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INQUIRY

OFFICE OF VICE PRESIDENT FOR RESEARCH

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OVPR MISSION

THE OFFICE OF THE VICE PRESIDENT FOR RESEARCH EXISTS TO SUPPORT THE EXTERNAL FUNDING INITIATIVES OF WMU FACULTY, STUDENTS, AND STAFF; TO ASSURE COMPLIANCE WITH ALL APPROPRIATE FEDERAL AND STATE REGULATIONS; AND TO ADVANCE THE OVERALL RESEARCH AGENDA OF THE UNIVERSITY.

WWW.WMICH.EDU/RESEARCH

OBESITY MAJOR HEALTH PROBLEM OF OUR GENERATION

According to the National Institute for Health (NIH), obesity has reached epidemic levels. The healthcare costs alone associated with obesity promise to be staggering; factor in health related risks associated with obesity and the reduced life expectancy that accompanies carrying extra body weight, it comes as no surprise that researchers from all academic areas are focusing on obesity.

At WMU, related research in this health area includes looking at the relationship of childhood obesity as a risk factor for adult obesity and diabetes and at the role of obesity in adolescents. Just to highlight some of that research, we can examine the efforts of a multidisciplinary team at WMU and the work of doctoral student Barbara Cliff in the Interdisciplinary Health Studies Program.

A multidisciplinary team from WMU has worked in partnership with local collaborators in the Commonwealth of the Northern Mariana Islands (CNMI) since 2002 in order to address childhood obesity in a systematic and culturally appropriate manner.

According to lead investigator Dr. Mozhdeh Bruss: "The goal has been to identify, within the scope of a partnership project, effective strategies to halt the increase in the prevalence of overweight among children in different ethnic populations. The project utilizes an ecological

approach to engage individuals, families, and society as a whole in the prevention of childhood obesity. The project focuses on increasing primary caregivers' understanding of the issues that surround weight normalcy, diet, and physical activity using a sociocultural, psychosocial, and familial framework. The project engages children and their primary caregivers in cognitive and skill-building educational activities to promote healthier lifestyles. It also studies elements of a more supportive environment within the wider community to more effectively support the prevention of childhood obesity."

WMU researchers involved in this multidisciplinary team include Dr. Mozhdeh Bruss, associate professor of nutrition in FCS; Dr. Linda Dannison, professor and chair in FCS; Dr. Joseph Morris, professor of psychology in Counselor Education; Dr. Timothy Michael, associate professor of exercise science in HPER; Dr. Andrea Smith, professor of early childhood education; Dr. Brooks Applegate, professor of evaluation, measurement, and research; Dr. Mark Orbe, professor of communication; and Ms. Judy McGowan, faculty instructor in teacher education in FCS.

Barbara Cliff began her research into childhood obesity and related issues when she was doing a study in



WMU Research Team with CNMI Collaborators cardiac health promotion and cardiac disease prevention and was struck by the relationship between obesity and heart disease, diabetes and other life-altering chronic diseases.

"According to the CDC," says Cliff, "overweight children have a 70-80% chance of becoming obese adults; so I believe it is imperative to study weight issues in children and adolescents as one strategy of addressing the epidemic."

Cliff believes that obesity, as a critical public health issue in the United States, must be addressed through education, diet, and physical activity. But whichever tact utilized, it begins with youth prior to adulthood.

The recipient of the 2006 Pisaneschi Prize research paper, Cliff presented her research, "The Association Between Body Mass Index and Waist Circumference in Adolescents," in Atlanta at the U.S. Center for Disease Control's 12th Annual Maternal and Child Health Epidemiology Conference this past December.

RECRUITMENT AND RETENTION PARAMOUNT AT WMU

In today's challenging economy, higher education is not immune to the realities of the marketplace. Those who administer educational institutions recognize the importance to recruit and retain students who will successfully complete their course of study. Since his appointment as interim president of WMU, Dr. Diether Haenicke has anchored WMU's focus on student retention and recruitment. The challenge is to understand the dynamics of what makes for a successful undergraduate educational experience. To the degree that faculty can share their efforts to strengthen the faculty/student bond, WMU will benefit.

Dr. Susan Stapleton, from the Chemistry Department at WMU, along with Dr. John Geiser, Department of Biological Sciences, has submitted a grant proposal that examines undergraduate research, mentoring, and development at WMU. The proposal builds on Western's long tradition of commitment to undergraduate studies; Stapleton and Geiser propose to develop an undergraduate research and mentoring program (URM) in Biological Sciences.

The components of the URM involve nurturing undergraduate students early in their academic years in the life sciences. The degree to which students are developed academically, nurtured and mentored, and engaged early on in research and professional development, will determine their success at staying the course and even pursuing graduate coursework.

This model of mentoring, research, and development can be examined for fit into other areas of study beyond life sciences. This is the challenge for the broader WMU faculty: to recruit students with real promises to experience hands on research while being mentored and professionally developed by their faculty leaders.

According to Stapleton, research tells us that it is not merely enough to give students hands-on engagement. The real key is to get involved

with the students on many different levels. This means to target students as freshmen, younger than what traditionally has been the model, and to target transfer students.

Stapleton's proposal seeks to work with these transitional students by connecting them to faculty and faculty research interests; to engage them in peer mentoring relationships with other undergraduates, graduates, or lab assistants; and to shepherd them to the point of independence.

The proposal being submitted to the NSF partners with four community colleges to ensure that the transfer students receive the mentoring and development they need to be successful at WMU; those colleges include, Kellogg's Community College, KVCC, Lake Michigan Community College, and Jackson Community College.

"Faculty need to understand who the students are today. We have a protected group of students who, for the most part, are transitioning academically to college while adjusting to new social, academic, and parental changes," says Stapleton. Through all these changes, Stapleton envisions the URM program as the venue by which to shepherd students in the life sciences; these students come into the college experience dependent on faculty. The goal is to mentor and develop them to the point where they are independent. That is, faculty lead the students through the discovery process to the stage of independence.

Stapleton's motivation in writing this proposal is rooted in her love of students. She wants to help them to be successful here at WMU; because, she says, "if they are successful here, then they will be successful elsewhere."

She goes on to add, she talks in the community about science and the role it plays in our lives. We need to understand nutrition, medicine, and what it means to have a power plant leak; being an informed citizen includes understanding science and its implications in the everyday events of our lives.

The proposal builds on Stapleton's other efforts through the NSF, the Research experience for Undergraduates, which is



Dr. Susan Stapleton

a summer program at WMU operated jointly for the past eight summers by Chemistry and Biological Sciences. The ten week summer program is open to anyone across the country to come to WMU to work with faculty and to research. "This is an opportunity for students to engage in research," says Stapleton.

Other programs that Stapleton is involved with include the Lewis Stokes Alliance for Minority Participation (LSAMP) and the Alliance for Graduate Education in the Professoriate (AGEP). With LSAMP and AGEP, WMU is in partnership with the University of Michigan, Michigan State, and Wayne State University.

LSAMP works to recruit underrepresented students. The focus of AGEP specifically is to move undergraduates into graduate studies. Unlike these programs, the URM proposal in life sciences that Stapleton has been invited to submit to the NSF, focuses on transitional students here at WMU.

Mentored herself, Stapleton knows the benefits of interactions with a good science teacher. "I had a great high school science teacher and a good experience in college," says Stapleton. "That can be the key to success."

Additional benefits from the URM proposal include the one-on-one daily contact students have with faculty in the labs. "It is a natural opportunity to converse with students," observes Stapleton. "We see them daily in the labs and, from that interaction, we get to know them quite well."

RESEARCH MISCONDUCT POLICY AND PROCEDURES APPROVED

Research is the foundation of academe, and the quality of an institution's research reputation directly correlates with its ability to secure sources of external funding. With the increased importance placed on grants as a means to support academic inquiry, oversight of research conduct is paramount.

In December 2006, the Board of Trustees approved a revised policy for WMU that delineates the research protocol for faculty, students, trainees, and individuals involved in research at WMU. Specifically, the policy defines misconduct as:

"... fabrication, falsification, plagiarism, or other practices that seriously deviate from those commonly accepted within the academic community for proposing, performing, reviewing or in reporting research results. Research misconduct is to be distinguished from honest error and differences of interpretation

(93.103, 42 CFR Part 93).

"It is vital that WMU faculty and students understand what characterizes research misconduct and to understand the inherent danger to both the university and to individual reputation when misconduct occurs," says Dr. Leonard Ginsberg, interim vice president for research.

"With the passage of the revised misconduct policy and procedures, WMU commits to educate and advocate for integrity in the research enterprise while simultaneously outlining the penalties to any involved in the research process called into question."

Faculty members who work closely with students on research projects are called to educate students on the importance of research protocol and the ethics of the research process. Education is the key to ward off accusations and instances of misconduct.

Conversely, students engaged in research with faculty need to know that, regardless of the

power relationship, it is in their best interest to report any suspicions of misconduct. After all, a charge of misconduct extends to all parties involved in the project. And, a charge of research misconduct has the potential, depending on the investigative outcome of the misconduct charge, to follow an individual researcher wherever he or she goes in the academic community. Where misconduct is found, the persons involved will be disciplined, up to and including discharge or expulsion.

Using the Misconduct Policy as a Teaching Tool

Given the nature of graduate and undergraduate education, whereby focus is placed on teaching and mentoring students in the research process, a natural extension of the research tools includes educating students on the ethics of conduct.

As faculty and researchers engage students on issues of

ethics and research protocol, they integrate students into the academic realm of scholarly endeavor. We also ensure that students know they will be supported to step forward with ethical concerns.

The Research Ethics Resource Center offers guidance and resources associated with the gray areas encountered in the research process, from design implementation to publication. Funded by the OVPR, the RERC is a forum for exploring how the principles of responsible conduct in research can be put into practice.

In addition to its brown bag luncheon series, the RERC is exploring partnering with faculty on mentorship projects and teaching a component of research methods and ethics.

Links to the RERC can be found at www.wmich.edu/research/ethics. Copies of the misconduct policy are available online or as booklets; contact the OVPR.

OBESITY HEALTH PROBLEM

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In her research, Cliff used data from the continuous National Health and Nutrition Examination Survey (NHANES) for the years 1999-2004. The sample included 6780 adolescents in the United States, aged 12-19. Weighted data were analyzed to determine the association between BMI and WC as continuous and categorical measures and to determine the concordance between these two measures.

"The prevalence of overweight in children and adolescents continues to climb," notes Cliff.

"According to NHANES, the prevalence of overweight status tripled in children and adolescents aged 6 to 19 years between 1980 and 2002. The good news is there appears to be heightened sensitivity and attention on the topic of childhood and adolescent weight status."

"The unique challenges we face today with our youth in trying to orient them to live a healthier lifestyle are complex and multi-faceted. Children are exposed to so much mass media that offers 'biggie' sizes and fast food with empty calories," says Cliff. It is a known fact that "today's youth are more sedentary as well." To counteract these effects, children should be learning about better nutrition and healthy activity in the home environment.

As for the relationship between childhood obesity, overweight, and diseases like diabetes, the literature speaks loudly. "Overweight adolescents are identified as being at high risk for cardiovascular disease, type 2 diabetes, high blood pressure, elevated cholesterol levels and weight-related psychosocial consequences," notes Cliff. "They also have a greater prevalence of becoming obese adults and a greater risk of mortality in middle age."

GRANT SUBMISSIONS

The University appreciates the work of all researchers and creative faculty who submit grant submissions and, while every proposal submission may not be funded, we nonetheless need to recognize the efforts of grant writing. What follows is a sampling of some of the grant proposals submitted in the past few months:

- Al-Fuqaha, Ala I. Computer Science. "Reactive Call Home Expert System," \$86,000, Cisco Systems.
- Butterfield, James M. Political Science. "The State and Civil Society in the Arab Middle East," \$41,311, U.S. Department of Education.
- Carlson, Sharon L. University Libraries. "Southwest Michigan Lighthouse Logs, Lore, and Lens Digitization," \$72,733, State of Michigan.
- Farrell, Patricia L. The Evaluation Center. "Examining Access and Retention of Underrepresented Students in Agriculture and Natural Resources Programs," \$20,000, American Educational Research Association.
- Hazel, Debra L. Occupational Therapy. "Exploring the Feasibility, Efficacy, and Consumer Choice When Using Technology in Place of Personal Assistance," \$556,706, U.S. Department of Education.
- Lee, Dongil. Chemistry. "Nanoparticle Assemblies for Solar to Chemical Energy Conversion," \$522,527, National Science Foundation.
- Leja, James A. Blindness and Low Vision Studies. "Enhancing Educational Services for Children with Disabilities in Armenia," \$30,114, Armenian Education Foundation.
- Straight, Bilinda. Anthropology. "Landscape and Social Memory in Northern Kenya: Investigating Archaeological and Indigenous Understandings of Time and Place," \$203,153, National Science Foundation.

GRANTS AWARDED

The following is a sampling of some of the recent grant recipients.

- Bensley, Robert J. Health, Physical Education and Recreation. www.wichealth.org: Washington State Expansion 2005-2006, \$6,000, Washington State Department of Education.
- Flamme, Gregory A. Speech Pathology and Audiology. "Human Data on Seeing and Hearing Abilities (Experimental Data Collection)," \$8,000, National Institute of Advanced Industrial Science and Technology.
- Huffman, David. Chemistry. "Characterization of Disease-Causing Mutation G591D in Wilson Protein," \$30,000, Wilson Disease Association International.
- Jenness, Mark. Mallinson Institute for Science Studies. "Evaluation Technical Assistance for Great Lakes Fishery Trust-Based Education Initiative Planning Phase," \$30,000, Great Lakes Fishery Trust.
- Kujawski, Daniel. Mechanical and Aeronautical Engineering. "Analytical Methods to Develop Fatigue Prediction Model for Service Loads," \$120,000, Office of Naval Research.
- Patten, John A. Manufacturing Engineering. "Laser Ablation: Diamond Turning Hybrid Process for Brittle Material Machining," \$60,000, Mound Laser and Photonics Center, Inc.
- Ritchie, Liesel A. The Evaluation Center. "Phase 2 of the Confidential Close Call Reporting System for the Federal Railroad Administration," \$35,019, New Vectors, LLC.
- Washington, Earlie M. School of Social Work. "MSW Child Welfare Specialty (Master of Social Work)," \$17,640, Michigan Department of Human Services.

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OVPR Research Officer Constituent Areas

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Graduate College

Paula Johnson-Roberts:
Contracts

Walter Worthy: Internal
Programs

GRANT WRITING CAFÉ

Gina Betcher and Mary Anne Sydlik, OVPR grant developers, designed a new interactive workshop to assist faculty with proposal ideas, grant writing, and funding search assistance. The café concept, that began in March as a pilot project, will meet weekly for six weeks. Betcher and Sydlik will be on site to offer ideas, suggestions, and experience to assist faculty new to grant writing. The idea is to finish the workshop with a draft of a viable grant proposal. Faculty can then finish their proposals in time for a full proposal application submission.

After this initial café, Betcher and Sydlik expect to incorporate participant feedback prior to offering a new series. Interested faculty and staff are invited to inquire into the grant writing café by contacting the Office of Research and Sponsored Programs, 387-8204.