

## **TecHealth**

Technology Center to Promote Healthy Lifestyles

FY 2013-2014 Annual Report

Delia Smith West, PhD

### **Timeline**

Dr. West joined the faculty on August 16, 2013, in temporary offices in the Public Health Research Center on Assembly Street in Columbia. She was successful in transferring with her extramurally funded grants. The National Institute of Diabetes and Digestive Disorders and Kidney Diseases funded "Internet Assisted Obesity Treatment Enhanced by Motivational Interviewing" [RO1 DK056746-09A1] for which she is Principal Investigator (in tandem with Dr. Jean Harvey at University of Vermont) which has approximately 18 months remaining and will bring a total of about \$655,303 to the USC system over that period, employing staff and a postdoctoral fellow. In addition, she was able to transfer "Behavioral Consultant to the Look AHEAD 2-Year Competing Continuation," a subcontract with the Coordinating Center at Wake Forest University for this NIDDK-funded multi-center clinical trial which is now entering the 12<sup>th</sup> year of funding as part of this continuation. Dr. West has been Co-Chairing the Weight Loss Lifestyle Intervention Subcommittee for over a decade now. This subcontract brought \$35,592 to the USC system.

Postdoctoral scholars to begin their fellowship under the supervision of Dr. West in the late summer of 2014 were identified and recruited. Sandra Coulon is a clinical psychology doctoral student from University of South Carolina who is currently completing her internship at MUSC. She is anticipated to join the Technology Center to Promote Healthy Lifestyles (TecHealth) as a postdoctoral scholar upon completion of her internship and defense of her dissertations entitled "A bioecological approach to understanding the interaction of environmental stress and genetic susceptibility in influencing physiologic processes and blood pressure in underserved African American adults." Courtney Monroe is also anticipated to join TecHealth in the late summer after she defends her dissertation entitled "A randomized controlled trial of an Internet-based physical activity promotion intervention using Blackboard" at the University of Tennessee Knoxville and receives her doctoral degree in kinesiology.

Dr. West moved into the permanent office space for TecHealth at the end of 2013 and with the additional office space was able to hire a Coordinator for the Center, Ms. Karen Magradey, in the early spring 2014. The Center is located in the Discovery Building on Greene St. in Columbia.

An extramural grant application was submitted to Center for Disease Control and Prevention with dual Principal Investigators, Dr. West and Dr. Stacy Fritz. The grant is entitled "Reaching Adults with Mobility Impairment Using Online Weight Control." Dr. Fritz is the director of the physical therapy program at the Arnold School at USC and therefore makes an ideal multi-disciplinary collaborator with Dr. West, who is a behavioral scientist with expertise in behavioral obesity treatment, for this intervention study targeting individuals with mobility limitations, a large (and growing) population with high health care costs and challenges accessing lifestyle interventions, using a tailored internet-delivered obesity

treatment program. The application is pending and we have been told that it is among the final three that are still under consideration for funding. Final funding decisions will be made in September 2014.

Dr. West also submitted a competing continuation of her current NIH RO1 in collaboration with University of Vermont. This 5-year application entitled “Internet Assisted Obesity Treatment Enhanced by Financial Incentives” examines the impact of an economic incentive strategy on weight loss outcomes in the context of an online weight control program that the investigators have demonstrated to be effective. It includes a cost effectiveness analysis that will be the first available data on the comparative efficacy of using financial incentives for long-term weight management. The grant will be reviewed in the late fall and funding decisions will be made in the spring 2015.

A fast-track Small Business Innovation Research application was submitted with Dr. West as co-investigator. This application, “Developing the Dietary Inflammatory Index for Clinical Application,” will enable the Dietary Inflammatory Index, which has been used successfully as a research tool, to be refined for use in clinical settings. Health care providers will be able to counsel patients to improve their diets to reduce chronic inflammation, which lies at the center of the unfolding public health crises involving a host of chronic diseases. The application is pending with Dr. James Hebert as PI.

Collaborations between the Center for Technology to Enhance Healthful Lifestyles and the USC Center for Aging were established and a pilot study to examine the health status of caretakers of individuals with Alzheimer’s disease has been initiated. The study will provide data on the health behaviors, physical activity and obesity status among caretakers which will inform the development of a tailored intervention that uses technology to reach this population and improve their health so that they can remain active caretakers. It is expected that the pilot data will be collected in the upcoming year and an application submitted during that time as well.

### **Collaborators**

Greenville Health System – facilitated by Ronnie Horner, PhD, Dr. West met with Dr. Sinopoli and Dr. Youkey about collaborations to examine technology-assisted weight management strategies within the Greenville system. Discussion continues with an anticipated project to begin in the next fiscal year.

### **USC Columbia Collaborators:**

Gabrielle Turner-McGrievy, PhD - Assistant Professor in HPEB, is collaborating with the TechHealth Center and Dr. West. They are drafting a protocol for pilot study to examine healthy weight management approaches tailored for young adults in college using technology-enabled scales and Facebook.

Sue Levkoff – Dr. West participated in workshop series on Gerotechnology and discussed collaborations between the two SmartState centers

### **Professional Presentations**

West, DS (2013, Dec). Counseling Strategies to Encourage Behavior Change in Weight Loss. Academy of Nutrition and Dietetics Level 2 Certificate of Training in Adult Weight Management Program, Austin, TX.

Gerotechnology Workshop series (March 2014) Internet Delivered Behavioral Weight Control: A Series of RCTs.

West, DS (2014, April) Lessons learned from the Look AHEAD study about patient engagement in weight management. Clinical Care Coordination Institute Symposium, Columbia, SC

### **Summary of Graduate Education and Training**

#### **Undergraduate and graduate students affected by center activities:**

- 1 Master's practicum student
- 2 graduate students-training in survey delivery

### **Significant Research Publications**

West, Delia S., PhD-16

### **Text of two professional publication abstracts from FY 2013-14**

1. Krukowski RA, Harvey-Berino J, Bursac Z, Ashikaga T, **West D.** Patterns of Success: Online Self-Monitoring in a Web-based Behavioral Weight Control Program. (2013). Health Psychology, 32,164-70.

#### **Abstract**

##### **OBJECTIVES:**

Online weight control technologies could reduce barriers to treatment, including increased ease and convenience of self-monitoring. Self-monitoring consistently predicts outcomes in behavioral weight loss programs; however, little is known about patterns of self-monitoring associated with success.

##### **METHOD:**

The current study examines 161 participants (92% women; 31% African American; mean body mass index =  $35.7 \pm 5.7$ ) randomized to a 6-month online behavioral weight control program that offered weekly group "chat" sessions and online self-monitoring. Self-monitoring log-ins were continuously monitored electronically during treatment and examined in association with weight change and demographics. Weekend and weekday log-ins were examined separately and length of periods of continuous self-monitoring were examined.

##### **RESULTS:**

We found that 91% of participants logged in to the self-monitoring webpage at least once. Over 6 months, these participants monitored on an average of 28% of weekdays and 17% of weekend days, with most log-ins earlier in the program. Women were less likely to log-in, and there were trends for greater self-monitoring by older participants. Race, education, and marital status were not significant predictors of self-monitoring. Both weekday and weekend log-ins were significant independent predictors of weight loss. Patterns of consistent self-monitoring emerged early for participants who went on to achieve greater than a 5% weight loss.

##### **CONCLUSIONS:**

Patterns of online self-monitoring were strongly associated with weight loss outcomes. These results suggest a specific focus on consistent self-monitoring early in a behavioral weight control program might be beneficial for achieving clinically significant weight losses.

2. Wing RR, Bolin P, Brancati FL, Bray GA, Clark JM, Coday M, Crow RS, Curtis JM, Egan CM, Espeland MA, Evans M, Foreyt JP, Ghazarian S, Gregg EW, Harrison B, Hazuda HP, Hill JO, Horton ES, Hubbard VS, Jakicic JM, Jeffery RW, Johnson KC, Kahn SE, Kitabchi AE, Knowler WC, Lewis CE, Maschak-Carey BJ, Montez MG, Murillo A, Nathan DM, Patricio J, Peters A, Pi-Sunyer X, Pownall H, Reboussin D, Regensteiner JG, Rickman AD, Ryan DH, Safford M, Wadden TA, Wagenknecht LE, **West DS**, Williamson DF, Yanovski SZ for The Look AHEAD Research Group. Effect of Intensive Lifestyle on Cardiovascular Morbidity and Mortality in Type 2 Diabetes: Results of the Look AHEAD Controlled Trial. (2013) New England Journal of Medicine, 369,145-54.

### **Abstract**

#### **Background**

Weight loss is recommended for overweight or obese patients with type 2 diabetes on the basis of short-term studies, but long-term effects on cardiovascular disease remain unknown. We examined whether an intensive lifestyle intervention for weight loss would decrease cardiovascular morbidity and mortality among such patients.

#### **Methods**

In 16 study centers in the United States, we randomly assigned 5145 overweight or obese patients with type 2 diabetes to participate in an intensive lifestyle intervention that promoted weight loss through decreased caloric intake and increased physical activity (intervention group) or to receive diabetes support and education (control group). The primary outcome was a composite of death from cardiovascular causes, nonfatal myocardial infarction, nonfatal stroke, or hospitalization for angina during a maximum follow-up of 13.5 years.

#### **Results**

The trial was stopped early on the basis of a futility analysis when the median follow-up was 9.6 years. Weight loss was greater in the intervention group than in the control group throughout the study (8.6% vs. 0.7% at 1 year; 6.0% vs. 3.5% at study end). The intensive lifestyle intervention also produced greater reductions in glycated hemoglobin and greater initial improvements in fitness and all cardiovascular risk factors, except for low-density-lipoprotein cholesterol levels. The primary outcome occurred in 403 patients in the intervention group and in 418 in the control group (1.83 and 1.92 events per 100 person-years, respectively; hazard ratio in the intervention group, 0.95; 95% confidence interval, 0.83 to 1.09; P=0.51).

#### **Conclusions**

An intensive lifestyle intervention focusing on weight loss did not reduce the rate of cardiovascular events in overweight or obese adults with type 2 diabetes.