The mission of the General Clinical Research Center (GCRC) is to provide resources and support that enable investigators to conduct high-quality clinical research. Services such as body composition testing, database development, and cell therapy-based testing are available for a wide range of studies being conducted by researchers across the AHC. The GCRC also has professional staff, including nurses and research dieticians trained in clinical research protocols.

Two successful investigators who use GCRC resources for their NIH-funded projects are Julia Steinberger, M.D., M.S., and Scott Baker, M.D., M.S., who have received K23 and subsequent R01 awards. The GCRC has been integral to their investigations into the prevention of heart disease and long-term effects of childhood cancer, respectively.

(Continued on page 2)
“We conduct all our procedures, including body composition measurements, CT scans, and insulin clamps, at the GCRC,” says Steinberger, associate professor in the Department of Pediatrics Division of Cardiology. Steinberger’s current R01 study examines risk factors in children who survive cancer at least five years. At the GCRC, her study participants are able to have all their testing done in one place, over the course of two days.

Convenience for study participants and investigators is a major benefit of using the GCRC, says Baker, associate professor in the Department of Pediatrics Division of Hematology-Oncology and Blood and Marrow Transplantation. He appreciates the scheduling resources available for his R01 study, which examines the late effects of pediatric bone marrow transplant on survivors. “The expertise provided at the GCRC facilitates research,” says Baker, adding that the staff know how to conduct certain procedures, such as insulin clamps, which would not be feasible in regular clinics.

Steinberger and Baker have also found the GCRC to be flexible as their K23 studies turned into larger R01 studies. “A major part of our mission is to support investigators as their careers develop,” says GCRC director Elizabeth Seaquist, M.D. “It’s particularly gratifying to see investigators receive GCRC support early in their careers and use it to build independent research programs that successfully compete on a national basis for ongoing funding.”

In 2007, the GCRC will be renovated to meet the needs of investigators and study participants more optimally. Says Seaquist: “In particular, we intend to make the space in Masonic friendlier to pediatric participants, add a waiting room, and redesign rooms to serve a range of purposes.”

EGMS Update: The Office of the Vice President for Research (OVPR) is disappointed to report that the EGMS System to System to Grants.gov feature will not be ready for the February 5 NIH R01 Research Project grants proposal deadline as expected because OIT was unable to meet the completion deadline. Staff from eResearch Systems will continue to test the system; however, it will not be opened to full production until they are confident it is ready. For updates, go to: www.ospa.umn.edu.
Mention patient-oriented clinical research, and veterinary medicine may not necessarily come to mind. But veterinary researchers are conducting varied and important work with direct implications for improving human health. At the University’s College of Veterinary Medicine, animals are helping investigators fight a range of diseases in innovative ways.

One area is the use of spontaneous animal models, in which a particular disease occurs naturally in an animal. Studying the disease and treatment using spontaneous animal models—say, cats with diabetes—can provide important clues for that disease in humans, says Timothy O’Brien, D.V.M., Ph.D., professor of veterinary population medicine. Indeed, by examining feline diabetes mellitus, O’Brien is making advances in understanding the human form of type 2 diabetes.

“The common form of spontaneous diabetes mellitus in domestic cats bears close resemblance clinically and pathologically to human type 2 diabetes mellitus,” says O’Brien. “For example, the typical cat with diabetes is obese and middle-aged, and has low but detectable circulating insulin levels.” Even more striking, he says, is the occurrence of islet amyloidosis (IA) in those with this disease—nearly all cats and more than 90 percent of humans. IA is derived from islet amyloid polypeptide or IAPP, a hormone that is produced and secreted along with insulin by the pancreatic beta cells. (IAPP was discovered by University investigators O’Brien, Kenneth Johnson, and David Hayden). In addition to the formation of lesions, which appear to be toxic, IA is also associated with the loss of beta cells. What triggers these reactions, leading to diabetes, is unknown.

“By examining cats as a spontaneous animal model, we hope to discover the possible causes for type 2 diabetes in humans,” says O’Brien. Understanding the causes may lead to prevention and new treatments, such as drug targets, he adds. There also may be links to other diseases, such as Alzheimer’s. For instance, says O’Brien, the lesions formed by IA are similar to plaques found in the brains of those with Alzheimer’s.

In the meantime, O’Brien continues to investigate the biochemical mechanisms of these lesions so that clinical and translational researchers can develop better ways to treat diabetes in humans.
Ensuring that stroke patients receive the latest and most effective treatment is the research goal of CAPS scholar and assistant professor of neurology Kamakshi Lakshminarayan, M.D., Ph.D. Her multidisciplinary research focuses on understanding the aspects of stroke care that contribute to improved patient outcomes and developing models for improving the quality of acute stroke care in healthcare facilities.

Her research in this area began when she was a resident at Hennepin County Medical Center. Using a stroke database maintained by HCMC, Lakshminarayan conducted two studies examining diagnoses and care of stroke patients. The first looked at myocardial injury and its implications for stroke outcomes. Her second project led to an optimal vascular imaging protocol for ischemic stroke, adopted by HCMC as standard protocol.

She continued her research during a two-year clinical research training fellowship at the University. By examining data from two large population-based datasets—the Project for the Improvement of Stroke Care Management in Minnesota and the Minnesota Stroke Survey—she discovered that results from clinical trials were failing to make their way into practice. “By quantifying the evidence-practice gap, I wanted to provide useful feedback to hospitals on how to improve care,” she says.

Her current research will examine determinants of adherence and non-adherence to evidence-based guidelines, leading to interventions to improve delivery of evidence-based care. The factors involved are complex, and as such, Lakshminarayan uses a multidisciplinary approach involving neurology, epidemiology, health services, and biostatistics.

As a CAPS scholar, Lakshminarayan is allocated 75 percent protected time for research. She works closely with her research mentors: Russell Luepker, M.D., professor, Division of Epidemiology, School of Public Health; David Anderson, M.D., professor, Department of Neurology, Medical School; Beth Virnig, Ph.D., associate professor, Division of Health Services Research and Policy, School of Public Health; and David Jacobs, Ph.D., professor, Division of Epidemiology, School of Public Health.

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