose. During the first 2 weeks of school, students should receive instruction on achieving optimum health status including information on exercise, nutritional diets, physiology of weight loss and sleep patterns. Students should be asked to develop a personal health plan and then incorporate the plan into their daily routines until it becomes a habit. Faculty members should also participate in the program and would serve as encouraging mentors to 10-15 students. Like professionalism, faculty members should model the behavior they wish to see in the students. Grading might be pass/fail and based on the thoroughness of the assessment and management plan rather than on individual student success at achieving a more healthy lifestyle.

Second, during the first through third years, each student pharmacist should identify at least 3 patients with whom they will work to enhance each individual's healthy lifestyle. Each student should accept responsibility for achieving an optimum health status for his/her patients over the students' first 3 years of the curriculum. Patients could be enrolled from retail pharmacies, social agencies, churches, physicians' offices and other community sources. Community citizens would have an opportunity to

enroll in a high quality, free, lifestyle change program. Accepting responsibility for a patient lifestyle change would further enable the student to sense the personal commitment needed to accept responsibility for drug therapy outcomes. While the primary focus would be patient lifestyle optimization, an understanding of the responsibility component found within the concept of pharmaceutical care would be enhanced.

Third year student pharmacists, in groups of 5-10, should develop and implement a wellness project either on campus or within the community. Students should work in teams to design, implement and evaluate a wellness oriented project. These projects could take the shape of mini-health status fairs, poison prevention presentations at elementary schools, wellness presentations at community centers, brown bag analysis of individual patient's medications, exercise and proper eating seminars, six month weight loss program for 5-10 individuals, etc. An excellent example of a community project was recently demonstrated by the Ernest Mario School of Pharmacy at Rutgers's University, "Shape It Up" program.²⁸ Data could be collected and the potential impact on the community could be assessed.

During the fourth year, each student should assess the wellness status of at least 20 patients seen during their APPEs. Diet, exercise, weight, vital signs, laboratory tests, and patient medical records would be assessed to determine the health status of individual patients. Clinical pharmacy faculty would assess these health status assessments and resultant wellness plans.

Establishing a culture of wellness within a college of pharmacy will require a faculty member who could oversee the development and implementation of a 5-10 year plan. The plan would need to be compatible with the college's or school's philosophy, resources and commitment to the idea. Although such a plan would face numerous challenges, eg, faculty buy in and administrative support, within a few years, graduating pharmacists would be more effective at promoting wellness within their communities. The culture of pharmacy education would change.

CONCLUSION

The pattern of inappropriate lifestyles in America has been well documented. The healthcare community, while making small strides, seems to be stymied in their efforts to produce meaningful changes. The pharmacy profession is poised and well-positioned to assist in this effort and could do so if schools and colleges of pharmacy laid the foundation within their graduates of a solid education in wellness, disease prevention and lifestyle change. Faculty members on curriculum committees should inventory their wellness education efforts and where necessary im-

plement instructional programs that will prepare their graduates to provide wellness education. Pharmacists may then assume a more significant role in decreasing chronic disease in America.

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