NEUROPSYCHIATRIC RESEARCH INSTITUTE

2015-2016 Annual Report
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State of Incorporation: North Dakota
Date of Incorporation: May 27, 1955
Duration of Charter: Perpetual
Dear Friends of NRI,

NRI is a dynamic and successful clinical research center which relies on close collaborative relationships with several institutional partners in our region. This has never been more true than now. Great opportunities exist to enhance clinical research in North Dakota if we can find innovative strategies to integrate relevant institutional partners into the work of NRI. This idea rests on a few observations. First, NRI is comprised of an outstanding group of scientists and clinical research staff. As an example, when the National Institutes of Health recently called for grant applications to conduct innovative studies of bariatric surgery, NRI successfully received two separate grant awards. Moreover, only two awards were awarded across the United States! NRI is clearly competitive with major academic research centers across the country in terms of our ability to conduct high level clinical research. Second, the UND School of Medicine and Health Sciences, NDSU, Sanford Research and the University of North Dakota, all employ a large number of talented scientists and faculty members who conduct research that is fully consistent with the objectives of NRI. Each of these institutions has a somewhat different set of areas of excellence which, if more fully integrated, could clearly elevate clinical research across the state and make us even more competitive at a national level. Finally, the work that NRI is currently doing could not be successful without our collaboration with Sanford Health. Our connections to Dr. Luis Garcia, Chair of Bariatric Surgery at Sanford, and Cyndy Skorick, Executive Director of the Sanford Eating Disorder and Weight Management Center, are essential to our recruitment of research participants and ability to conduct our research. As with our university colleagues, continuing to find creative ways to enhance our collaboration with Sanford Health is essential to the health of NRI.

Although we are based in a relatively rural state and do not have a large population base, I believe we are in a unique position to develop outstanding clinical research in North Dakota. This opportunity becomes more of a reality when we enhance collaboration among clinicians, scientists, administrators, and policy makers in our region.

Best regards,

Steve Wonderlich
Officers & Directors

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Luis Garcia, M.D., M.B.A.
Kathryn Gordon, Ph.D.
Leah Irish, Ph.D.
Susan Raatz, Ph.D. M.P.H, R.D.

Postdoctoral Fellows
Tyler Mason, Ph.D.
Molly Orcutt, D.O.
Kathryn Smith, Ph.D.
Ross D. Crosby, Ph.D.
Vice President for Research/Director of Biomedical Statistics

Ross D. Crosby, Ph.D., is the Vice President for Research and Director of Biomedical Statistics at the Neuropsychiatric Research Institute and a Professor in the Department of Psychiatry and Behavioral Science at the University of North Dakota School of Medicine and Health Sciences. Dr. Crosby’s major research interests include the use of ecological momentary assessment to study eating disorders and obesity. Dr. Crosby is the Associate Editor for the Journal of Eating Disorders and serves on the editorial board for the International Journal of Eating Disorders. Dr. Crosby has coauthored more than 450 peer-reviewed publications.

Scott Engel, Ph.D.
Director of Behavioral Research

Scott Engel, Ph.D., is a Research Scientist at the Neuropsychiatric Research Institute. He also is an Assistant Professor at the University of North Dakota School of Medicine and Health Sciences. Dr. Engel received his doctoral degree from North Dakota State University in 2003 and worked at the Neuropsychiatric Research Institute as a post-doctoral fellow from 2003-2004. Dr. Engel’s primary research areas are in eating disorders, obesity, and bariatric surgery. He is particularly interested in the roles of cognitive and emotional variables in disordered eating and obesity. Much of Dr. Engel’s research involves the application of novel, technology-based methodologies to assess and intervene with these groups of patients. Dr. Engel has also used these assessment methodologies to examine the development of alcohol use disorders in post-bariatric surgery patients.

Luis Garcia, M.D., M.B.A.
Adjunct Research Scientist

Dr. Garcia is a General, Advanced Laparoscopic, and Bariatric Surgeon for Sanford Health. He is the Chair of Bariatric Surgery and Medical Director of the Weight Loss Surgery Center of Excellence. He is a Clinical Associate Professor of Surgery for the University of North Dakota, School of Medicine and Health Sciences. Dr. Garcia completed medical school at LaSalle University in Mexico City, his residency in general surgery at the University of North Dakota, and a mini-fellowship in bariatric surgery at the University of Pittsburgh Medical Center. He has a Healthcare M.B.A. from the University of St Thomas Opus College of Business. Dr. Garcia is an Adjunct Research Scientist for NRI with special interest in bariatric surgery research and surgical outcomes.
Kathryn Gordon, Ph.D.
Adjunct Research Scientist

Kathryn Gordon, Ph.D., is an Adjunct Research Scientist at the Neuropsychiatric Research Institute and an Associate Professor at the North Dakota State University Department of Psychology. Dr. Gordon received her doctoral degree in Clinical Psychology from Florida State University in 2008. Her research focuses on eating disorders among traditionally understudied groups (e.g., ethnic minority women), interpersonal and emotional processes related to suicidal behavior, and the occurrence of suicidal behavior in individuals with eating disorders.

Leah A. Irish, Ph.D.
Adjunct Research Scientist

Dr. Irish is an Adjunct Research Scientist at the Neuropsychiatric Research Institute and Assistant Professor of Psychology at North Dakota State University. She received her Ph.D. in Health Psychology from Kent State University in 2011 and completed a postdoctoral fellowship at the University of Pittsburgh School of Medicine. Her research considers the complex interplay between waking health behaviors (e.g., dietary intake, physical activity, substance use) and sleep and the implications for health and illness. Dr. Irish also studies sleep health disparities among American Indian communities, surgery research and surgical outcomes.

Susan Raatz, Ph.D., M.P.H., R.D.
Adjunct Research Scientist

Susan Raatz, Ph.D., MPH, RD is an Adjunct Research Scientist at the Neuropsychiatric Research Institute and a Research Nutritionist at the USDA Human Nutrition Center, Grand Forks, ND. Dr Raatz received her doctoral degree in Human and Clinical Nutrition from the University of Minnesota in 1996. Her research focuses on dietary modification of obesity and related chronic diseases, energy balance regulation, and the impact of foods and meals on satiety.

Tyler Mason, Ph.D.
Postdoctoral Fellow

Tyler Mason, Ph.D., is a T32 Postdoctoral Research Fellow at the Neuropsychiatric Research Institute. He received his Ph.D. in Applied Psychological Science in 2015 and B.S. in Psychology in 2010 from Old Dominion University. He is interested in advanced statistical modeling of longitudinal and ecological momentary assessment data. His primary research interests include etiology and treatment of binge eating and obesity.
Jason M. Lavender, Ph.D.
Research Scientist

Dr. Lavender is a Research Scientist at the Neuropsychiatric Research Institute. He completed his undergraduate education at Duke University, where he graduated with a B.S. in psychology in 2005. Following completion of his clinical internship at the University of Mississippi Medical Center, he received his Ph.D. in clinical psychology from the University at Albany, State University of New York in 2011. He subsequently completed a T32 postdoctoral fellowship in eating disorders research at the Neuropsychiatric Research Institute from 2011-2014. His main research interests include the role of emotion dysregulation and neurocognitive processes in eating disorders, dimensional approaches to studying psychopathology, and functional neuroimaging approaches to examining neurobiological functioning in eating disorders.

James E. Mitchell, M.D.
Research Scientist

Chester Fritz Distinguished University Professor at the University of North Dakota School of Medicine and Health Sciences. Dr. Mitchell completed his undergraduate education at Indiana University and medical school at Northwestern University. Following an internship in Internal Medicine, he completed his Residency in Psychiatry and a Fellowship in Consultation/Liaison Psychiatry at the University of Minnesota. Dr. Mitchell has focused his research on the areas of eating disorders, obesity, and bariatric surgery. He is a Past-President of the Academy for Eating Disorders and a Past-President of the Eating Disorders Research Society. Dr. Mitchell is on the editorial boards of the International Journal of Eating Disorders and Surgery for Obesity and Related Diseases, where he is also an Associate Editor. Dr. Mitchell has been an author on more than 600 articles in the scientific literature and has authored or edited 18 books.

James L. Roerig, Pharm.D., BCPP
Research Scientist

Dr. Roerig currently holds the position of Professor in the Department of Psychiatry and Behavioral Sciences at the University of North Dakota School of Medicine and Health Sciences. In addition he is the Director Undergraduate Medical Education in Psychiatry & Psychiatry Clerkship and the Assistant Director Psychiatry Residency Program. He holds the position of Research Scientist at the Neuropsychiatric Research Institute located in Fargo, ND. Dr. Roerig is a Clinical Professor in the College of Pharmacy at North Dakota State University. Dr. Roerig is Board Certified in Psychiatric Pharmacy (BCPP) by the Board of Pharmaceutical Specialties. He currently teaches psychopharmacology for the psychiatry residents and also participates in neuroscience, research design, and evidence based learning courses. His research focus is psychopharmacology, drug interactions, and eating disorders as well as psychotropic pharmacokinetic changes associated with bariatric surgery. His clinical practice involves the clozapine clinic at Southeast Human Service Center in Fargo.
Stephen A. Wonderlich, Ph.D.
President

Stephen Wonderlich, Ph.D., is the Chester Fritz Distinguished University Professor and Associate Chairperson in the Department of Clinical Neuroscience at the University of North Dakota School of Medicine & Health Sciences. He graduated from Concordia College (Moorhead, MN) in 1978 and received his Ph.D. in Clinical Psychology from the University of Missouri in 1985. Dr. Wonderlich completed his Internship and Fellowship at the University of Wisconsin. He is Co-director of the Sanford Eating Disorder and Weight Management Center and Chair of the Eating Disorders Department at Sanford Health. Dr. Wonderlich publishes widely in clinical and scientific journals and currently sits on the editorial board for the International Journal of Eating Disorders, the Journal of Abnormal Psychology, and Behavior Research and Therapy. Dr. Wonderlich is a Past-President of the Academy for Eating Disorders and has served on the Eating Disorder Workgroup for the DSM-5 Task Force.

Kathryn Smith, Ph.D.
Postdoctoral Fellow

Kathryn Smith, Ph.D., is a T32 Postdoctoral Research Fellow at the Neuropsychiatric Research Institute. She received her B.A. in Psychology in 2008 from Macalester College, and her Ph.D. in Clinical Psychology in 2014 from Kent State University. She completed her predoctoral internship in the eating disorders and self-injury track at Alexian Brothers Behavioral Health Hospital, after which she completed postdoctoral fellowships in the eating disorders program at Rogers Memorial Hospital (2014-2015) and at the Center for the Treatment for Eating Disorders at Children’s Hospitals and Clinics of Minnesota (2015-2016). She is interested in the assessment and treatment of eating disorders, including the use of ecological momentary assessment methods. Her primary interests include emotion regulation and co-occurring psychopathology in eating disorders and obesity.

Kristine Steffen, Pharm.D., Ph.D.
Director of Biomedical Research

Kristine Steffen, Pharm.D., Ph.D., is an Associate Professor in the Department of Pharmaceutical Sciences in the College of Pharmacy, Nursing, and Allied Sciences at North Dakota State University (NDSU). She is also the Director of Biomedical Research and a Research Scientist at the Neuropsychiatric Research Institute (NRI) where she is involved in research on bariatric surgery and obesity. The majority of her research is focused on characterization of the pharmacokinetic changes of medications and alcohol following bariatric surgery. She is also interested in obesity pharmacotherapy and problematic alcohol use following bariatric surgery. Dr. Steffen received her Doctor of Pharmacy and Doctor of Philosophy degrees from NDSU and completed a postdoctoral fellowship at NRI.
Bariatric Surgery

Alcohol-Related Impairment and Reinforcement After Gastric Bypass Surgery:
This study is being run at NRI and NDSU. Data from this project will help us to understand the changes in impairment, specifically related to cognitive and driving performance, experienced by bariatric surgery patients who consume alcohol. This study will also help us to understand how the reinforcing value of alcohol changes from before to after surgery. Studying these topics will help future bariatric surgery patients anticipate how the effects of alcohol will change from pre- to post-surgery and the proposed study will help researchers and clinicians better explain possible mechanisms for an increased risk for alcohol use disorders in this group.

Post-Surgical Predictors of Depression and Weight Regain after Bariatric Surgery:
This study is being run at NRI and Stanford University. Although most people do quite well after bariatric surgery, a significant minority of patients have a variety of problems. This study will take a longitudinal approach to examining mechanisms of weight regain and depression following bariatric surgery. The study will recruit 150 participants across both sites over the next five years.

Mechanisms that Predict Weight Trajectory after Bariatric Surgery: The Interactive Roles of Behavior and Biology:
This study is being run at NDSU, NRI, and Cleveland Clinic. This project will help us to understand the role that the gut microbiome and various behavioral factors play in determining weight trajectory following bariatric surgery. This study will be a prospective, longitudinal examination of factors that may predict weight outcomes and 144 participants will be recruited over five years across both recruitment sites.

Mechanisms Responsible for Weight Loss and Regain Following Roux-en-Y Gastric Bypass: A Translational Study Focused on the Gut Microbiome:
This study is being run at NRI and NDSU. This study involves a clinical human component and a related animal (mouse) study. Data from this study will help to elucidate the mechanistic role that the gut microbiome plays in weight regain following bariatric surgery.

The Effect of Nutrient Intake and Probiotic Administration on Weight and Glucoregulation Following Bariatric Surgery: A Combined Human and Murine Approach:
This study is being run at NRI and NDSU. This study involves a clinical human component and a related animal (mouse) study. Data from this study will help to elucidate the mechanistic role that the gut microbiome plays in obesity and diabetes, and will help to clarify the interrelationships between specific peptide hormones (VIP) and the gut microbiome.
Longitudinal Assessment of Bariatric Surgery:
This project, now in its 13th year, is a multi-center study involving the University of Pittsburgh, Eastern Carolina University, Oregon Health & Science University, The University of Washington, Columbia University, and Cornell University, as well as NRI, to study the longitudinal course of patients undergoing bariatric surgery. The project has several components: LABS-1 is a study designed to look at predictors of unfavorable outcome in the short term such as death or the need for re-hospitalization. The sample for this study has now been collected (N = 5,200). A second part, LABS-2, concerns a prospective cohort study examining the longitudinal effects of bariatric surgery over time (N = 2400). These individuals have all been followed now for five to eight years. This project is now wrapping up and will terminate in June 2016.

Hormonal Abnormalities and Sexual Dysfunction in Bariatric Surgery Patients:
This is a multi-center study involving NRI, the University of Pennsylvania and the University of Pittsburgh which examines sexual dysfunction and various hormonal abnormalities in patients who are candidates for bariatric surgery and subsequently at follow-up visits after the surgery. This project is completed and the results are being published.

Psychosocial Issues and Bariatric Surgery:
This is a multi-center study involving NRI, the University of Pittsburgh, Columbia University and Cornell University. This study examines psychosocial issues prior to surgery and periodically following surgery including rates of psychopathology, eating pathology, quality of life and role functioning. This study will continue until 2018.

Teen LABS:
This is a multicenter study that is examining the long-term outcomes of 240 adolescents who underwent bariatric surgery. The project is in its eighth year, and will continue until 2021.

Teen LABS Psychosocial:
This is a multicenter ancillary study to Teen LABS, examining psychosocial issues including alcohol use/abuse and depression in a subset of 90 individuals in the Teen LABS sample. This study will continue until 2019.
Eating Disorders and Obesity Studies

Integrative Cognitive-Affective Therapy for Binge Eating Disorder:
This is a multi-site treatment development grant (R34) awarded to NRI and the University of Minnesota to support the development a new treatment for binge eating disorder. This treatment is an outgrowth of the recently completed trial at NRI for bulimia nervosa, but focuses on binge eating disorder specifically. Binge eating disorder was recently added to the DSM-5 as a new eating disorder diagnosis and continues to be considered a significant risk factor for obesity and various forms of psychiatric disturbance.

Ecological Momentary Assessment:
Over the last 15 years, NRI has been a leader in the utilization of ecological momentary assessment (EMA) to study eating disorders. EMA involves carrying handheld computers in the natural environment to gather data. Three federal grants have been funded which allowed the study of EMA in eating disorders at NRI and we have employed the methodology to a variety of other areas, including past studies investigating bariatric surgery patients. Recently we developed a new system for conducting EMA research called Real-time Assessment in the Natural Environment (ReTAINE). The ReTAINE system allows us to collect data via smartphones. There are many benefits to using smartphones for EMA data, but employing the participants’ own smartphone to collect data is particularly convenient for the participant given that most already carry the device with them. We are currently using the ReTAINE system in a federally funded grant project at NRI, have contracted work with several other U.S. universities and institutions, and are collaborating with colleagues at several international locations (e.g., Portugal, Germany). We plan to increase these international collaborations using the ReTAINE system.

Post-Doctoral Training in Eating Disorders, Obesity, and Bariatric Surgery:
With a grant from the National Institute of Mental Health, NRI continues to be one of three sites (along with the University of Minnesota and the University of Chicago) to fund post-doctoral research fellows who study eating disorders, obesity, and bariatric surgery. Currently, there are two post-doctoral fellows at NRI and two additional fellows at each of the other two sites. Fellows not only conduct their own research at NRI, but also assist NRI scientists in scientific studies.

Habit and Eating Disorders-Collaboration with Columbia University:
NRI has been collaborating with clinical researchers at Columbia University to test a new theory of anorexia nervosa. Presently a pilot study is being developed in Fargo to facilitate this collaboration, which has already produced a new approach to the treatment of anorexia nervosa that is being pilot tested in New York. Funds for this pilot phase were provided by the Davis Foundation.

Post-traumatic Stress Disorder and Eating Disorders-Collaboration with the University of Toronto.
NRI has been involved in a series of studies at the University of Toronto and Toronto General Hospital. These studies focus on the fact that about 40% of eating disordered individuals display significant levels of post-traumatic stress disorder. Many of these patients have very complicated responses to treatment and new approaches are needed. The studies involve very careful assessments of how post-traumatic stress may influence an individual’s eating disorder behavior. Also, we have recently completed a pilot study at Toronto General Hospital in which a small number of patients were treated with a novel approach which integrates post-traumatic stress disorder treatment and eating disorder treatment. The results are promising and future studies are likely.
Technology Based Enhancement of Integrative Cognitive-Affective Therapy

Through a grant from the National Eating Disorder Association, Drexel University in Philadelphia has been working with scientists at NRI to develop a machine based learning, computer application to enhance eating disorder treatment. The app can be utilized on smart phones and interacts with participants on a regular basis to gain a clear understanding of their day-to-day circumstances. The app is also able to detect when individuals are at risk of engaging in problematic behaviors and can signal the participant. Importantly, the app is based on Integrative Cognitive-Affective Therapy, which is a new treatment developed at NRI and the University of Minnesota. This new technology may provide an interesting enhancement to traditional eating disorder treatments.

Pharmacology/Pharmacokinetics

Pharmacokinetics of Lisdexamfetamine (Vyvanse®) in Post-bariatric Surgery Patients:
This study is designed to examine the pharmacokinetics of lisdexamfetamine in patients who have undergone gastric bypass surgery. This study will recruit 10 patients who have undergone gastric bypass in the past ~1 year as well as 10 nonsurgical controls.

Child/Adolescent Traumatic Stress

Treatment Collaborative for Traumatized Youth:
The Treatment Collaborative for Traumatized Youth (TCTY) is a network of mental health clinicians whose mission is to raise the standard of care and increase access to mental health services for traumatized children. The TCTY consists of more than 300 mental health clinicians from over 40 agencies across the state of North Dakota. These clinicians received advanced training through the TCTY in evidence-based treatments for traumatized children. Importantly, the TCTY Team is conducting studies on the delivery of these services to children which allows a unique state-wide research opportunity.

Child Abuse Prevention Project-Dakota Medical Foundation:
NRI has received a grant from Dakota Medical Foundation (DMF) to support a project on preventing child abuse in Cass and Clay County. Several child serving agencies, along with DMF, are collaborating with NRI staff to contribute to this project and plans are currently in place to develop and implement the prevention strategy in 2017.

Other Studies

Researchers at NRI are also involved in a number of other projects being conducted primarily at other centers. These include a study being conducted at Columbia University in New York examining the use of tele-health approaches to prevent weight regain after obesity treatment in adolescents, and a prospective longitudinal study of adolescents conducted in Boston and London.


Mason, T.B., & Heron, K.E. (2016). Do depressive symptoms explain associations between binge eating symptoms and later psychosocial adjustment in young adulthood? Eating Behaviors, 23, 126-130.


Mason, T.B. Heron, K.E., Braitman, A. L., & Lewis, R. J. (2016). A daily diary study of perceived social isolation, dietary restraint, and negative affect in binge eating. Appetite, 97, 94-100.


Mathias, S., Li, X., Essen, M., Carpenter, N., Crosby, R.D. & Blanchette, V.S. A Phase 3, randomized, double-blind, placebo-controlled study to determine the effect of romiplostin on health-related quality of life in children with primary immune thrombocytopenia and associated burden in their families. Pediatric Blood & Cancer, 2016, 63(7), 1232-1237. PMID: 27037553


Publications


Rochette, A.D., Spitznagel, M.B., Strain, G., Devlin, M., Crosby, R.D., Mitchell, J.E., Courcoulas, A. & Gunstad, J. Mild cognitive impairment is prevalent in persons with severe obesity. *Obesity*, 2016, 24, 1427-1429. PMID: 27227797


