East Carolina University

Exploration & Discovery

News and Notes from the Division of Research and Graduate Studies

October 2008 Volume IV, Issue 2

Research and Graduate Studies News

Dr. Kris Kirschbaum Brings Communication Training to Medical Residents

Dr. Kris Kirschbaum's road to East Carolina University is slightly off the beaten path; however her career in the healthcare industry helped guide her here. Kirschbaum began her career as an employee in the Medical Student Records within the Student Affairs Office at the University of New Mexico, where she then was promoted to the Program Coordinator for Assessments of Medical Students. Realizing that many medical students were failing the communication portion of their assessments she enrolled herself in a graduate level communication course at UNM, in hopes of bringing skills learned back to the medical students. "I initially thought I could take one course, know it all and bring everything I learned back to the medical students." Quickly realizing this was not the case, Kirschbaum enrolled fulltime in the University of New Mexico's masters program and subsequently their doctorate program.

Highly sought after due to her ongoing research and ensuing training programs, she chose ECU in part because of the newly designed master's program in health communication, as well as the opportunities she could potentially have to expand her research and training programs within the Brody School of Medicine.

Kirschbaum's research dives into an area of study that not many communication scholars have been. Most communication researchers tend to focus healthcare research on patient-provider communication and interaction, but far too little research has been done studying communication between doctors. Her research takes the Face Negotiation Theory, typically used in the context of separate distinct cultures, and applies it to the health field, distinguishing health and medicine as a culture of their own. This research has stemmed a successful training program, developed by Kirschbaum, to improve communication between doctors, specifically anesthesiologists and surgeons.

Although a new professor at ECU and having

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Reversal of Diabetes In Sight with a Procedure Similar to Gastric Bypass

Obesity and diabetes are topics that can be found daily in almost any news source. The connection between the two is irrefutable and the relevance and importance of studying the two is undeniable. ECU associate professor and researcher Dr. Tim Gavin has taken on the topic of obesity and diabetes and is taking his research where few have gone.

Gavin, along with the Human Performance Lab, has joined with Drs. John Pender, Lynis Dohm and Walter Pories, to study the implications of the treatment of diabetes by duodenal-jejunal bypass or bypass of the small intestine. Inspired by the pioneering gastric bypass research by Pories, Gavin began centering his research interest on the mechanisms of diabetes reversal following bariatric surgery.

Beginning in the summer of 2007, Gavin began investigating permanent reversal of diabetes. Obese individuals with diabetes, who lose weight naturally, see a significant reduction in their diabetes symptoms, but once they are weight stable their diabetes tends to return. In gastric bypass surgery, a significant portion of the stomach is bypassed, as is some of the small intestine. Following this bypass, skeletal muscle becomes insulin sensitive and patients often see a rapid reversal in their diabetic symptoms, as well as significant weight loss, on average 100 pounds. Although there is an 80 to 90 percent initial diabetes reversal rate in these bypass patients, the long term reversal of patient's diabetes is unknown.

Gavin's diabetes treatment research specifically shows that diabetes is eliminated through the duodenal-jejunal bypass. However, now the research team wants to know if bypassing the duodenum and proximal jejunum without any weight loss or food restriction can successfully reverse diabetes. The team is also hopeful to find if this reversal in diabetes is due to skeletal muscle insulin sensitivity, liver insulin sensitivity, and pancreatic insulin secretion.

Currently, testing is being done on animals, specifically on rats that have poor regulation of blood sugar and a genetic defect that causes constant overeating, which in turn causes

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Research and Graduate Studies News

RENCI at ECU's ROVER Heads Out-Big Time

by Miriam Wildeman

At ECU, a newly spiffed up and staffed RENCI ROVER is fulfilling its potential on all fronts: educational, research, and emergency response. Thanks to the work and expertise of staff and faculty at the RENCI Engagement Center at ECU Center for Coastal Systems Informatics and Modeling (RENCI/C-SIM), the ROVER has a busy travel schedule this fall.

With the addition of Outreach Coordinator Michelle Covi to its staff, RENCI at ECU is sending the newly outfitted ROVER on educational missions throughout eastern North Carolina. Covi has extensive experience in science education at the kindergarten through university levels and beyond to the community at large. She comes to ECU from Normal, Illinois, where she taught college biology and directed a nonprofit organization, using state, private, and local grants to develop outreach programs on ecological awareness for schools and businesses.

In eastern North Carolina, she will be bringing the ROVER to schools and community events, offering presentations on hurricane awareness, weather and climate change, coastal habitat preservation, and water quality. She has already obtained a mobile weather station for the ROVER and arranged a full slate of engagements at schools in Pitt, Johnston, and Beaufort Counties extending throughout the fall and into 2009.

Because Covi knows firsthand the importance of supplemental science education—field trips from her native Baltimore to nearby woods and marshes sparked her own fascination with coastal ecosystems—she is excited to bring "virtual field trips" to a new generation of schoolchildren.

The ROVER now boasts custom interior furnishings including desk space and seating, lighting, and built-in equipment storage. Its more sophisticated equipment includes a server loaded with GIS and other software, an array of laptops, a generator, and a comprehensive radio system with two antennas capable of receiving and broadcasting at all frequencies.

The radio operates on either electrical or battery power so that it can broadcast under emergency conditions from almost any location. Paul Fletcher, Associate Professor at the Brody School of Medicine and an experienced amateur radio operator, serves as RENCI at ECU's radio resource person. Fletcher has for many years participated in emergency response with others in the amateur radio community.

Through her work on hazard communication, Outreach Director Donna Kain has made connections with emergency managers across eastern North Carolina, and plans are underway to make the ROVER an integral part of the network of emergency response vehicles in the event of a hurricane or other coastal catastrophe.

For more information about RENCI at ECU's school outreach program and a schedule of upcoming events, visit www.ecu.edu/renci/outreach or contact Michelle Covi @ 252-737-1773.

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Please contact us with your comments and story ideas.

Rover Appearances for November

Hope Middle School
November 20
8th Grade Weather Program
Time TBA

Wahl-Coates Elementary
November 4
2nd Grade Weather Program

8:30 am

Research and Graduate Studies News

Elimination of Gene Could Lead to More Effective Pox Vaccines

Seemingly isolated on the massive mainland of the United States, many Americans naively fail to realize and understand the sizeable effect epidemics could potentially pose. However, ECU researcher and assistant professor in the Department of Microbiology and Immunology at the Brody School of Medicine, Dr. Rachel Roper, realizes this effect and is studying how to eradicate potentially fatal epidemics, specifically monkeypox, through poxvirus vaccinations. Monkeypox, a zoonotic viral disease spread through frequent contact with animals by blood or bite, is now currently spreading through Africa at a rate eerily analogous to that of smallpox.

In 2007, Roper was awarded $72,497 by the North Carolina Biotechnology Center's of Biotechnology Research to help continue exploring her initiative for terminating the spread of monkeypox. Monkeypox is the lesser known, but nearly as fatal cousin of smallpox. Smallpox was successfully eliminated in 1980; however, the elimination of the smallpox virus and subsequently the smallpox vaccine could have potentially caused monkeypox to come into fruition. With no smallpox vaccine our increased immunity to monkeypox no longer exists. Dr. Roper's research has shown that the removal of a specific gene, A35R, which inhibits immune responses in mammals, could potentially make pox vaccines safer and more effective. The elimination of this gene could also potentially kill other viruses, specifically coronaviruses, of which includes Severe Acute Respiratory Syndrome or SARS.

3rd Annual Research & Creative Achievement Week

"Students Revealing the World"

March 30- April 3, 2009
East Carolina University
Mendenhall Student Center

Students are invited to present their work in the following categories: biomedical sciences, business, education, technology, fine and performing arts, human health, humanities, natural sciences, social sciences, and others depending on the submission. Presentations will be judged by selected faculy and monetary awards will be provided by sponsors. Graduate and undergraduate coordinators are encouraged to solicit student participation in this event.

Triangle Census Research Data Center (TCRDC)

Duke University, the U.S. Census Bureau, and the UNC System have partnered to form the Triangle Census Research Data Center. This is the only research data center in the southeast that allows member institutions access to the unpublished micro data from the Census Bureau's economic and demographic information via a laboratory on the Duke University campus. Three data sets are available: economic data, demographic data, and health data. In order to participate the TCRDC reguires the approval of a proposal by the U.S. Census Bureau. If you are interested in utilizing this data center for your research please contact: Gale A. Boyd, Executive Director, Duke University, (919) 660-6892, gale.boyd@duke.edu or Kirk White, Administrator, Duke University, (919) 660-6893, tkw2@econ.duke.edu. Please visit:
www.ces.census.gov/index.php/ces/researchguidelines to view the proposal process.

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relocated to Greenville, Kirschbaum travels to New Mexico once a week, for one night, in partnership with the attending physicians at the medical school, to conduct a training program for the medical residents. The training program Kirschbaum developed is a seven-week course that merges two separate departments: anesthesiology and surgery and works with them to improve interactions and communication. Typically, the training sessions begin on Tuesday afternoon at one o'clock with four participating residents, two anesthesiologists and two surgeons. They first take a pretest about their attitudes toward face negotiation theory and then Kirschbaum and the attending physicians provide two scenarios for the residents to act out in a simulation center. In the simulation center, the residents essentially operate on a life size mannequin that the attending physicians can manipulate from the control room. In the control room Kirschbaum watches the simulations on a television screen and analyzes their performances. After the first simulation in the training session, which is based on a rhetorical approach to communication, she provides the residents tips to enhance their communication and then they participate in the second simulation, where they can apply what they learned. At the end of this training session a post-test is given to the residents and Kirschbaum looks to see if their attitudes towards face negotiation have changed. The attending physicians then debrief the residents on how they clinically performed. The simulation interactions are also filmed, which Kirschbaum and her team will use to code for communication competence and rhetorical examples. This allows the research to be a multi-method approach: quantitative and qualitative. This training serves a two-fold purpose; to keep track of resident's progress and to strengthen their progress by enhancing their communication skills.

Currently Kirschbaum's research grant is through the University of New Mexico, however she is in the process of applying for a multi-institutional grant that would allow her to expand her study and training to other medical schools. The team at the University of New Mexico has applied for a national grant for this project as well.

For Kris Kirschbaum the road from New Mexico to Greenville, North Carolina is long; however, the 2,000 miles traveled will hopefully expand her research and benefit the medical community at large.

Gavin (continued from page 1)

obesity. The duodenal-jejunal bypass in these rats show that the muscles become more insulin sensitive, therefore a better job is done in metabolizing the glucose in the blood.

When asked about which procedure would be more beneficial to the patient, gastric bypass or duodenal-jejunal bypass, Gavin was quick to point out that each patient is unique, which makes it is difficult to say which would be more beneficial. He also noted that there are a significant number of diabetic patients who are not obese; therefore gastric bypass would not be an option for them.

Gavin hopes that along with the bypass solution to diabetes, the development of pharmacological agents, in response to understanding the mechanisms of reversal, could potentially be developed for patients.

Initially, Gavin received an internal Research Development Award from the Division of Research and Graduate Studies. He is now in the process of applying for National Institute of Health funding, proposing to conduct studies in humans, but has yet to receive approval or funding.

Science and Technology Development Program Available Grants

Oliver Smithies Faculty Recruitment Grant (FRG): Recruitment of outstanding faculty who will significantly impact an academic institution's overall biotechnology research initiative/ Funding: up to $250,000/ Deadline: any time after position has formally been advertised

Biotechnology Event Sponsorship (BES): Supports North Carolina- based events that promote information sharing and personal interaction focused on biotechnology research, education, or business/ Funding: up to $3,000/ Deadline: at least 45 days prior to planned event,