



2009 Grant Proposal

Center for Women's Health Clinic

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Program Abstract

Osteoporosis is a major public health problem, especially in women. Each year in the United States, there are 1.5 million fractures attributable to osteoporosis including 329,000 hip fractures, one of the most disabling consequences of aging in women. Approximately 16% of non-Hispanic white women and 3-5% of Hispanic and African-American women will suffer a hip fracture during their lifetime. Estimates in European white women suggest that the one in six lifetime risk for hip fracture exceeds the one in nine lifetime risk for breast cancer. Worldwide, older adults are the fastest growing segment of population; even if age-adjusted hip fracture rates remain stable, the graying of society will result in an estimated worldwide rise in incidence of hip fractures from 1.7 million in 1990 to 6.3 million in 2050. Of those women who suffer a hip fracture, 5-12% will die within the year following their fracture. In addition to the costs to the individual from fractures, this disease poses a major economic burden on our society. In response to this growing epidemic, The Healthy People 2010 (<http://healthypeople.gov/> publications) objectives established a national target to reduce the proportion of adults who have osteoporosis and the risk for fracture during the current decade.

To successfully reduce the impact of osteoporosis, it is necessary to identify the populations at risk for fracture where treatments can be cost-effectively targeted. Increased susceptibility to fracture reflects the interplay of factors that affect bone strength and trauma. Because bone mineral density as assessed by dual energy x-ray absorptiometry (DXA) is conveniently measured and a correlate of bone strength, it has long been used as a proxy for bone strength in evaluating fracture risk and treatment effects on bone health. Decreases in bone density are inversely correlated with an increased gradient of risk of fracture. Prospective studies in women indicate that the risk of fracture doubles with each standard deviation drop in bone mineral density (BMD). Because the pathogenesis of osteoporosis and susceptibility to fracture is multifactorial, risk stratification of women must also identify clinical risk factors and biomarkers that contribute to fracture risk, over and above that reflected by BMD alone. Combining the effects of risk factors with BMD into predictive models reduces the potential problem of interpreting these factors independent of each other. Application of such models has the potential to more sensitively identify individuals at the greatest risk for fracture so these women can make informed choices about instituting preventive strategies or initiating treatment.

One of the core programs of the new OSU Center for Women's Health (CWH) clinic will focus on osteoporosis and metabolic bone disease in women. By applying the best in risk factor assessments through validated screening tools such as the Women's Health Initiative (WHI) fracture calculator or the World Health Organization Fracture Risk Assessment Tool (FRAX), nutrition and physical activity assessment and measurement of bone mineral density by DXA, the CWH will be able to provide women with a personalized plan for osteoporosis management.

Project Narrative

Over the past two decades, women's health has become recognized as an important public health issue requiring the development of a distinct clinical discipline. The definition of women's health has evolved beyond reproductive health issues to a focus on all health concerns experienced by women across their lifespan. It encompasses an awareness of the interaction between the psychosocial, physiologic and environmental context of women's lives. Women's health programs must identify health care disparities between women and men and incorporate a focus on reducing chronic health conditions in women. With these concepts in mind, the Ohio State University Center for Women's Health was established in 2007 through philanthropic support with a mission to "meet the unique health and wellness needs of women through innovative research, education, and patient care."

A main goal of the center is to "enhance, develop, and integrate the infrastructure to support improved clinical care for women at all stages of their lives." In the Summer of 2009, the CWH will open an innovative clinic for women at the new Gowdy Fields building on Olentangy River Road. The clinic will enhance access to care through efforts to foster multidisciplinary interactions and the development of new clinical teams and programs to address pressing health and wellness issues for women. The coordinated care model will reflect an integrated, holistic approach to treating women that is evidence and prevention-based. Programs that are currently being developed at the clinic include women's health primary care, heart health, endocrinology, urogynecology, nutrition, and mental health. Building upon OSUMC's commitment to personalized health care, the Center for Women's Health will embody personalized, predictive, preventive and participatory health care by providing state-of-the-art information and health assessments that will empower women and their health care providers with the information necessary to make informed health care and lifestyle choices.

No where is the need for a multidisciplinary approach greater than in determining and initiating an appropriate treatment strategy for osteoporosis. Approaches towards maintaining skeletal health combined with programmatic initiatives that enhance the early detection and treatment of osteoporosis have been identified as one of the key program components of several of the Center's clinical programs including endocrinology, internal medicine, gynecology, and orthopedic-rheumatology services as well as nutrition, physical therapy and exercise physiology. An important aspect of this emphasis on skeletal health is to identify clinical risk factors for increased risk for fracture combined with the assessment of bone mineral density and selected biomarkers to better understand each individual's risk for osteoporosis. The diversity of risk factors associated with fracture risk that must be assessed suggests that there is a complex interplay between genetic (e.g. parental history of hip fracture), skeletal (personal history to fracture and bone mineral density), trauma and environmental factors (such as weight, cigarette smoking, physical activity and

co-morbid conditions) contributing to fracture risk. To appropriately determine the best prescription for nutrition, exercise and when appropriate, pharmacologic intervention, each of these interdependent aspects of bone health must be completely assessed and interpreted in respect to the overall health history.

The Center for Women’s Health will be incorporating personalized health screenings such as FRAX or the WHI osteoporosis calculator for osteoporosis, Framingham cardiology risk score and Gail risk scores for breast cancer risk to begin to define a women’s overall blueprint for health. Access to judicious laboratory testing including BMD testing by DXA is also a critical component for success. Current funding for the clinic, however, is limited to operations and does not support the purchase of capital equipment. Funding from Women and Philanthropy would allow for the purchase of a new DXA machine that is critical to provide women with one stop access to a diagnostic procedure that is necessary, if we are to create a comprehensive bone health program. For the CWH to effectively develop and study the most effective ways to create a woman-centered model of personalized health, the necessary equipment and expertise must be co-located so that the information may be used together to generate a health plan and then give women the tools to successfully adopt recommendations that will reduce health risk.

The DXA will also facilitate the educational mission of the Center by serving as a resource to teach women and health care providers about the utility and the limitations of diagnostic strategies for assessing fracture risk. It is our commitment to utilize the Center for hands on training of other professionals who care for women in new techniques and strategies for reducing common diseases in women such as osteoporosis. The knowledge gained from the DXA will also contribute further to our understanding of the best way to care for women at all stages of their life. It is our goal that through sharing of best practices developed in the Center with other health providers, the CWH will improve the quality of care in women’s health throughout our community.

Budget

Support for purchase of GE Lunar Prodigy Advance DXA\$69,000