REACHING
EXPANDING KNOWLEDGE
OFFERING A RAY

Front: A Whisper, Alabaster, Marble.
Sculpture by Deborah Drossman
Photo by Gregory Georges
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EXPANDING KNOWLEDGE

REACHING OUT
OFFERING A RAY OF HOPE
Dear Reader

Each year, we look back on the past year to reflect on what we have been able to accomplish and to thank everyone for their contributions to the Center – faculty, clinicians, investigators, staff, directors and advisors, collaborators, research funding agencies, individual donors, foundations, and corporate sponsors. This report is about all of us and we hope it conveys our gratitude as well as celebrating the year’s accomplishments.

The Center is in the final year of a five-year grant from the National Institutes of Health (NIH) to foster interdisciplinary research on interactions between the mind and body in health and disease. This $4.4 million grant established a Gastrointestinal Biopsychosocial Research Program within our Center, which is focused on the causes and treatment of functional GI and motility disorders. This broad-based NIH initiative has evolved from growing evidence that interdisciplinary research -- which integrates the study of social, behavioral, psychological and biological factors -- holds particular promise in understanding the origins of disease and promoting health. Our Center was the first to advocate a biopsychosocial approach to the study and treatment of functional GI and motility disorders. In addition to activities funded through the “mind-body infrastructure grant,” our annual report chronicles other significant activities and accomplishments, including these important milestones:

- 43 articles in peer reviewed journals, 18 books/book chapters, and 46 published abstracts
- Successful renewal of the “Psychophysiology of Irritable Bowel Syndrome” grant (RO1)
- Total outside funding of $3.53 million – NIH accounted for 45%, industry 36%, and other sources 19% (foundations)
- 14 Visiting Scholars (brief stays typically a few days to one month)
- 2 Visiting Scientists (longer stays, of typically a year or more)
- 1 Doris Duke Scholar (third year medical student for 12 months of full-time research training)
- Research Day 2008
- Patient Symposium 2008
- 3 seed grants awarded of $37,500 each
- Continued generous support from individual donors, foundations, and educational grants from corporate sponsors

We invite our readers to visit the Center’s website at www.med.unc.edu/ibs for further details. There is always more to share than we include in the annual report.

With gratitude,

William E. Whitehead, PhD
Co-Director
Professor of Medicine and
Adjunct Professor of OBGYN

Douglas A. Drossman, MD
Co-Director
Professor of Medicine and Psychiatry
Highlights of 2008

Publications

43 articles, 18 books/book chapter and 46 abstracts written by Center faculty and investigators were published or accepted for publication in 2008

Symposia in 2008

- Research Day Gastrointestinal Biopsychosocial Research at UNC – October 3-4, 2008

Awards, Appointments, Special Honors (new in 2008)

Doug A. Drossman, MD
- appointed to Institute of Medicine (IOM, National Academy of Sciences) Committee on Gulf War and Health: Update on Health Effects of Serving in the Gulf War (sequel to Physiologic, Psychologic and Psychosocial Effects of Deployment Related Stress)
- appointed to Advisory Board for Doctor’s Book of Home Remedies
- editor of Understanding the Irritable Gut, a book on functional gastrointestinal disorders for primary care physicians, health extenders and the general public
- chaired the IFFGD Research Awards Committee (International Foundation for Functional GI Disorders) and was selected as chair for the IFFGD’s 8th International Symposium
- listed in the Who’s Who in the World; Who’s Who in Medicine and Healthcare; Who’s Who in Science and Engineering; Who’s Who in America; America’s Top Doctors, Top Gastroenterologist/South (Women’s Health Magazine)
- member of the International Planning Committee, Joint International Neurogastroenterology Meeting, Lucerne, Switzerland

William E. Whitehead, PhD
- appointed to the NIH Behavioral Medicine review panel for 2008-2013
- appointed to Data and Safety Monitoring Board for NIDDK Gastroparesis Network
- appointed to Scientific Advisory Committee of the NIDDK research network titled “Multidisciplinary Approaches to the Study of Chronic Pelvic Pain” (MAPP)
- elected to the American Gastroenterological Association Neurogastroenterology & Motility Council
- chaired the Rome Foundation research awards committee

Nicholas Shaheen, MD
- received the Excellence in Mentoring Award, UNC GI Fellows
- served as President, NC Society of Gastroenterology
- served as Chair, Clinical Practice Section, American Gastroenterological Association (AGA); also Course Director for the AGA’s 2009 Annual National Postgraduate Course and 2009 Clinical Congress
HIGHLIGHTS OF 2008

Miranda van Tilburg, PhD
- selected to attend the Summer Research Institute on Suicide Prevention (funded by NIMH), Rochester NY, June 2008
- selected to the UNC Faculty Council
- selected to attend the UNC Medical School Faculty Development Workshop, November 2008

Tempitope O. Keku, PhD
- served as Mentor, Second Annual AGA-Abbott Immunology Investing in the Future Program: Promoting Diversity in GI Training; Minority populations, Disparities in Outcomes. DDW, San Diego, 2008
- appointed Adjunct Associate Professor, Department of Nutrition, UNC School of Public Health

Douglas Morgan, MD, MPH
- member of the UNC Delegation led by Dean Roper to the University of Nicaragua, April 2008
- served on the Consensus Committee, Gastroenterology Summit (GIAS), January 2008

Lisa Gangarosa, MD
- awarded the 2008 Eugene Bozymski MD Award for Excellence in the Teaching of Endoscopy

Ryan Madanick, MD
- assumed responsibility for coordinating scholars coming to UNC for the ANMS Motility Fellowship

Steve Heyman, PhD & Stephan Weinland, PhD were honored with Poster of Distinction awards at various national meetings. **Steve Heymen** received this award for a poster on biofeedback for fecal incontinence and another on diffuse noxious inhibitory controls (DNIC) at the Annual Neurogastroenterology and Motility Meeting in Lucerne, Switzerland. **Stephan Weinland** received poster of distinction award at the annual American Psychosomatic Society meeting on the topic of ecological momentary assessment (EMA) to assess symptoms in patients with IBS.

### Research Grants and Contracts New in 2008

See “Research” section for additional information about ongoing research grants and contracts

- Whitehead – NIH RO1 DK31369 grant (“Psychophysiology of IBS”) was competitively renewed for five years
- Whitehead and Morgan – two separate Investments for the Future Initiative (IFFI) awards, UNC School of Medicine
- Drossman – US-Israel Binational Science Foundation grant
- Drossman – S&R Foundation grant
- van Tilburg – IFFGD Research Award for “Maternally inherited mtDNA sequence variants and IBS”
- Morgan – IFFGD Research Award for “IBS susceptibility genotypes and gastroenteritis exposure in a developing nation”
- Industry research grants and contracts: AGI Therapeutics Research Ltd., Danisco USA Inc., McNeil Consumer Healthcare, Salix Pharmaceuticals, SmartPill Corporation, Takeda Pharmaceuticals
HIGHLIGHTS OF 2008

CLINICAL CARE NEW DEVELOPMENTS

- Pelvic Floor Biofeedback Program was expanded with a full-time therapist
- Visiting Clinicians (2008-09): Joe Zimmerman, MD, on sabbatical from Hadassah Hospital, Jerusalem, Israel; and Reuben Wong, MD, on sabbatical from Faculty of Medicine, National University of Singapore, Singapore

SEED GRANTS AWARDED IN 2008 (MIND-BODY INFRASTRUCTURE GRANT)

- Ian Carroll, PhD -- The Role of Serine-Proteases in Gastrointestinal Function and IBS
- Miranda van Tilburg, PhD -- Suicidal Ideation and Attempts in Adolescents with Chronic Abdominal Pain
- Denniz Zolnoun, MD, MPH -- Dysregulation in Pain Sensitivity, Psychological State, and Proinflammatory Cytokines in Patients with Vulver Vestibulitis (VVS) and IBS

EDUCATIONAL GRANTS

The S&R Foundation and Sucampo Pharmaceuticals are two sponsors of the Center who have continued to provide valued support for our clinical services, research initiatives, patient and public education activities, and programs to train researchers and clinicians. We also greatly appreciate receiving educational grants in 2008 from Ironwood Pharmaceuticals, Takeda Pharmaceuticals, The Procter & Gamble Company (P&G), McNeil Pharmaceuticals, AstraZeneca Pharmaceuticals, Salix Pharmaceuticals, and Prometheus Pharmaceuticals.
The UNC Center for Functional GI and Motility Disorders began in 1994, when Dr. William Whitehead moved from Johns Hopkins University to the University of North Carolina Division of Digestive Diseases and joined Dr. Douglas Drossman. Prior to that, Dr. Drossman had an active clinical practice in IBS and the functional GI and motility disorders as well as a biopsychosocial research program related to clinical and psychosocial outcomes in the FGIDs. Dr. Whitehead, who had established a research and biofeedback treatment program for motility disorders at Johns Hopkins was recruited to set up what has become a world-class motility program at UNC. Drossman and Whitehead combined their skills and expertise in the effort to establish a research and clinical program that was committed to the field of functional GI and motility disorders.

MISSION

The Center’s mission: "... to advance the biopsychosocial understanding and treatment of functional gastrointestinal and motility disorders through an integrated approach to patient care, research, training and education" was implemented through four areas of activity:

1 Patient Care – to offer state of the art evaluation and treatment for the full range of functional GI and motility disorders,

2 Research – to conduct studies on the physiological and psychosocial mechanisms underlying functional GI and motility disorders, their impact on quality of life and health outcomes, and their treatment,

3 Training – to provide multidisciplinary training and education in clinical and research skills with an emphasis on patient centered care and advanced research methods, and

4 Patient Education – to provide helpful and up to date information through seminars and workshops as well as printed materials, videos and the internet.

STRUCTURE OF THE CENTER

One of the most unique features of the new center was Drs. Drossman and Whitehead’s shared responsibility as co-directors, and this collaboration between two senior academicians has sustained the program for over 15 years. Dr. Drossman coordinates the clinical activities, Dr. Whitehead established the motility program, and both have active research programs with independent and shared federal, foundation and pharmaceutical support. In addition, several new faculty and investigators have joined the Center and established their own research careers and clinical programs. The Center also has developed collaborations with dozens of investigators worldwide, established a clinical program to implement multidisciplinary care, recruited an administrative staff to coordinate day to day activities including visiting scholars, media development, website maintenance, and the production of teaching tools, and established data management and biometry cores to provide advanced clinical and website based research and data analysis.

INTERNATIONAL ACTIVITIES

The Center is represented nationally and internationally through a network of research activities and in leadership positions world-wide. Dr. Drossman is President and Dr. Whitehead is on the Board of Directors of the Rome Foundation, the organization responsible for standardization in diagnosis of the FGIDs. Center investigators are actively involved on the advisory boards of pharmaceutical companies, NIH, FDA, and the International Foundation for Functional GI Disorders. They have also held leadership positions in the Functional Brain-Gut Research Group and served as Associate Editors for Gastroenterology, are editors or on editorial boards for publications in Gastroenterology, Internal Medicine and Psychosomatic Medicine. The Center is frequently highlighted by the media and several videos, radio and TV shows have been produced on site in addition to numerous publications about Center activities in newspapers and magazines.
Dr. Drossman is Professor of Medicine and Psychiatry (UNC School of Medicine, Division of Gastroenterology & Hepatology) and Co-Director of the UNC Center for Functional GI & Motility Disorders. He has had a long-standing interest in the research and evaluation of difficult to diagnose and treat GI disorders. He established a program of research in functional GI disorders at UNC more than 25 years ago and has published more than 400 articles and abstracts relating to epidemiology, psychosocial and quality of life assessment, design of treatment trials, and outcomes of research in GI disorders. He has also published three books, a GI procedures manual, a textbook on The Functional Gastrointestinal Disorders (Rome I, Rome II and Rome III), and a primary care book on functional GI disorders. In addition, he serves on six editorial boards in medicine, gastroenterology and psychosomatic medicine, was associate editor of Gastroenterology and GI section editor of the Merck manual, and is currently editor of Digestive Health Matters published by IFFGD as well as the newsletter of the Functional Brain-Gut Research Group.

Dr. Drossman received his MD degree from Albert Einstein College of Medicine in 1970, and completed his medical residency at the University of North Carolina School of Medicine and New York University-Bellevue Medical Center. After his residency, he sub-specialized in psychosocial (psychosomatic) medicine at the University of Rochester School of Medicine under the mentorship of Dr. George Engel from 1975 to 1976 and in gastroenterology at the University of North Carolina in from 1976 to 1978.

Dr. Drossman has been involved in several national and international activities which include President of the Rome Foundation and Scientific Director and member of the Board of the International Foundation for Functional GI Disorders (IFFGD). He is a past president of the American Psychosomatic Society, past Chair of the AGA Council on Motility and Nerve-Gut Interactions, and Founder/Past President of the Functional Brain-Gut Research Group of AGA. He is an AGA Fellow and serves on the AGA Media Committee, AGA Nominating Committee, and the AGA Research Awards Panel. Dr. Drossman is a Fellow of the American College of Physicians and a Master of the American College of Gastroenterology. He is a member of the Institute of Medicine of the National Academy of Sciences Committee on Gulf War and Health.

He has been an Ad Hoc Advisory Board member of the NIH National Center for Complementary and Alternative Medicine (NCCAM), and recently served on the NIH National Commission on Digestive Diseases.

As Medical Director of the UNC Center for Functional GI & Motility Disorders, Dr. Drossman sees patients in the Functional GI Clinic. He also precepts GI fellows and visiting gastroenterologists to develop their clinical skills in patient care and communication. He facilitates the learning of medical faculty and fellows, psychiatry residents and medical students with regard to the biopsychosocial care of patients with functional GI disorders. In 2004, Dr. Drossman received the AGA Distinguished Educator Award, recognizing an individual for achievements as an outstanding educator over a lifelong career.

Dr. Drossman’s educational and clinical interests in the psychosocial/behavioral aspects of patient care have led to the development of a series of videotapes to teach physicians and other healthcare professionals how to conduct an effective patient interview, carry out a psychosocial assessment, and enhance patient-doctor communication. He has taught numerous US and international workshops on this topic and was chair of the ACG Physician-Patient Relations Committee from 1994-1996. He is also a charter fellow of the American Academy on Physicians and Patients, a consortium of doctors teaching these skills to medical school faculty. In 2007, he received the AGA Mentors Research Scholar Award.

Dr. Drossman has an active research program that relates to the clinical, epidemiological, psychosocial, and treatment aspects of irritable bowel syndrome and the functional GI disorders. He has held several NIH grants totaling $10 million, including a multi-center treatment trial of functional bowel disorders with cognitive behavioral therapy and antidepressants in addition to several pharmaceutical trials of new investigative agents for IBS. He has developed and validated several assessment and quality of life measures that are used worldwide for clinical research. He is studying brain imaging (fMRI) in functional bowel disorders to determine if reported changes in the brain are associated with pain and stress, and are responsive to treatment. He also consults with pharmaceutical companies and government agencies regarding treatment trials. In 2005, Dr. Drossman received the AGA/Miles and Shirley Fiterman Foundation Joseph B. Kirsner Award in Clinical Research in Gastroenterology. Finally Dr. Drossman has been rated as one of the “Best Gastroenterologists” in Men’s Health (2007) and Women’s Health (2008) magazines.
Dr. Whitehead is Co-Director of the UNC Center for Functional GI & Motility Disorders. He was recruited to UNC in 1993 to direct the Gastrointestinal Motility Program, and in 1994 he and Dr. Drossman founded the Center for Functional GI and Motility Disorders. He has been involved in research on functional gastrointestinal disorders for 32 years and is recognized internationally for his research and teaching on constipation, fecal incontinence, and irritable bowel syndrome (IBS). His current research interests are the heterogeneity of IBS (the concept that IBS is not one disorder but a collection of different disorders with distinct etiologies and treatments), psychosocial factors that affect visceral pain sensitivity in IBS, comorbidity of IBS with other disorders, and the biofeedback treatment and medical management of fecal incontinence and constipation.

In 1999, Dr. Whitehead also joined the UNC Division of Urogynecology as an adjunct faculty member to help develop a fellowship program in Urogynecology and Reconstructive Pelvic Floor Surgery. He teaches surgery fellows in this fellowship program and heads a monthly case conference attended by the urogynecology faculty and fellows and GI motility team. Dr. Whitehead collaborates with several faculty in Gynecology in research on the role of obstetrical injury in the etiology of fecal incontinence, behavioral treatments for incontinence, and the role of reproductive hormones in IBS.

Dr. Whitehead received his PhD from the University of Chicago in clinical psychology and physiology in 1973 and did his dissertation research on the biofeedback conditioning of gastric acid secretion. After graduation, he joined the faculty of the Department of Psychiatry, University of Cincinnati College of Medicine, and worked for seven years in the psychosomatic service where he began his research on visceral perception and IBS.

In 1979, after a year as a visiting scientist at the Gerontology Research Center of the National Institute on Aging (NIA), Dr. Whitehead was recruited to the Department of Psychiatry at the Johns Hopkins University School of Medicine. There he established a 15-year collaboration with Dr. Marvin Schuster, which includes co-authorship of the text, Gastrointestinal Disorders: Behavioral and Physiological Basis for Treatment (Academic Press, 1985).

He was chief of the Gastrointestinal Physiology Laboratory at the Bayview Medical Center, where he continued to evolve his research on IBS and began research programs on the biofeedback treatment of fecal incontinence and on the understanding and treatment of constipation and failure to thrive.

Dr. Whitehead is a career investigator who has been continuously funded by NIH since 1977. He was supported by a National Institute of Mental Health (NIMH) research scientist award for 22 years and has received research support from NIDDK, NICHD, NIA, NINR, and NIMH. His 35 RO1 grants have included studies of (1) the causes and treatment of fecal incontinence in special populations such as spina bifida and elderly, (2) the causes and treatment of constipation, (3) treatment of ruminations syndrome in developmentally disabled children, (4) the role of visceral perception in IBS, (5) comorbidity of IBS with other disorders, and (6) psychological and behavioral treatment of IBS. He has published over 200 journal articles, books, and book chapters and more than 200 abstracts on these topics. In 2002 he and Dr. Drossman were awarded an NIH Mind-Body Infrastructure grant (R24 DK67674) to provide core support for an expansion of the Center’s research program in functional GI and motility disorders.

Twenty-four research fellows, both psychologists and physicians, have completed predoctoral or postdoctoral training in Dr. Whitehead’s laboratory. Nineteen of these alumni are in academic positions, one is still in medical school, two are in private practice (gastroenterologists), and the jobs of two are unknown. Dr. Whitehead also organizes and participates in preceptorships and CME courses on a regular basis, in the U.S. and internationally.

In 1990, Dr. Whitehead joined the board of the Rome Foundation (then known as the Multinational Working Team Project to Develop Diagnostic Criteria for Functional Gastrointestinal Disorders). He chaired the Rome I working team on Anorectal Disorders in 1990-1994, the Rome II working team on Anorectal Disorders in 1995-2000, and co-chaired the working team on Design of Treatment Trials from 2001-2006. He also chaired the International Resource Committee for the Rome Foundation.
Dr. Drossman is considered a world authority in the field of functional GI disorders and physician-patient communication. He presents at numerous national and international meetings throughout the year. In addition to his clinical care, research and teaching responsibilities associated with the UNC School of Medicine and the Center for Functional GI & Motility Disorders, Dr. Drossman has numerous involvements with leading national and international organizations:

- Chair of the Executive Committee (since 1989) and President (since 2003) of the Rome Foundation
- Editor of *Understanding the Irritable Gut*, a book on functional GI disorders for primary care physicians
- Member of the Board of Directors, Chair of the Scientific Advisory Board, and Chair of the Awards Committee of the International Foundation for Functional GI Disorders (IFFGD)
- Co-Chair and Chair of the Motility and Nerve-Gut Interactions Section of the AGA Council from 2001 to 2005
- Founder and past chair of the Functional Brain-Gut Research Group (FBG) special interest section within the American Gastroenterological Association (AGA)
- Chair of the Digestive Health Initiative on Functional GI Disorders sponsored by the American Digestive Health Foundation in 1999-2000
- Past-President of the American Psychosomatic Society, award 2003
- Functional Brain-Gut Research Group Research Scientist Award - 2001 and 2003
- Fellow of the American College of Physicians (FACP)
- Master of the American College of Gastroenterology (MACG)
- Charter fellow of the American Academy of Physician and Patient
- Janssen Award for Clinical Research in Digestive Diseases - 1999
- Associate Editor of *Gastroenterology*, the official journal of the AGA, from 2001 to 2006
- Editor of the Manual of GI Procedures (in its fourth edition)
- On the board of the medical website Medscape Gastroenterology
- Gastroenterology Section editor of the Merck Manual 1990-2005
- Member of the Institute of Medicine Committee on Gulf War and Health
- Member of the NIDDK (NIH) National Commission on Digestive Diseases Subcommittee on Functional GI & Motility Disorders

and led a multisite study to validate the Rome III diagnostic questionnaire in 2006. He is the chair of the Rome Foundation research committee.

Other awards and leadership positions in national and international organizations are as follows:

- Co-founder and past chair of Functional Brain-Gut Research Group (FBG) special interest section within the American Gastroenterological Association (AGA)
- Head of the steering committee and chair of two multidisciplinary conferences on fecal incontinence sponsored by the International Foundation for Functional Gastrointestinal Disorders (IFFGD)
- Associate Editor of *Gastroenterology*, the official journal of the American Gastroenterology Association (AGA), from 2001-2006
- Organized an international conference on the design of treatment trials for functional GI disorders
- Co-chair of the fecal incontinence subcommittee for the International Consultation on Incontinence
- Member of the Planning Committee for the NIH State of the Science Conference on the Prevention of Fecal and Urinary Incontinence 2006-2007
- Advisory Board for the General Clinical Research Center (GCRC) at the UNC School of Medicine
- FBG (Functional Brain-Gut Research Group) Research Scientist Award for Clinical Research in 1999
- IFFGD Award for Research Excellence in 2003
- Janssen Award for Outstanding Research in Gastroenterology in 2004.
- Fellow of both the American College of Gastroenterology and the American Gastroenterological Association
- Regular member of the NIH Behavioral Medicine review panel, 2008-2013. Ad hoc member of the NIH review committees for other institutes.
- Member of the Scientific Advisory Board for NIDDK Gastroparesis Research Network.
- Member of the Scientific Advisory Board for the NIDDK network titled “Multidisciplinary Approaches to the Study of Chronic Pelvic Pain” (MAPP).
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- John Steege, MD – Advanced Laparoscopy Div., Dept. of OBGYN, UNC School of Medicine, Chapel Hill, NC
- Nicholas Talley, MD, MPH – Mayo Clinic, Jacksonville FL
- Brenda Toner, PhD, CPsy – Centre for Addiction & Mental Health, University of Toronto, Ontario, Canada
- Martin Ulshen, MD – Dept. of Pediatrics, Duke University Medical Center, Durham, NC
- Anthony Visco, MD – Chief, Urogynecology, Duke University School of Medicine, Durham, NC
- Michael Von Korff, PhD -- Group Health Cooperative of Puget Sound, Seattle, WA
- Lynn Walker, PhD – Adolescent Medicine & Behavioral Science, Vanderbilt Univ. Medical Center, Nashville, TN
- Eric Westman, MD – Duke University Medical Center, Durham, NC
- Peter Whorwell, MD – University of South Manchester, Manchester, UK
- Nader Youssef, MD – Goryeb Medical Center at Atlantic Health, Morristown, NJ
- Adam Zolotor, MD MPH -- Family Medicine, University of NC at Chapel Hill, Chapel Hill, NC
Patient Care

One of the four goals of the Center is to provide state-of-the-art evaluation and treatment for a full range of functional gastrointestinal and motility disorders (FGIMDs).

Clinical Care Services

The Functional GI and Motility Disorders Clinic established and directed by Dr. Douglas Drossman, is the premier site, both nationally and internationally, for referral of patients with functional GI and motility disorders (FGIMD’s). The clinic’s unique multi-disciplinary, patient-centered approach integrates medical, physiological and psychological factors in the evaluation, understanding and treatment of patients with these disorders. The clinic also serves as a leading tertiary referral site for patients who have difficult-to-diagnose illnesses or challenging management issues. Dr. Drossman sees patients usually referred by gastroenterologists who have complex or difficult to diagnose or manage functional GI and motility disorders. Because his wait list for an appointment is six months, he is assisted by two physician assistants. Chris Dalton, PA-C has worked as Dr. Drossman’s PA for the past 13 years and Lynn Eckert, PA-C who came on 3 years ago, to meet the demand of our increasing referrals. We are also fortunate to have two gastroenterologists currently on sabbatical at UNC who also see patients referred to our center under Dr. Drossman’s supervision: Joseph Zimmerman MD from Hadassah Hospital in Jerusalem, Israel and Reuben Wong MD from Singapore. In addition Center faculty gastroenterologists provide additional support: Dr. Ryan Madanick specializes in seeing patients with functional esophageal disorders, Dr. Yehuda Ringel sees patients with functional upper GI symptoms and/or complicated motility disorders, and Dr. Yolanda Scarlett sees patients with functional anorectal disorders. Drs. Ringel and Scarlett are assisted by Danielle Maier, PA-C MA who also sees patients on her own. Finally, the clinic is also staffed with a Fellow (gastroenterologist in training), who is supervised by Dr. Drossman and Dr. Ringel. The Center’s clinical personnel are also routinely involved with consulting on patients at UNC Hospitals with severe functional GI or motility disorders and with physicians who call for advice regarding their patients.

Clinical Program Components

Patients come from all over the United States, and other countries to benefit from the Center’s unique biopsychosocial approach to understanding and treating FGIMDs. Listed below are the components of this program.

GI Motility Program

The GI Motility Program at UNC Hospitals was established by Dr. Whitehead. Diagnostic evaluations and clinical care are now managed by Dr. Yolanda Scarlett (Medical Director), Dr. Yehuda Ringel, and Danielle Maier, PA, for lower GI motility disorders, and Dr. Nicholas Shaheen (Medical Director), Dr. Doug Morgan and Dr. Ryan Madanick for swallowing disorders and ambulatory pH testing. Sheila Crawford, RN, is the head nurse for the UNC Hospitals GI Motility Lab, and Jill Williams, RN, also performs diagnostic testing in the Laboratory. Patients with GI motility disorders may be seen initially in the Functional GI and Motility Disorders Clinic (see above), or they may be referred directly to the medical staff of the GI Motility Lab if referring physicians anticipate that diagnostic motility testing or biofeedback training will be needed. Diagnostic motility tests may be scheduled directly by outside physicians, but a medical consultation from one of the clinicians affiliated with the GI Motility Lab is recommended.

The following services are provided by the GI Motility Lab:

- Diagnostic anorectal motility tests for fecal incontinence, constipation or rectal pain
- Ambulatory pH and impedance testing
- Esophageal motility testing
- Hydrogen breath tests for small bowel bacterial overgrowth and carbohydrate malabsorption
- Breath tests for H. pylori infection
- Smart Pill® for ambulatory testing of GI motility

Another service also provided is the electrogastrogram (EGG). This clinical and research tool provides information on the electrical activity of the stomach and is helpful for evaluating patients with nausea, dyspepsia, vomiting and other functional GI and motility disorders that involve the stomach.
Patient Care

Pelvic Floor Biofeedback Clinic

A state of the art pelvic floor biofeedback clinic is directed by Steve Heymen, PhD. Appropriate referrals for this clinic are patients with fecal incontinence, dyssynergic defecation (a form of constipation in which the patient has difficulty emptying the rectum), or chronic rectal pain. Angel Moore, NA, assists Dr. Heymen in this clinic.

Psychological Services

Charles K. Burnett, PhD, Clinical Associate Professor of Medicine, and Stephan Weinland, PhD, Instructor of Medicine, provide psychological services to the Center and Division of Gastroenterology and Hepatology. Patients are referred to the two psychologists from the Functional GI and Motility staff, divisional staff and by outside physicians. When the medical evaluation of a patient visiting the FGIMD Clinic suggests that psychological evaluation and/or treatment that could include pain management or psychological treatments would be beneficial, Drs. Burnett or Weinland or a psychology intern working with them is brought into the patient's overall care. This is consistent with our biopsychosocial multi-disciplinary team approach.

Drs. Burnett and Weinland specialize in the treatment of patients with chronic gastrointestinal illnesses, using one or more of the following techniques or therapies:

Cognitive Behavioral Therapy (CBT)

CBT focuses on the interrelationship between a patient's thoughts, actions, and feelings, and the role they play in their FGIMD symptoms. A common example is to reverse the “vicious cycle” that occurs when chronic symptoms lead to psychological distress which can worsen the symptoms. By focusing on the psychological components of the “brain-gut axis”, changes are made in how a patient perceives his/her GI difficulties, and it may help reduce the frequency and intensity of FGIMD symptoms.

Stress Management

Stress management therapy seeks to help a person understand the role of stress in his/her life and how it relates to the person's FGIMD symptoms. It also seeks to provide the patient with a variety of ways for dealing with stressful events in ways that minimize their impact on the person's FGIMD symptoms and quality of life.

Relaxation Therapy

Relaxation therapies to reduce a person’s current state of physical and psychological activation include progressive muscle relaxation (PMR), autogenic training, breath regulation, and meditation. With these techniques, a person can learn how to “turn down the volume” on their GI symptoms by becoming more calm and relaxed about them.

Hypnosis

Hypnosis or hypnotherapy makes use of guided imagery and relaxation techniques to achieve a state of highly focused attention and openness to health promoting suggestions from the therapist. This can be accomplished with the help of a therapist or by oneself (self-hypnosis). Hypnotherapy has been shown to reduce the frequency and severity of FGIMD symptoms and also the number of comorbid symptoms such as fibromyalgia and headaches that IBS patients frequently experience.

Patient Care Educational Conferences

Our patient care educational conferences provide a unique forum for optimizing patient care and fulfilling our educational mission. The conferences involve case presentation and discussion among a multidisciplinary staff involved in functional GI and motility.

Clinical Case Conference

The Clinical Case Conference is held every Thursday morning in the FGIMD Clinic. Clinicians have the opportunity to present difficult cases and exchange ideas regarding patient evaluation and treatment. Participants in the Clinical Case Conference address the physical, social and psychological factors that are relevant to a specific case, utilizing the group’s overall expertise to maximize the impact on patient care. Decisions made at the conference can have significant impact on the overall care of patients referred to the Center. This weekly forum also provides a learning opportunity for resident fellows, investigators, and others interested in the clinical aspects of caring for patients with functional GI and motility disorders.

Evening Clinical Skills Seminar

For over 30 years Dr. Drossman has facilitated a unique monthly program in clinical skill development based on a biopsychosocial patient-centered approach to diagnosis and care of patients with FGIMDs.
The program evolved from the work of Drs. George Engel and Karl Rogers. Dr. Drossman’s patient interview and educational facilitation style is highly regarded and professionals in medicine and allied health fields visit the center to learn these techniques. This seminar features interactive learning methods including videotaped discussions, role playing, small group learning and live interviews with patients. The seminar is unique in its active participatory style and the methods have been presented at national meetings and described in professional journals and magazines.

Pelvic Floor Disorders Conference
The Pelvic Floor Disorders Conference is held monthly and is central to the training, patient care and research objectives of the GI Motility Service. The format for the conference is a discussion of cases that have been seen by the gastroenterology and urogynecology services, focusing on cases that present complex decision making about patient care or important teaching points. There is also discussion of whether certain patients are appropriate for referral to one of the ongoing research studies at the Center. The conference also provides an opportunity for updates on new publications, research conferences, and new research initiatives.

Clinical Training
The clinic often has visiting gastroenterologists, psychologists and trainees from other states and countries who are interested in learning more about the clinical approach, diagnosis and treatment of FGIMD patients. They also learn how to improve their interviewing and patient skills (see Visiting Scholars). Medical students, residents, psychologists, gastroenterologists in training or on sabbatical are all afforded the opportunity to learn interview techniques, motility, biopsychosocial care and advanced pharmacological treatment using new and experimental medications. In particular, the Center is the first to apply combined augmentation treatment using GI and psychotropic agents in the care of patients with refractory functional GI disorders. There are several ways in which individuals come to learn at our Center:

Visiting Scholar Program
Individuals can visit the Center for a short stay of several days to several weeks. By hosting visitors from around the US and the world the Center benefits from a unique opportunity to share and exchange ideas on treatments for functional GI and motility. For the duration of their stay at the Center, visiting scholars have access to expert gastroenterologists, psychologists, motility experts and physiologists. Visiting scholars may observe patient care directly, attend teaching conferences and if the stay is long enough, obtain a temporary license to see patients on their own with Center staff supervision.

American Neurogastroenterology and Motility Society (ANMS) Fellowship
Our Center is a recipient of the ANMS visiting fellowship award and hosts three gastroenterology fellows a year from around the country. The visitors are able to observe or directly care for patients in the clinic, learn motility with all our Center staff, and develop supervised case presentations. The goal of this program is to encourage gastroenterology trainees to enter a career in functional GI and Motility.

Gastroenterology Fellowship in Functional GI and Motility
Over the years, our Center has trained several GI fellows who have gone on to establish careers in academic gastroenterology (Yehuda Ringel MD, Albena Halpert MD, Greg Austin MD, and Spencer Dorn MD). We are now fortunate to have funding from McNeil Consumer Health for a GI Fellowship. This fellowship involves two years in research at our Center and two years in clinical training in our Division of Gastroenterology and Hepatology. The fellow will begin in July 2009 and we are actively recruiting for a second fellow to begin in July 2010.
An important goal of the Center is to conduct research studies on the physiological and psychosocial mechanisms underlying functional GI and motility disorders, their impact on quality of life and health outcomes, and their treatment.

The Center has developed a broad portfolio of research on the mechanisms of functional GI and motility disorders, as well as their psychosocial correlates, health outcomes, and treatment. The Center’s Co-Directors have a long history of research support from the National Institutes of Health (NIH), pharmaceutical companies, and other sources. Other Center investigators have established their own independent research programs and funding. The research activities of faculty and investigators associated with the Center are supported through a variety of grants and contracts – 45% from the National Institutes of Health (NIH), 36% from pharmaceutical companies, and 19% from foundations and other sources.

An NIH-funded study on the “Psychophysiology of IBS” (Whitehead, PI), which has been continuously funded for 22 years, was competitively renewed for an additional five years ($3.5 million, 2008-2013). Center research continued to be funded by a variety of NIH funding mechanisms, as well: R24, RO1, R21, U01, KO7, and K23. In addition, the Center is the data core for a large treatment trials sponsored by the Carolina Institute of Health Research (CIHR). Center faculty and investigators also received a total of $1.82 million in new grants and contracts from non-NIH and non-pharmaceutical sources: two grants from the International Foundation for Functional Gastrointestinal Disorders (IFFGD), two Investments in the Future Initiative (IFFI) awards from the UNC School of Medicine, a new grant from the US-Israel Binational Foundation, and a renewed grant from the S&R Foundation. The Center continued to receive grants and contracts from the pharmaceutical industry for investigator-initiated studies and clinical trials.

The Center’s research programs are multidisciplinary, involving collaborations between gastroenterologists, psychologists, neuroradiologists, psychiatrists, physician assistants, and nurses. Within UNC at Chapel Hill, collaborators came from the departments of Medicine, Psychology, Psychiatry, Surgery and Gynecology, as well as the schools of Dentistry and Public Health. Research at the Center has included studies on the pathophysiology and treatment of such prevalent functional GI disorders as IBS, functional dyspepsia, functional abdominal pain, fecal incontinence, and constipation. These disorders greatly impair quality of life and result in aggregate annual health care costs in the United States exceeding $25 billion.

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<tr>
<th>Current Research Area</th>
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<td>Psychophysiology: Pain sensitivity &amp; heterogeneity</td>
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<td>Treatment: CBT (Cognitive Behavioral Therapy), CAM</td>
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<tr>
<td>Functional esophageal disorders</td>
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<td>Pediatric functional GI disorders</td>
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<td>Genetics</td>
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<td>Celiac disease</td>
<td>Drossman, Dorn</td>
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<tr>
<td>Prospective bowel habit assessment (PDA technology, Internet diaries)</td>
<td>Weinland, Drossman, Palsson, Whitehead</td>
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<tr>
<td>Questionnaire development</td>
<td>Drossman, Palsson, Weinland, Kanazawa, Heymen, Morgan, Dorn</td>
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<td>Cross-cultural studies</td>
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<td>Narcotic bowel</td>
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<td>IBS partner study</td>
<td>Wong, Drossman</td>
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<td>Post-infectious IBS</td>
<td>Wong, Whitehead</td>
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<td>Unmet patient needs &amp; risks</td>
<td>Drossman, Morris, Weinland, Norton</td>
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<tr>
<td>Brain imaging</td>
<td>Drossman</td>
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**Research**

**Mind-Body Infrastructure Grant**  
**NIH Center: Gastrointestinal Biopsychosocial Research Program**

In 2004, the Center was awarded a grant (R24 DK067674) from NIH to foster interdisciplinary research on interactions between the mind and body in health and disease, with a specific focus on the causes and treatment of functional GI and motility disorders. The five-year, $4.45 million grant established a *Gastrointestinal Biopsychosocial Research Program* within the Center. The Center’s Co-Directors—Drs. Whitehead and Drossman—are Co-PIs for this grant. An Infrastructure Grant Advisory Board of leaders from within the UNC School of Medicine and School of Public Health as well as a Scientific Advisory Board of leading national and international experts in functional GI and motility provide advice to the Center on ways to make the best possible use of the infrastructure grant.

This multi-year “infrastructure grant” is being used to build on the Center’s longstanding record of NIH-funded research in mind-body interactions and to carry out longer-term collaborations with other disciplines in health and medicine at UNC and with other institutions throughout the US and other countries. Examples of mind-body research at the Center include studies on the role of stress, abuse history and other psychosocial factors in IBS and their outcomes; brain imaging to assess the association between psychological factors and central pain regulation; hereditary and learned-behavior aspects of IBS and recurrent abdominal pain (RAP); the effects of reproductive hormones on IBS; and the tendency of IBS to co-exist with other disorders. Center researchers have also studied the effectiveness of treatment strategies that combine cognitive behavior therapy (CBT), hypnosis, antidepressants, and/or patient education with medications for IBS; biofeedback combined with medical management for fecal incontinence and constipation; and complimentary and alternative medicine techniques such as Mindfulness Meditation.

**Research Network Core**

In addition to collaborations with investigators in a variety of disciplines at UNC, the Center has an ever-expanding Research Network of collaborating institutions outside UNC for large-scale, multi-center studies. These strategic alliances have been developed to take advantage of the specialized skills and expertise of investigators at other sites and to increase the pool of research subjects participating in Center studies. The Research Network has benefited from the development of new technologies for web-based data acquisition/sharing and research subject recruitment, as well as a growing library of FGID-related scannable and Internet-based questionnaires in different languages. The purposes of the Research Network Core are to (1) provide administrative support from the UNC Center for funded research collaborations; (2) provide data management for multi-center studies; and (3) provide Center investigators with research-ready sites with proven abilities, both nationally and internationally, to facilitate the funding of large-scale, multi-center studies.

**Biometry Core**

The primary purposes of the Biometry Core are to provide (1) consultation and advice on experimental design and statistical analysis; (2) data entry and data management for selected projects; and (3) data analysis for selected projects. Other capabilities of this core are: (4) developing questionnaire booklets for research studies; (5) developing data management and quality assurance procedures and manuals; (6) developing data management programs; (7) coding, entering and cleaning data; (8) developing random assignment schemes for clinical trials; (9) overseeing the production of reports for data and safety monitoring boards and for regulatory agencies; and (10) assisting investigators in analyzing their data and developing research reports for publication.

**Data Acquisition & Technology Applications Core (DATA)**

The DATA Core provides researchers with sophisticated data acquisition and data-sharing methodologies, data management, and archiving of research data to facilitate the conduct of large studies (especially multi-site studies) by our UNC research team and our national and international Research Network collaborators. Capabilities of this core include (1) creating and scanning of machine-readable questionnaires, (2) internet surveys, (3) programs and websites for managing multi-site studies, (4) secure server for multi-site studies, (5) PDA-based symptom surveys, and (6) automated telephone data entry.

**Research Resources**

**Research Administration Core**

The purposes of the Research Administration Core are to provide (1) a central resource for recruiting research subjects, (2) assistance with the recruitment of Hispanic and other minority research subjects, and (3) a team of research coordinators.
**RESEARCH**

**Education & Dissemination Core**

The goals of the Education & Dissemination Core are to (1) meet the educational needs of patients and the general public, (2) educate health care providers in the diagnosis and treatment of functional GI and motility disorders, (3) disseminate research findings to professional and lay audiences, and (4) utilize the internet for the recruitment of research study subjects and for the conduct of internet-based surveys and other research projects.

**Seed Grant Core**

The NIH infrastructure grant provides funding for a Seed Grant Program (SGP) to support up to three pilot projects each fiscal year (each for $37,500 in direct costs). The goals of the SGP are to encourage and develop new investigators by providing (1) funds to collect the pilot data essential to successful NIH applications, and (2) mentoring in grant writing as well as the conduct of a research project. Research seed grants are awarded to new investigators for studies related to functional GI and motility disorders under the following eligibility criteria:

- The Seed Grant Program is open to any investigator at UNC (whether a member of the Center or not) and to any investigator within the Research Network associated with the Center.

- Investigators who have already received NIH support as a principal investigator are not eligible for Seed Grant funds. The only exception to this restriction is PIs who have received only conference or educational grants from NIH; these PIs are not yet considered experienced in securing NIH research grants.

- Proposals that are extensions of already-funded grants are also not eligible for SGP funds.

- All proposals must identify a senior research mentor for the proposed project, and include a letter of support from the mentor agreeing to provide supervision and semiannual reports.

The application process is modeled on the one used by NIH, using the NIH form with a Center cover page and page restrictions. Nicholas Talley, MD, Chief of Medicine at the Mayo Clinic in Jacksonville, FL, serves as chair of an ad hoc Seed Grant Selection Committee. This committee consists of Dr. Talley along with one or more other investigators selected by him who (1) have the expertise to evaluate the scientific merit of a particular proposal, (2) are not affiliated with the UNC Center, and (3) have no conflict of interest with respect to the applicant. The application review process is also modeled on the one used at NIH, using the following guidelines: (a) significance of the research question and strength of the research plan; (b) feasibility (availability of subjects and other resources); (c) training and other qualifications of the applicant; (d) plans for mentoring; (e) plans for using the grant to prepare for the submission of an NIH project grant; and (f) relevance to functional gastrointestinal or motility disorders. Support is not provided for pharmaceutical or device trials (ineligible).

As of the end of 2008, the following seed grants have been awarded:

- Miranda van Tilburg, PhD -- Development of a Standardized Hypnotherapy for Chronic Abdominal Pain in Children

- Denesh Chitkara, MD -- Functional abdominal complaints from childhood to adulthood: evaluation of early environmental influences using a population based birth cohort

- Yehuda Ringel, MD -- The association between intestinal microflora and mucosal inflammation and immune activation in patients with IBS – a pilot study

- Kimberly A. Brownley, PhD – Endogenous ghrelin and gastric emptying in patients with functional dyspepsia

- Michael Jones, MD -- Stigma in irritable bowel syndrome: development of a condition-specific measure and relationship to quality of life

- Susan A. Gaylord, PhD – Mindfulness for irritable bowel syndrome

- Sumei Liu, MD – Stress, enteric corticotrophin-releasing factor (CRF), and colon dysfunction

- Martina Puzanovova, MD – Autonomic reactivity in response to laboratory induced mental stressor in children with IBS


- Ian Carroll, PhD -- The Role of Serine-Proteases in Gastrointestinal Function and IBS

- Miranda van Tilburg, PhD – Suicidal Ideation and Attempt in Adolescents with Chronic Abdominal Pain

- Denniz Zolnoun, MD, MPH -- Dysregulation in Pain Sensitivity, Psychological State, and Proinflammatory Cytokines in Patients with VVS and IBS
**Research Day 2008**

**Gastrointestinal Biopsychosocial Research at UNC**  
October 3-4, 2008  
UNC Center for Functional GI & Motility Disorders  
The University of North Carolina at Chapel Hill

As part of our NIH Mind-Body Infrastructure grant (R24), the Center hosted on October 3-4, 2008 the fourth of what has now become an annual Research Day, on the campus of the University of North Carolina at Chapel Hill.

The program for this symposium was focused on five areas of research: (1) Pelvic Floor and Fecal Incontinence, (2) Pathophysiological Mechanisms of FGID Symptoms, (3) Treatments, Symptoms, Health Status and Health Care Impact, (4) Pediatric Functional GI Disorders, and (5) Inflammation and Infection. The format included presentations on the state-of-the-art in each of these areas by visiting senior scientists, followed by overviews of on-going studies involving UNC faculty and investigators. This provides a summary of all presentations.

We greatly appreciate the educational grants from Sucampo Pharmaceuticals, Takeda Pharmaceuticals, Ironwood Pharmaceuticals, Prometheus Pharmaceuticals, Salix Pharmaceuticals, and AstraZeneca Pharmaceuticals that provided additional support for this event.

**TOPIC: Pelvic Floor & Fecal Incontinence**

- **Satish Rao, MD, PhD, FRCP (LON)**  
  State of the Art: Evaluation and therapy of fecal incontinence: Plugging the breach. Professor of Medicine; Director, Neurogastroenterology & GI Motility, Carver College of Medicine, University of Iowa, Iowa City, Iowa

- **William Whitehead, PhD**  
  Epidemiology of fecal incontinence: NHANES 2005-2006 survey. Professor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- **Madhusudan Grover, MD**  
  Role of incontinence in nursing home referrals. PGY-3 Internal Medicine, School of Medicine, Michigan State University, East Lansing, Michigan

- **Steve Heymen, PhD** (William Whitehead, PhD presenter)  
  Education, medical management and pelvic floor exercises for fecal incontinence. Professor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- **Denniz Zolnoun, MD, MPH**  
  Genetic basis of co-morbid conditions: Irritable Bowel Syndrome (IBS) and Vulvar Vestibulitis Syndrome (VVS). Assistant Professor of Obstetrics & Gynecology, UNC at Chapel Hill

**TOPIC: Pathophysiological Mechanisms of FGID Symptoms**

- **Robin Spiller, MD, MSC**  
  State of the Art: Role of the small bowel in symptoms of irritable bowel syndrome. Professor of Gastroenterology, University Hospital, Queens Medical Centre, Nottingham, England

- **William Whitehead, PhD**  
  Genes which distinguish IBS from healthy controls: Preliminary findings. Professor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- **Yehuda Ringel, MD**  
  The role of intestinal bacteria in the pathophysiology of functional bowel disorders. Assistant Professor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- **William Whitehead, PhD**  
  Development of hypervigilance for visceral pain questionnaire. Professor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- **Ryan Madanick, MD**  
  Impedance-pH monitoring for patients with refractory GERD symptoms. Assistant Professor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- **Chloe Hill, BA**  
  Development of a more sensitive method to measure visceral pain sensitivity in IBS patients. Third Year Medical Student, Cornell University, Ithaca, New York

- **Kimberly Brownley, PhD**  
  Endogenous appetite hormones and gastric emptying in postprandial distress syndrome: Project update. Assistant Professor of Psychiatry, UNC at Chapel Hill

**TOPIC: Treatments, Symptoms, Health Status & Health Care Impact**

- **Kevin Olden, MD**  
  State of the Art: The mystery of Cyclic Vomiting Syndrome. Jerome S. Levy Professor of Medicine, Division Director, Division of Gastroenterology & Hepatology, Little Rock, Arkansas
TOPIC: TREATMENTS, SYMPTOMS, HEALTH STATUS & HEALTH CARE IMPACT (CONTINUED)

- Miranda van Tilburg, PhD – Suicidal ideation and attempt in adolescents with chronic pain. Assistant Professor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- Olafur Palsson, PsyD – CONQUEST Study: Impact of constipation on quality of life and healthcare costs. Associate Professor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- Stephan Weinland, PhD – What is an “episode” of IBS? The Ecological Momentary Assessment perspective. Instructor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- Douglas Drossman, MD – International survey of patients with IBS: Symptom features, health status, treatments and risk taking to achieve clinical benefit. Professor of Medicine & Psychiatry, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- Spencer Dorn, MD, MPH – Association of psychosocial factors and disease markers with health status in Celiac Disease. Clinical Fellow of Gastroenterology & Hepatology, UNC at Chapel Hill

- Reuben Wong, MD – Partner burden in Irritable Bowel Syndrome. Associate Consultant, Gastroenterology & Hepatology, National University Hospital, Singapore

- Susan Gaylord, PhD – Mindfulness treatment for IBS: Correlations of dispositional mindfulness with physical and psychological factors at baseline. Assistant Professor of Physical Medicine & Rehabilitation, UNC at Chapel Hill

- Stephan Weinland, PhD – Quetiapine and the treatment of IBS. Instructor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- Olafur Palsson, PsyD – Characterization of IBS symptom episodes. Associate Professor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

TOPIC: PEDIATRIC FGIDs

- Rona Levy, PhD, MPH, FACG, AGAF – State of the Art: An overview of where we have been and thoughts for next directions for research on pediatric FGIDs. Professor, School of Social Work, University of Washington, Seattle

- Miranda van Tilburg, PhD – Long-term follow-up on guided imagery for functional abdominal pain. Assistant Professor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- Nader Youssef, MD, MBA – Pilot study on the feasibility and efficacy of a school nurse guided imagery program for childhood recurrent abdominal pain. Goryeb Children’s Hospital/Atlantic Health, New Jersey

TOPIC: INFLAMMATION & INFECTION

- Jack Wood, PhD – State of the Art: Enteric neurogenerative disease. Professor of Medicine, Department of Physiology, College of Medicine and Public Health, The Ohio State University, Columbus OH

- William Whitehead, PhD – Are enteric neuropathies found in a subset of IBS patients? Professor of Medicine, Division of Gastroenterology & Hepatology, UNC at Chapel Hill

- Sumei Liu, MD – Stress, enteric corticotropin-releasing factor (CRF), and colon dysfunction. Ohio State University, Columbus OH

- Madhusudan Grover, MD – Post-infectious IBS and IBD-IBS: A conceptual model. PGY-3 Internal Medicine, School of Medicine, Michigan State University, East Lansing MI

- Reuben Wong, MD – Gene-environment interactions in IBS: A prospective study of post-infectious IBS. Associate Consultant, Gastroenterology and Hepatology, National University Hospital, Singapore
## 2008 Research Grants

### Contracts & Awards

### NIH & Other Federally-Supported Studies

<table>
<thead>
<tr>
<th>Grant ID</th>
<th>Agency</th>
<th>Start Date</th>
<th>End Date</th>
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<td>Gastrointestinal Biopsychosocial Research Center -- Infrastructure grant submitted in response to RFA OB-03-004, Mind-Body Interactions and Health</td>
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<td>09/15/07-06/30/12</td>
<td>$119,620 (UNC subcontract)</td>
<td>Evaluating Predictors and Interventions in Sphincter of Oddi Dysfunction (EPISOD)</td>
<td></td>
</tr>
<tr>
<td>KO7 CA125588-0111</td>
<td>NIH NCI</td>
<td>09/01/07-08/30/12</td>
<td>$375,000</td>
<td>Mentored Clinical Research Scholar Award – Gastric Cancer Epidemiology in Central America</td>
<td></td>
</tr>
</tbody>
</table>

### Aims
- **R24 DK067674**: The goals of the grant are (1) to establish a network of collaborators within UNC and between the UNC Center and other sites nationally and internationally to carry out research on functional gastrointestinal and motility disorders, (2) to provide support for investigations through core resources (biostatistics, data acquisition technology, subject recruitment, project management), and (3) to recruit and train new investigators in this field.
- **RO1 DK31369**: In the previous 5 years of this award we tested the hypothesis that IBS is not a single disease entity but instead represents a cluster of distinct etiologies for common bowel symptoms. We recruited 280 IBS patients and 60 healthy controls, assessed all major physiological and psychological mechanisms proposed for IBS, and then used the statistical method of cluster analysis to identify four distinct subgroups: pain-predominant, psychologically-distressed, constipation-predominant, and diarrhea-predominant. In the next five-year cycle we will test additional IBS patients and healthy controls and will investigate genetic polymorphisms and environmental exposures that contribute to the development of these four subtypes of IBS.
- **UO1 DK074739-01A1**: Aim: To assess the effectiveness of endoscopic sphincterotomy in adult patients with sphincter oddi dysfunction.
- **KO7 CA125588-0111**: Aim: To investigate host genetic, bacterial and nutritional risk factors for gastric cancer in a high-incidence population.
### Aims: To compare the outcome of combined treatment of CBT and desipramine against single treatment (CBT or desipramine) among patients with moderate or severe functional bowel disorder. Secondary aims are (1) to identify demographic, symptomatic, physiological and psychosocial predictors of improvement; (2) to determine the relationship of GI physiology to abdominal pain and association with psychosocial variables; and (3) to determine whether treatment effects are mediated by changes in GI physiology and whether the effects are independent of psychosocial variables. The study assessment is done at the University of Toronto, and data management and analysis is coordinated at UNC.

### Aim: A randomized controlled trial comparing social learning and cognitive behavior therapy (SLCBT) to an education and support condition (ES) for the treatment of inflammatory bowel disease in children. The goal is to reduce the severity and frequency of exacerbations of IBD in children.

### Aims: This is a pilot study to test the feasibility and design parameters for a randomized clinical trial to evaluate the efficacy of Mindfulness Based Stress Reduction, in comparison to a patient support group control, for the treatment of irritable bowel syndrome. A secondary aim is to evaluate the mechanism responsible for any treatment effects.

### Aims: (1) To characterize sleep impairment in IBS by assessing: (a) sleep fragmentation, (b) REM sleep, (c) alteration in melatonin levels, (2) assess effect of sleep fragmentation in IBS, and (3) determine association between sleep fragmentation, excessive daytime sleepiness, and nocturnal movement comes with IBS symptoms and psychosocial variables.
<table>
<thead>
<tr>
<th>Contract ID</th>
<th>Company</th>
<th>Dates</th>
<th>Description</th>
<th>Aim</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRUSQUET0448</td>
<td>AstraZeneca</td>
<td>11/19/07-11/30/10</td>
<td>Seroquel study: An open label study of Seroquel SR® (Quetiapine) for the treatment of refractory functional bowel disorders</td>
<td>To determine the safety and efficacy of Seroquel® (Quetiapine) for the treatment of refractory functional bowel disorders.</td>
</tr>
<tr>
<td>07-031L</td>
<td>Takeda Pharmaceuticals</td>
<td>03/03/08-03/02/11</td>
<td>A proposal to evaluate time-specific relationships between variables of pain, stress, and bloating in the onset of IBS diarrhea and constipation symptoms using Ecological Momentary Assessment</td>
<td>(1) To determine the relation of pain and bloating a) relative to average pain and bloating scores prior to defecation in patients with IBS in general and IBS subtypes (IBS-C, D, M) as well as in relation to constipated (BSSI, 2) and diarrheal (BSS, 6, 7) stools. (2) To determine the association of acute stress with increased pain and bloating scores or with defecation in IBS and its subtypes as well as for constipated and diarrheal stools. (3) To understand the correlation between EMA and standard diary card measures as a means to validate their use.</td>
</tr>
<tr>
<td>07-004L</td>
<td>Takeda Pharmaceuticals</td>
<td>07/01/07-03/31/09</td>
<td>(Drug) effects on visceral pain sensitivity</td>
<td>To test the hypothesis that (drug) decreases pain sensitivity as measured by a barostat.</td>
</tr>
<tr>
<td>07-005L</td>
<td>Takeda Pharmaceuticals</td>
<td>07/01/07-03/31/09</td>
<td>Development of a questionnaire to measure hypervigilance for visceral pain</td>
<td>To develop and validate a questionnaire used to identify patients who are hypervigilant for noxious visceral sensations and who show a lower threshold for reporting pain.</td>
</tr>
<tr>
<td>CHTF919EUS54</td>
<td>Novartis Pharmaceuticals</td>
<td>01/01/06-12/31/09</td>
<td>CONQUEST Study: Impact of chronic constipation on health care costs and quality of life</td>
<td>Carry out a large survey of a health maintenance organization comparing clinic consulters with chronic constipation, patients with chronic constipation who have not consulted physicians, patients with constipation-predominant IBS, and healthy controls. The survey population totals 1700 individuals.</td>
</tr>
<tr>
<td>(Whitehead, PI)</td>
<td>McNeil Consumer Healthcare</td>
<td>06/24/08-12/31/09</td>
<td>Characterization of IBS symptom episodes</td>
<td>Carry out a large survey of a health maintenance organization comparing clinic consulters with chronic constipation, patients with chronic constipation who have not consulted physicians, patients with constipation-predominant IBS, and healthy controls. The survey population totals 1700 individuals.</td>
</tr>
<tr>
<td>(Whitehead, PI)</td>
<td>McNeil Consumer Healthcare</td>
<td>07/01/07-12/31/08</td>
<td>Secondary prevention of fecal incontinence through diagnostic screening and conservative management with education and medications to normalize stool consistency</td>
<td>To carry out a pilot study to test the effectiveness of a conservative treatment, and (2) to improve the treatment based on feedback from patients.</td>
</tr>
<tr>
<td>IIS-2008-01</td>
<td>McNeil Consumer Healthcare</td>
<td>01/01/09-05/31/10 new in 2009)</td>
<td>A proposal to use ecological momentary assessment (EMA) to evaluate time-specific relationships of stress and other factors with symptoms of diarrhea in patients with functional diarrhea or IBS-D/M and their responses to Loperamide treatment</td>
<td>To determine if a medication such as Loperamide combination can alter the findings leading to quicker resolution of episodes, and associated clinical features.</td>
</tr>
</tbody>
</table>
## 2008 Research Grants, Contracts & Awards

### Other Research Support and Awards

<table>
<thead>
<tr>
<th>Research Award (van Tilburg)</th>
<th>IFFGD</th>
<th>09/08-10/31/09</th>
<th>$50,000</th>
<th>Maternally Inherited mtDNA Sequence Variants, Irritable Bowel Syndrome and Other Functional Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Award (Morgan)</td>
<td>IFFGD</td>
<td></td>
<td>$50,000</td>
<td>IBS Susceptibility Genotypes and Gastroenteritis Exposure in the Developing Nation Setting</td>
</tr>
<tr>
<td>Investments for the Future Initiative (Whitehead)</td>
<td>UNC School of Medicine</td>
<td>06/01/07-05/31/10</td>
<td>$580,000</td>
<td>Transferring Scientific Discoveries in Gastrointestinal Motility Disorders from the Laboratory to Community Practitioners: Treating Fecal Incontinence and Constipation in the Frail Elderly and Women</td>
</tr>
<tr>
<td>Investments for the Future Initiative (Morgan)</td>
<td>UNC School of Medicine</td>
<td>06/01/07-05/31/10</td>
<td>$900,000</td>
<td>Initiation of a Bilingual Multispecialty Clinic for Adult Latinos for Clinical Care, Research and Teaching</td>
</tr>
<tr>
<td>Rome Foundation (Morgan, PI)</td>
<td>Rome Foundation</td>
<td>07/01/06-12/31/09</td>
<td>$30,000</td>
<td>Multinational Spanish Translation and Validation of the Rome III Diagnostic Questionnaire in Latin America. Consortium: UNC, Mexico, Nicaragua, Chile</td>
</tr>
<tr>
<td>Rome Foundation (Morgan, PI)</td>
<td>Rome Foundation</td>
<td>07/01/03-12/31/08</td>
<td>$10,000</td>
<td>The Population-Based Epidemiology of Functional Gastrointestinal Disorders in Nicaragua (Rome II)</td>
</tr>
<tr>
<td>S&amp;R Foundation (Drossman, PI)</td>
<td></td>
<td>07/01/08-06/30/09</td>
<td>$100,000</td>
<td>Award for support of UNC Functional GI and Motilities Clinical Services</td>
</tr>
<tr>
<td>Contract #</td>
<td>Company</td>
<td>Start Date</td>
<td>End Date</td>
<td>Description</td>
</tr>
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<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DDP733-07-010</td>
<td>Dynogen</td>
<td>10/01/2007</td>
<td>06/30/2009</td>
<td>A Randomized, Double-Blind, Placebo-Controlled Study to Evaluate the Safety and Effectiveness of (Drug) in Female Patients with Irritable Bowel Syndrome with Constipation</td>
</tr>
<tr>
<td>AGI003-007</td>
<td>AGI Therapeutics Research Ltd.</td>
<td>08/11/2008</td>
<td>08/10/2011</td>
<td>An Open-Label, Roll-Over Safety Study of (Drug) in the Treatment of Irritable Bowel Syndrome with Diarrhea (IBS-D)</td>
</tr>
<tr>
<td>AGI003-003</td>
<td>AGI Therapeutics Research Ltd.</td>
<td>04/22/2008</td>
<td>04/21/2011</td>
<td>A Randomized, Double-Blind, Placebo-Controlled Study of (Drug) in the Treatment of Irritable Bowel Syndrome with Diarrhea (IBS-D)</td>
</tr>
<tr>
<td>203818-008-00</td>
<td>Allergan</td>
<td>03/29/2008</td>
<td>05/31/2011</td>
<td>A Multicenter, Multi-Dose, Double-Blind, Randomized, Placebo-Controlled, Parallel Group Study of the Safety and Effectiveness of (Drug) Given Twice Daily for Four Weeks for the Relief of Irritable Bowel Syndrome (IBS-D)</td>
</tr>
<tr>
<td>ASMP2003</td>
<td>Tioga</td>
<td>06/15/2008</td>
<td>06/14/2009</td>
<td>A 12-Week, Randomized, Double-Blind, Dose-Ranging, Placebo-Controlled Study of (Drug) in Subjects with Irritable Bowel Syndrome</td>
</tr>
<tr>
<td>TRN-002-202</td>
<td>Trine Pharmaceuticals</td>
<td>08/21/2008</td>
<td>08/20/2009</td>
<td>A Randomized, Placebo-Controlled, Double-Blind Study to Assess the Safety and Efficacy of (Drug) for the Symptomatic Treatment of Diarrhea-Predominant Irritable Bowel Syndrome (d-IBS) in females</td>
</tr>
<tr>
<td>TD-5108</td>
<td>Theravance</td>
<td>11/01/2009</td>
<td>10/31/2009</td>
<td>A Randomized, Placebo-Controlled, Double-Blind Study of (Drug) for the Treatment of Chronic Constipation</td>
</tr>
<tr>
<td>0211-SIB-05S1</td>
<td>Sucampo Pharmaceuticals</td>
<td>10/25/2009</td>
<td>10/25/2012</td>
<td>An Open Label Study of (Drug) for Constipation-Predominant Irritable Bowel Syndrome</td>
</tr>
<tr>
<td>MCP 103-201</td>
<td>Microbia</td>
<td>03/20/2007</td>
<td>08/30/2008</td>
<td>A Randomized, Multicenter, Double-Blind, Placebo-Controlled, Dose-Range-Finding, Parallel-Design, Phase 2 Trial of (Drug) Administered to Patients with Chronic Constipation</td>
</tr>
<tr>
<td>MCP 103-202</td>
<td>Microbia</td>
<td>06/01/2007</td>
<td>12/31/2008</td>
<td>A Randomized, Multicenter, Double-Blind, Placebo-Controlled, Dose-Range-Finding, Parallel-Design, Phase 2 Trial of (Drug) Administered to Patients with Irritable Bowel Syndrome</td>
</tr>
<tr>
<td>MCP-103-305</td>
<td>Ironwood</td>
<td>02/26/2009</td>
<td>02/25/2012</td>
<td>An Open-Label, Long-Term Safety Study of Oral Linaclotide Administered to Patients with Chronic Constipation or Irritable Bowel Syndrome with Constipation</td>
</tr>
<tr>
<td>MCP-103-303</td>
<td>Ironwood</td>
<td>02/26/2009</td>
<td>02/25/2012 (new in 2009)</td>
<td>A Phase 3, Randomized, Double-Blind, Placebo-Controlled, Parallel-Group Trial of Linaclotide Administered Orally for 12 Weeks Followed by a 4 Week Randomized Withdrawal Period in Patients with Chronic Constipation</td>
</tr>
</tbody>
</table>
A fourth goal of the Center is to provide helpful up-to-date information for patients and the public through seminars and workshops as well as printed materials, videos and the Internet.

The Center’s educational activities for patients and the larger public include symposia, printed materials and publications, videos, and the website www.med.unc.edu/ibs. These activities are supported through donations from individuals and educational grants from corporate sponsors.

The Center’s website at www.med.unc.edu/ibs has evolved as a leading on-line resource for information on IBS and other functional GI and motility disorders for patients, health care providers and scientists, and the public at large. Our website averages 400 visitors per month. Content is updated on a regular basis, and new technologies and approaches are expanding the website’s utility as a vehicle to recruit subjects for research studies and conduct Internet-based surveys.

In addition to the website, patients and the larger public have access to helpful information through the Center’s patient education brochures and videos. Center brochures are available on topics such as Irritable Bowel Syndrome (IBS), Bowel Leakage, How to Talk with Your Physician, Constipation, The Use of Antidepressants in the Treatment of IBS, Psychological Services, Narcotic Bowel, and Bowel Retraining.

Center videos (many on-line at www.med.unc.edu/ibs) are available on topics such as “Living with IBS,” “IBS – Transforming Your Life Through IBS Management” (Winner of Communicator Award), “Biopsychosocial Approach to IBS: Improving the Physician-Patient Relationship” (Winner of 1997 AMA International Film Festival), AGA Clinical Teaching Project, Third Annual Symposium on Functional GI & Motility Disorders, and video clips from the Cutting Edge Series. A new documentary video titled “Doctor, I Have These Symptoms”, produced by Bella Communications, provides information on IBS through the eyes of several patients seen at our Center (winner of 2005 Communicator Award).

Dr Douglas Drossman was interviewed by WebMD on several topics relating to digestive health. They created a series of 13 videos, featuring Dr. Drossman, for their website. They can be seen on our website (www.med.unc.edu/ibs) as well as on WebMD (http://www.webmd.com/video/drossman-how-treat-ibs).

1. Stress and Digestive Problems
2. Complementary
3. What is IBS?
4. Treating Fecal Incontinence
5. Preventing and Treating Traveler’s Diarrhea
6. Stress and Digestive Problems
7. Diagnosing IBS
8. Truth about Passing Gas
9. IBS and Mind-Triggered Symptoms?
10. Treating Mild and Severe IBS
11. What is Fecal Incontinence?
12. Common Constipation Treatments
13. Complementary Therapies for GI Disorders

The Center’s newsletter – Digest – contains articles and news items on new treatments, research findings, updates on GI conferences, announcements of events and Center activities, and recognition for Center supporters and sponsors. It is available on-line at www.med.unc.edu/ibs and hard copies are distributed through the Center’s extensive mailing list, at various events, and upon request.

A patient symposium is hosted every other year. On October 25, 2008, we hosted “Functional Gastrointestinal Disorders: New Perspectives and Treatments” at the William and Ida Friday Center in Chapel Hill, NC. The next Patient Symposium will be held in 2010.
The UNC Center for Functional GI & Motility Disorders hosted a Patient Symposium on Saturday, October 25, 2008. The theme was Functional Gastrointestinal Disorders: New Perspectives and Treatments. The symposium was held at the William and Ida Friday Center for Continuing Education in Chapel Hill. A Q&A session followed plenary sessions, and breakout sessions ended the day. This provided the opportunity for questions and answers with the symposium faculty.

PLENARY SESSIONS

- **Douglas Drossman, MD** *Functional GI Disorders* IBS and Functional Abdominal Pain. Professor of Medicine & Psychiatry, UNC School of Medicine, Co-Director, UNC Center for Functional GI & Motility Disorders, Chapel Hill, NC

- **Ryan Madanick, MD** Chest Pain and Swallowing Difficulties. Assistant Professor in the Division of Gastroenterology and Hepatology, Chapel Hill, NC

- **Yolanda Scarlett, MD** Constipation, Diarrhea and Bloating. Associate Professor of Medicine, UNC School of Medicine, Chapel Hill, NC

- **William E. Whitehead, PhD** Pelvic Floor Disorders: Fecal Incontinence and Obstructive Defecation. Professor of Medicine & Adjunct Professor of OBGYN, UNC School of Medicine Co-Director, UNC Center for Functional GI & Motility Disorders, Chapel Hill, NC

- **Joseph Zimmerman, MD** Nausea and Vomiting. Visiting Scholar. Professor of Gastroenterology at Hadassah Medical Center in Jerusalem, Israel.

- **William E. Heizer, MD** The Role of Diet in the Functional GI Disorders. Professor of Medicine, UNC School of Medicine, Chapel Hill, NC

- **W. Grant Thompson, MD** The Doctor-Patient Relationship. Special Guest Speaker, Professor Emeritus University of Ottawa

- **Douglas A. Drossman, MD** - Medical Management. Professor of Medicine & Psychiatry, UNC School of Medicine, Co-Director, UNC Center for Functional GI & Motility Disorders, Chapel Hill, NC

- **Stephan Weinland, PhD** How Can A Psychologist Help? Instructor of Medicine, UNC School of Medicine, Chapel Hill, NC

- **Kim Meyer, CCRC** Going Into a Research Study. Research Coordinator, UNC Center for Functional GI & Motility Disorders, Chapel Hill, NC

- **William Whitehead, PhD** Biofeedback for Pelvic Floor Disorders: Constipation, Incontinence, Pain. Professor of Medicine & Adjunct Professor of OBGYN, UNC School of Medicine Co-Director, UNC Center for Functional GI & Motility Disorders, Chapel Hill, NC

- **Olafur Palsson, PsyD** Hypnosis Treatment. Associate Professor of Medicine, UNC School of Medicine, Chapel Hill, NC

BREAKOUT SESSIONS

Ask Us About Functional GI Disorders: Gastroenterologist, Physician Assistant

- **Douglas A. Drossman, MD**
- **Lynne Eckert, PA**

Integrative (Complementary and Alternative) Medicine

- **Kim Faurot, PA**

Psychological Treatment

- **Stephan Weinland, PhD**
- **Charles Burnett, PhD**
- **Olafur Palsson, PsyD**
Good and Bad Bacteria in the Gut: Infections and Probiotics

- Reuben Wong, MD

Ask Us About Functional GI Disorders: Gastroenterologist, Physician Assistant, and Psychologist

- Joseph Zimmerman, MD
- Lynn Eckert, PA
- Stephan Weinland, PhD

Upper Gastrointestinal Symptoms and Management: Chest Pain and Dyspepsia

- Ryan Madanick, MD
- Reuben Wong, MD

Understanding the Irritable Gut

- W. Grant Thompson, MD
- William Whitehead, PhD

W. Grant Thompson, MD
Professor Emeritus University of Ottawa

The Center was pleased to have W. Grant Thompson as a special guest speaker for the 2008 Patient Symposium. Dr. Grant Thompson has presented over 200 scientific or educational reports in 5 continents and is the author of 7 highly regarded books in the field of functional GI disorders (FGIDs). He serves on several international committees concerned with the classification and diagnostic criteria for the FGIDs, including his work as a Rome Foundation Board member. Dr. Thompson is retired from clinical practice but remains active consulting in clinical trial design, medical education, medical legal work, and writing about the FGIDs.
Training

Another goal of the Center is to provide multidisciplinary training and education in clinical and research skills, with an emphasis on patient-centered care and advanced research methods.

This goal is implemented through a Visiting Scholars Program (short stays by guest faculty), Visiting Scientist Program (more extended stays by guest faculty), training at the pre-doctoral or postdoctoral level, and regularly scheduled seminars (also see Patient Care). The Center has developed educational materials (videos, brochures) for health professionals, and is involved with events providing continuing medical education (CME) credits. Readers are encouraged to visit the Center’s website to see our professional educational materials in the “Training” area of the website, including a growing list of on-line publications and videos.

Visiting Scholars Program

The Visiting Scholars Program provides an opportunity for faculty, investigators and clinicians from other institutions to visit the Center for a short stay of a couple of days or several weeks. By hosting visitors from around the US and the world, the Center benefits from a unique opportunity to share and exchange ideas on treatments for functional GI and motility patients, confer on research studies, and build collaboration networks for future projects. For the duration of their stay at the Center, visiting scholars have access to expert psychologists, gastroenterologists and physiologists, providing a wide variety of opportunities to learn vital skills and techniques in the treatment and research of functional GI and motility disorders. Visiting scholars also have the chance to observe patient care, participate in research meetings and teaching conferences (CME), and expand their training experience by meeting with other faculty within the Division of Gastroenterology and Hepatology and elsewhere at UNC. Visiting Scholars in 2008 included:

- Ben Ogunwale, MD, ANMS Fellow (Jan 7-31) – Department of Gastroenterology & Hepatology, MetroHealth Medical Center, Cleveland, OH
- Madhu Grover (Jan 14-Feb 10) – PGY-3 Internal Medicine, School of Medicine, Michigan State University, East Lansing, MI
- Adil Bharucha, MD (Jan 21-23) – Professor of Medicine, Associate Director, Clinical Enteric Neuroscience Translational and Epidemiological Research Program, Mayo Clinic, Rochester, MN
- Dr. Chaowen Hsu (Feb 26) – Chief Resident, Department of Surgery, Kaohsiung Veterans General Hospital, Taiwan
- Dr. Chieh-Hsin Lin (Feb 26) – Department of Geriatric Psychiatry, Kaohsiung Municipal Kai-Suan Psychiatric Hospital, Taiwan
- Frank Marrero, MD, ANMS Fellow (Jun 1-30) – Gastroenterology Fellow, Cleveland Clinic, Cleveland, OH
- Ami Sperber, MD, MSPH (May) – Soroka Medical Center, Ben-Gurion University of The Negev, Israel
- Giuseppe Chiarioni, MD (Jul 15-16) – Division of Gastrointestinal Rehabilitation of the University of Verona at Valeggio S/M, Azienda Ospedaliera and University of Verona, Italy
- Norman Clark (Aug 1-31) – medical student, Columbia Medical School of International Health, Beer-Sheva, Israel
- Robert Schulman, MD (Sep 8-12, Oct 13-17) – Professor of Pediatrics, Chair of Pediatric Gastroenterology, Baylor College of Medicine, Houston, TX
- Richard Lane, MD, PhD (Sep 18) – Professor of Psychiatry, Psychology, and Neuroscience, University of Arizona, Tucson, AZ
- Jaya Agrawal, MD, ANMS Fellow (Oct 1-31) – Resident in Internal medicine and Fellow at the Brigham and Women’s Hospital, Boston, MA
- Ravi Guruswami, MD, MPH (Nov 17) – Academic Hospitalist, Eastern Virginia Medical School, Norfolk, VA
- Michael Pezzone, MD, PhD (Dec 19) – Associate Professor of Medicine and Pharmacology & Chemical Biology, Division of Gastroenterology, Hepatology & Nutrition, University of Pittsburgh, Pittsburgh, PA

Visiting Scientist Program

The Center’s Visiting Scientist Program hosts faculty and investigators from other institutions for extended stays of one or two years, during which they participate as visiting faculty in the research projects of Center investigators. The Center accepts visiting scientists at all levels of their career and provides them with the flexibility to tailor their experience at the Center to their own needs and interests. Visiting scientists are normally supported by their own institutions or grant agencies but, under exceptional circumstances, they may be supported by the Center. Visiting scientists are expected to lecture or make presentations and, in this way, bring new skills and knowledge to the Center’s resident clinicians and investigators. They carry out and publish studies related to functional GI and motility disorders, and are invited to write articles for the Center’s quarterly Digest that are representative of their particular clinical care or academic interests. Our UNC Visiting Scientists in 2008 were:
**TRAINING**

- **Reuben Wong, MD** (June 2008-June 2009) – Dr. Wong visited the Center on a one-year grant from the Singapore Health Ministry, to sub-specialize in functional gastrointestinal disorders. He is an Associate Consultant in the Department of Gastroenterology and Hepatology and a clinical tutor in the Department of Medicine, National University Hospital, Singapore. Dr. Wong received his basic medical degree (MBBS) in 1998 from the National University of Singapore and his postgraduate degree in Internal Medicine from the Royal College of Physicians (United Kingdom) in 2004. In 2008, Dr. Wong was admitted as a Fellow of the Academy of Medicine (Singapore) as a specialist in gastroenterology. During his visit at UNC, Dr. Wong spent 50% of his time as a visiting clinician in the UNC Functional GI & Motility Disorders Clinic and the other half of his time pursuing 3 research projects: post-infectious IBS (with W.E. Whitehead), and an assessment of the rectal examination in academic physicians multicenter study with Drs Drossman, Wald, Bharucha, & Rao, and the impact of IBS on partners (with D.A. Drossman).

- **Joe Zimmerman, MD** (September 2008-September 2009) – Dr. Zimmerman is on sabbatical from his appointment as Associate Professor of Internal Medicine and Gastroenterology at Hadassah-Hebrew Medical School, Jerusalem, Israel. He is a graduate of Hadassah Medical School, where he completed his residency in Internal Medicine and a fellowship in Gastroenterology. During his visit at UNC, Dr. Zimmerman spent 50% of his time as a visiting clinician in the UNC Functional GI & Motility Disorders Clinic and the other half of his time pursuing his research interests in a detoxification protocol for treating narcotic bowel syndrome (with D.A. Drossman) and the validation of various scales he has developed for the measurement of GI symptoms.

**PRE-DOCTORAL TRAINING PROGRAM**

The Center is able to provide pre-doctoral research and/or clinical training to a limited number of trainees through its Pre-doctoral Training Program. These are usually one-year fellowships and are normally supported by grant agencies external to the Center. The first of these fellows was Catherine Forneris, who subsequently completed her PhD in clinical psychology and is now on the faculty of the UNC Department of Psychiatry. Another pre-doctoral fellow was Neeta Venepalli, a third year medical student when she completed a Doris Duke Fellowship. Her training involved all stages of developing and completing a clinical research study – literature review and proposal preparation, recruitment and interviewing of research subjects, analysis of the data, and writing and publishing the manuscript. Her topic was families of children with recurrent abdominal pain (RAP). She has now completed her MD degree and accepted an internship and residency training at Northwestern University, Evanston, Illinois.

- In 2008-2009, we welcomed Doris Duke Clinical Research Fellow **Chloé Hill**. Ms. Hill attended Brown University, where she was a participant in the Program in Liberal Medical Education and received her BS in Neuroscience with a focus on cognition. She is currently a student at Weill Cornell Medical College and has completed her 3rd year of medical school. Her one-year fellowship with Dr. Whitehead is focused on the etiology of IBS, specifically exploring the hypothesis of visceral hypersensitivity. Through physiological testing of IBS patients and healthy controls, Ms. Hill’s study aims to investigate the underlying mechanism of hypersensitivity, in order to elucidate whether this phenomenon is psychological or neurological. The goal of this work is to advance the understanding of the disease, as well as to clarify a target for effective therapy. Ms. Hill was awarded a North Carolina Translation and Clinical Sciences Institute Pilot Grant to further her study of hypersensitivity in IBS. In Fall 2009, Ms. Hill will return to New York to complete her 4th year of medical school.

**POSTDOCTORAL TRAINING PROGRAM**

The Center hosts postdoctoral fellows on an ongoing basis. Postdoctoral fellows typically stay for one or two years and receive mentored research training while participating in research projects with senior investigators in the Center. They may receive stipends from one of the two training grants awarded through the Division of Gastroenterology and Hepatology or from extramural grants.

**SEMINARS**

In the Patient Care section of this annual report, we have already described the Clinical Case Conference (weekly) and the Pelvic Floor Disorders Case Conference (monthly). In addition, the Evening Seminar on Clinical and Psychosocial Skills (monthly), developed by Dr. Drossman, is a unique program in clinical skills development based on a biopsychosocial patient-centered approach to understanding and treating patients with functional GI disorders (FGIDs). This program evolved from the work of Drs. George Engel and Karl Rogers. Dr. Drossman’s patient interview and educational facilitation style is highly regarded, and professionals in medicine and allied health fields visit the Center to learn these techniques while participating in the care of patients. Dr. Drossman began a monthly evening seminar for health care professionals that has included faculty and residents in Medicine and Psychiatry and, more recently, GI fellows. This seminar features interactive learning methods, including videotaped discussions, role playing, small group learning, and live interviews with patients. The seminar is unique in its participatory style, and the methods have been presented at national meetings and described in professional journals and magazines.
In 2008, 43 articles, 19 books/book chapter and 50 abstracts written by Center faculty and investigators were published or accepted for publication.

ARTICLES PUBLISHED/ACCEPTED IN 2008


Publications in 2008


**PUBLICATIONS IN 2008**

**BOOKS, CHAPTERS PUBLISHED/ACCEPTED IN 2008**


**ABSTRACTS PRESENTED/ PUBLISHED/ ACCEPTED IN 2008**


27. Palsson OS, Naliboff BD, Turner MJ, Levy RL, Feld AD, Von Korff...


38. Weinland SR, Morris CB, Hu JB, Leserman J, Dalton C, Drossman DA. Patient symptom experiences with IBS-M are closer to those of patients with IBS-C than to those of patients with IBS-D. Gastroenterology 2009, in press.


CO-DIRECTORS

The Co-Directors are profiled in greater detail earlier in this report.

Douglas A. Drossman, Co-Director
Professor of Medicine and Psychiatry

As Medical Director for the Functional GI & Motility Disorders Clinic, Dr. Drossman works closely with the clinicians described in Patient Care section of this annual report. In addition, his research team includes: Shrikant Bangdiwala, PhD; Jane Leserman, PhD; Stephan Weinland, PhD; Christine Dalton, PA-C; J.B. Hu, PhD; Carolyn Morris, MPH; Kim Meyer, CCRC; Ann Selph; Shannon Adams; Jane Hankins, MAT; Spencer Dorn, MD; Katie Baillie; Ashley Messina; and Hollie Edwards.

William E. Whitehead, Co-Director
Professor of Medicine and Adjunct Professor of OBGYN

Dr. Whitehead’s research Team includes: Yolanda Scarlett, MD; Olafur Palsson, PsyD; Miranda van Tilburg, PhD; Steve Heymen, PhD; Motoyori Kanazawa, MD, PhD (Tohoku University, Sendai, Japan); Lisa Gangarosa, MD, Spencer Dorn, MD; Marsha Turner, MS Ed; Lenore Keck, RN; Jane Tucker, RN. Collaborators include Yehuda Ringel, MD, Temitope Keku, PhD, William Maixner, DDS, and Luda Diatchenko, MD, and Susan Gaylord, PhD.

FACULTY

Shrikant I. Bangdiwala, PhD
Research Professor in Biostatistics, Director of Biometry Core

Dr. Bangdiwala has extensive experience in the design, conduct and analysis of multi-center studies, having worked on clinical trials in congestive heart failure, cardiovascular risk factors, functional bowel disease, and cancer prevention. Dr. Bangdiwala also has extensive experience as a member of various data and safety monitoring boards for studies in ophthalmology, HIV/AIDS, and cardiology. He collaborates with investigators at the Center on several studies, including research on brain imaging of IBS patients with and without a history of abuse and a comparative study of cognitive behavioral and anti-depressant treatment. Dr. Bangdiwala’s role in these projects includes helping with research design, developing statistical analytical strategies, overseeing data management and statistical analyses, and paper preparation.

Charles K. Burnett, PhD, DrPH
Clinical Associate Professor of Medicine, Director of Psychological Services

Dr. Burnett has been associated with the Center since 1993 and has a long-standing interest in psychological treatments specifically for patients with functional GI and motility disorders. Patients are referred to him through the Center, the FGID Clinic, and by outside physicians. He specializes in treatment of patients with chronic illnesses, using cognitive behavioral therapy (CBT), pain management techniques, stress management, biofeedback, and hypnosis. Dr. Burnett also precepts psychology interns and mentors visiting professors, and participates in the Center’s training programs through the weekly clinical case conference and evening seminars.

Christine B. Dalton, PA-C
Physician Assistant

Ms. Dalton has been a Physician Assistant (PA) in the Functional GI & Motility Disorders Clinic for 12 years. She spends most of her time in patient care or in research. In the Clinic, she often sees the patient first and then collaborates with Dr. Drossman in the patient’s ongoing care. She handles most of the telephone calls from patients, including medication management, addressing symptom concerns, and other matters. Her primary clinical interests include the management of treatment-resistant patients and the care of patients who have experienced chronic GI symptoms for many years with little or no relief or understanding of their conditions. Her research interests include new treatment options, secondary symptoms, effective patient education and successful patient-provider communications.

Spencer Dorn, MD, MPH
Clinical Fellow in Gastroenterology & Hepatology

Spencer Dorn joined the Center in 2005 as a National Institutes of Health Post-Doctoral Research Fellow in Digestive Diseases Epidemiology. He is currently completing a clinical fellowship in Gastroenterology and Hepatology and continues to pursue research on the pathophysiology, diagnosis and management of functional GI disorders. His research interests also include health services for chronic digestive disorders. A native of New York, Dr. Dorn received his undergraduate degree, with highest distinction, from the University of Michigan; his medical degree, summa cum laude, from SUNY at Brooklyn College of Medicine; and a Masters in Public Health from the University of North Carolina at Chapel Hill. Dr. Dorn completed his internal medicine training
at Brigham and Women’s Hospital, where he was a clinical fellow at Harvard Medical School.

Lisa Gangarosa, MD
Associate Professor of Medicine
Dr. Gangarosa is a co-investigator and medical safety officer for the Psychophysiology of IBS Study. She is also Medical Director of the UNC GI Medicine Clinic and a member of the Center for Gastrointestinal Biology and Disease, and the Lineberger Comprehensive Cancer Center. Dr. Gangarosa is a graduate of Duke School of Medicine.

Steve Heymen, PhD
Assistant Professor of Medicine, Director of Biofeedback Services
Dr. Heymen is a Senior Fellow of the Biofeedback Certification Institute of America and has provided biofeedback therapy for more than 20 years. He is the project manager for an NIH-funded study of the efficacy of behavioral treatments for fecal incontinence and constipation. He received his PhD in Biological Psychology at UNC, where he investigated abnormalities in central pain analgesic mechanisms in patients with IBS.

Temitope O. Keku, PhD
Associate Professor of Medicine
Adjunct Associate Professor, Dept. of Nutrition, UNC School of Public Health
Dr. Keku carries out translational research to gain a better understanding of the etiology and pathogenesis of gastrointestinal diseases. Her research interests include genetic and molecular epidemiology of cancer, particularly colorectal cancer; assessment of the contribution of genetic and non-genetic factors to colon cancer susceptibility; identification of germ-line or tumor characteristics associated with cancer risk and clinical outcomes (response to therapy and survival); identification of novel biomarkers for early detection to define risk groups for prevention; cancer health disparities; understand the role of gut microflora in etiology of colorectal cancer. Dr. Keku also has research interests in IBS. She collaborates with Dr. Whitehead to examine the contribution of genetic factors to IBS using pathway and whole genome approaches, and she collaborates with Dr. Ringel on studies investigating the role of the gut microflora in IBS. She is Co-PI on Microbiome-Diet-Adenoma study, Co-investigator on the GI SPORE and the Diet and Health Studies (DHS). Dr. Keku received her PhD in Epidemiology from the UNC School of Public Health. Her research team includes Wen Sui, MD., Amber McCoy, BA., Samuel Nzewi, Kevin Smith and Jasmine Gaston.

Jane Leserman, PhD
Professor of Psychiatry and Medicine
Dr. Leserman is a medical sociologist with an extensive research background in behavioral and psychosomatic medicine, the effects of stress on the immune system and chronic pain disorders, issues related to women’s health, and quantitative research methods. Dr. Leserman’s research has examined the long-term physical and mental health effects of sexual and physical abuse among women with GI disorders and pelvic pain. She collaborates with Dr. Drossman and other Center investigators on several studies, including research on brain imaging among IBS patients. She is an active member of the Biometry Core of the UNC Center for Functional GI and Motility Disorders. Dr. Leserman’s role in these projects includes helping with research design, psychosocial measurement, planning and performing data analyses, and paper preparation. Dr. Leserman also serves as a research mentor for younger faculty and trainees.

Ryan D. Madanick, MD
Assistant Professor of Medicine
Center for Esophageal Diseases and Swallowing
Dr. Madanick attended the University of Miami in the Honors Program in Medicine, where he earned both his undergraduate and medical degrees. He completed his residency in Internal Medicine at Thomas Jefferson University Hospital in Philadelphia, Pennsylvania, where he was awarded Intern of the Year and Outstanding Teaching Resident. He returned to Miami for his subspecialty fellowship in gastroenterology at Jackson Memorial Hospital/University of Miami Medical Center. After completing his fellowship, he stayed on the faculty at the University of Miami until he moved to UNC in November 2006. He is board certified in Internal Medicine and Gastroenterology. His clinical and research interests include refractory gastroesophageal reflux disease, extraesophageal reflux disease, eosinophilic esophagitis and esophageal motility disorders. Dr. Madanick is currently the director of the UNC fellowship in gastroenterology and Hepatology.
Douglas R. Morgan, MD, MPH, FACG  
*Assistant Professor of Medicine; Director, Center for Latino Digestive Health, Director, UNC Program in Nicaragua-UNC IGHID*

Dr. Morgan attended Dartmouth College and received his medical degree from Case Western Reserve University. He completed his postgraduate training in Internal Medicine and Gastroenterology at the University of California, San Francisco. He also earned a Masters in Public Health in Epidemiology at the University of California, Berkeley. Dr. Morgan has been a UNC faculty member for the past four years and is a member of the UNC Center for Esophageal Diseases, with a focus on gastric disorders, including Functional Dyspepsia and H. Pylori. He also directs the Capsule Endoscopy program at UNC. Dr. Morgan is Director of the Center for Latino Digestive Health at UNC, with clinical and research initiatives in Central America and North Carolina. He has extensive experience in Latin America and with the Latino population. He is a former Peace Corps engineer, having designed rural electrification systems in Honduras. In medical school, he served as US Public Health Service COSTEP volunteer at Migrant Farm worker clinics in the Rio Grande Valley. His research interests include the epidemiology of FGIDs in the Latino population, gastric cancer epidemiology, and Latino digestive health. Active functional GI research protocols include a large population-based FGID epidemiology collaboration with the University of Nicaragua, with funding from the Rome Committees. He also directs a gastric cancer epidemiology initiative in Honduras, with a focus on host genetic and dietary factors. Dr. Morgan receives research funding from the NIH through the Mentored Scholars Program, as well as from foundations and industry. He was a recipient of the American College of Gastroenterology’s Governor’s Award for Excellence in Clinical Research in October 2004. His research team includes Paris Heidt (Program Manager).

Olafur S. Palsson, PsyD  
*Associate Professor of Medicine*

Dr. Palsson is a clinical psychologist and health researcher with a long-standing interest in the relationship between mind and body in the determination of health and illness. He is originally from Iceland. He received his doctoral degree in clinical psychology from Eastern Virginia Medical School in 1993, and completed post-doctoral fellowship training in behavioral medicine at UNC-Chapel Hill in 1994-1996. Dr. Palsson then established and directed a behavioral medicine clinic and research program at Eastern Virginia Medical School from 1996-2000, where he was Assistant Professor of Psychiatry and Family Medicine. He returned to the UNC Center for Functional GI & Motility Disorders in 2001 to participate in the Center’s research. Dr. Palsson’s current research interests include investigation of the psychological and physiological aspects of gastrointestinal disorders and symptoms, development of questionnaires to improve GI research, and the use of psychological treatments for IBS and other functional GI disorders.

Dr. Palsson is an internationally recognized expert in the use of hypnosis for gastrointestinal disorders. He developed a unique standardized hypnosis treatment protocol for treating irritable bowel syndrome, which has been tested in a number of published studies and is used by hundreds of clinicians throughout the U.S. and several other countries. He has also trained many healthcare professionals across the U.S. in the use of hypnosis for medical problems.

Dr. Palsson has a long-standing interest in the use of interactive Internet applications to enhance health research. He has extensive experience in internet software programming. Dr. Palsson has developed innovative methodologies for collecting and processing clinical data in a confidential and secure manner through the Internet, and has played a lead role in several large internet-mediated studies. He also serves as the Director of the Center’s DATA Core, which provides investigators in the Center and collaborators with assistance and support in advanced data collection methods in their research.

Another aspect of Dr. Palsson’s work in mind-body medicine is his invention activities in association with the National Aeronautics and Space Administration (NASA). He has collaborated for many years with scientists at the NASA Langley Research Center on inventing and developing innovative technologies to enhance human health and well-being through computer-aided interfacing of human psychology and physiology. He is co-inventor of a patented NASA technology to enhance brain performance by using brainwave biofeedback delivered through videogames that has now entered commercial use by health professionals. A number of Dr. Palsson’s other NASA-related inventions are currently under development or patent-pending.

Dr. Palsson has authored more than fifty scientific papers published in medical and psychology journals, as well as one book, numerous book chapters in edited books, and a large
number of published research abstracts. He serves on the editorial board of three scientific journals, and has received several awards for his work, including an award from the American Society of Clinical Hypnosis “for significant contributions demonstrating the efficacy of hypnotic interventions in psychophysiological disorders” and a runner-up prize with his NASA colleagues in NASA’s 2005 Invention of the Year Awards.

**Yolanda Scarlett, MD**  
*Assistant Professor of Medicine, Medical Director-GI Motility Service*

Dr. Scarlett oversees the operations of UNC’s GI Motility Service. She also trains gastroenterology and urogynecology fellows in diagnostic motility testing, and leads a monthly case conference on anorectal disorders. Her primary area of clinical and research interest is anorectal motility disorders.

**Nicholas J. Shaheen, MD, MPH**  
*Associate Professor of Medicine and Epidemiology, Director of the Center for Esophageal Diseases and Swallowing*

Nicholas Shaheen is Associate Professor of Medicine and Epidemiology at the UNC School of Medicine and UNC School of Public Health, and Director of the UNC Center for Esophageal Diseases and Swallowing. He attended college at Harvard University and earned his medical degree at the University of Chicago, Pritzker School of Medicine, where he fulfilled his internship and residency requirements. He completed his clinical fellowship training at UNC, where he also earned his Masters degree at the School of Public Health. He then completed a National Institutes of Health fellowship in Epidemiology. For the past ten years, he has been a faculty member at UNC. His research interest is in the epidemiology and management of esophageal diseases. He is the author of numerous journal articles and book chapters related to reflux disease, motility disorders, Barrett’s esophagus, and esophageal cancer. He is currently on the editorial board of Clinical Gastroenterology and Hepatology and Evidence-Based Gastroenterology, and is a reviewer for numerous journals. Dr. Shaheen receives research funding from the National Institutes of Health as well as multiple private foundations and corporations to pursue clinical and translational research in esophageal diseases. He is a member of several professional societies, including the American Gastroenterological Association, the American Society of Gastrointestinal Endoscopy, the American Medical Society, and the North Carolina Medical Society. He is a Fellow of the American College of Gastroenterology, the American Gastroenterological Association and the American College of Physicians. Dr. Shaheen’s research team includes: Ryan Madanick, MD; Melissa Brennen, RN (Study Coordinator); and Betsy Carretta (Study Coordinator).

**Miranda van Tilburg, PhD**  
*Assistant Professor of Medicine*

Dr. van Tilburg is an Assistant Professor of Medicine in the Division of Gastroenterology and Hepatology. She received her Master’s degree in Economic Psychology and her PhD in Health Psychology at Tilburg University, The Netherlands. In 2001, she completed a 3-year postdoctoral fellowship in Endocrinology and Medical Psychology at Duke University Medical Center. In 2002, she joined the UNC Center for Functional GI & Motility Disorders on a part-time basis. After securing an NIH supplement to promote re-entry into the biomedical sciences, she resumed full-time work in November 2006. She has an interest in pediatric functional GI disorders, especially Functional Abdominal Pain (FAP) and fecal incontinence. Compared to adults, children’s functional GI disorders have received little attention, and Dr. van Tilburg has worked hard to expand the Center’s research activities in this area. She collaborates with pediatric gastroenterologists at the University of North Carolina and Duke University Medical Center. Dr van Tilburg’s research is diverse but her main focus is to effectively involve parents and children in their own care. She has developed a home-based Guided Imagery treatment for FAP that children can use with only minimal guidance from their physician. Dr. van Tilburg also studies parental perceptions of functional gastrointestinal disorders and how these perceptions affect medical consultation seeking. In addition, her work focuses on maltreatment and suicidal ideation in unexplained GI symptoms in children and adolescents. Dr. van Tilburg has an interest in nuclear and mitochondrial DNA in functional gastrointestinal disorders, as well, and for these studies she collaborates with Dr. Whitehead at UNC and Dr. Boles at the Children’s Hospital Los Angeles. For her work, she was awarded the 2007 Pediatric Junior Investigator Award of the International Foundation for Functional Gastrointestinal Disorders (IFFGD).

**Stephan Weinland, PhD**  
*Instructor of Medicine*

Dr. Weinland is an Instructor in the Division of Gastroenterology and Hepatology in the School of Medicine, University of North Carolina at Chapel Hill. He joined the UNC Center for Functional GI & Motility Disorders in October 2006 after completing his post doctoral residency working for the National Health Service
Dr. Weinland is a Clinical Psychologist with a specialization in behavioral medicine. He received his PhD from the Illinois Institute of Technology and completed his clinical residency at the Miami VA Medical Center. Past research has involved the development of a revised Medication Quantification Scale for Opioid Medication and an Item Response Theory based analysis of the McGill Pain Questionnaire. Current research interests involve conducting ecological momentary assessment of functional bowel disorders and the role of diary data in assessment of symptoms. Dr. Weinland works with patients in the UNC Functional GI clinic on Wednesdays and Fridays, and conducts research with the Center as well.

**Gae Caudill**

Mrs. Caudill is a part-time administrative assistant and data entry technician. She maintains the Center’s computerized database, responds to requests for information, mails the Center’s newsletter and annual report, and assists with a variety of duties associated with Center meetings and events. For the Data Core, Mrs. Caudill also checks the quality of scannable questionnaires and makes suggestions for improvements, scans survey data, performs quality/accuracy checks on survey data, and provides clerical assistance to investigators and research coordinators as needed.

**Sheila Crawford, RN**

Mrs. Crawford is the charge nurse for UNC Hospitals GI Motility Lab. She is responsible for performing diagnostic motility tests for pediatric and adult patients. Esophageal manometry, anorectal manometry, pH and pH/Impedance probes, and hydrogen breath tests are some of the procedures performed in this lab. She also provides in-lab training for the GI and surgery fellows.

**Nicolette DeGroot**

Ms. DeGroot is the Center’s Media Coordinator. She designs and publishes brochures, the quarterly newsletter *Digest*, annual report, flyers, posters, and many other products. She also maintains the Center website (www.med.unc.edu/ibs). Ms. DeGroot has over four years of graphic design and website maintenance experience. In addition to serving as the Center’s Media Coordinator, Ms. DeGroot designs and publishes marketing and research-related publications for the Division of Digestive Diseases (25% of her time). 2006 graduate of Appalachian State University, she received a Bachelor’s of Science degree from the Graphic Arts and Imaging Technology Department. She also earned minors in Art and Sociology, and has an extensive background in print and graphics applications. Ms. DeGroot won several print awards while attending ASU, including the 18th Annual Gutenberg Awards (Student Graphic Arts Contest), and the Printing Industry of the Carolinas (PICA).

**Mark Duncan**

Mr. Duncan joined the Center in 2006, splitting his time between the Center for Gastrointestinal Biology & Disease (75% of his time) and the Center for Functional GI & Motility Disorders.
(25%). His primary responsibilities with the Center are coding dynamic, database-driven web applications, surveys and forms, Linux server administration and maintaining the REGISTRY database of potential research study subjects. In 2008, Mark was elected to represent UNC Employees from Division 7 on the UNC Employee Forum.

Lynn Eckert, PA
Ms. Eckert is a Physician Assistant working with Dr. Drossman as well as seeing patients on her own in the Functional GI & Motility Disorders Clinic. She evaluates patients in the clinic, performs a history and physical examination, formulates a differential diagnosis, and creates a diagnostic and treatment plan appropriate for the patient. Ms. Eckert has worked in all areas of gastroenterology and received her PA training at Duke University School of Medicine. She has a BA in Clinical Nutrition from UNC at Greensboro and has experience and interest in research.

Hollie Edwards
Ms. Edwards is a clinical research assistant, coordinating investigator-initiated projects for Drs. Drossman, Weinland, Wong, and Zimmerman. Three current projects pertain to the Narcotic Bowel Syndrome (NBS), IBS partners, and digital rectal exams. For the NBS study, the aim is to characterize the population of NBS patients in terms of underlying diseases, clinical features of the syndrome, concurrent medications, and psychiatric co-morbidity, while also assessing response to treatment. The IBS Partner study seeks to evaluate the effect of IBS on partners of IBS patients. The final study seeks to gauge physician and medical student views on the utility of the digital rectal exam.

Jane Hankins, MAT
Jane Hankins is the study coordinator for Dr. Drossman’s clinical trials group working on the Atkins and the ElectroGastrogram (EGG) studies. She also assists Kim Meyer with clinical trials.

Yuming J.B. Hu, MA, PhD
Dr. Hu is Assistant Director of the Biometry Core and is involved with data management and analysis of Dr. Drossman’s NIH treatment trial of functional bowel disorders (FBD). His data management responsibilities also includes the UNC pilot study of functional MRI of FBD, the Center’s master database of FBD patients, the IBS patient education (PEQ) study with Boston University, the Celiac study with Columbia University, and the new 5-year combined drug and CBT treatment trial of FBD at the University of Toronto.

Lenore Keck, RN
Ms. Keck is a Research Nurse with Dr. Whitehead’s group. She participates in all stages of clinical research studies, including study subject recruitment and screening, administering psychological and physiological tests, and data management.

Ashley Messina
Ms. Messina is a clinical research assistant, coordinating projects for Drs. Drossman and Weinland. She is currently working on a study looking at the effectiveness of an anti-psychotic drug in severe IBS cases. She is also coordinating a new study which utilizes a pocket PC to record the symptom experience of IBS patients, to investigate how symptoms and bowel habits change in response to an OTC diarrhea medication.

Kim Meyer, CCRC
Ms. Meyer is Dr. Drossman’s Project Director for clinical trials. Her primary research interests include the use of pharmaceuticals to treat constipation-predominant IBS, diarrhea-predominant IBS, and chronic constipation.

Linda Miller, BA Computer Information Systems
Ms. Miller is the IBS/Functional Bowel Clinic Administrative Coordinator. She has an AD in Computer Information Systems, a diploma in Software Applications, and has completed the Medical Coding Certification Program (ICD-9, CPT-4) at Durham Tech. In the evening, she attends Shaw University and is completing a BA in Public Administration.

LaVerne Milliken
Ms. Milliken is the Administrative Support Associate to Drs. Whitehead, Palsson, van Tilburg, Heymen; Marsha Turner, MS and Jane Tucker, RN. Her duties include checking for messages from patients enrolled in research studies, library research, and making travel arrangements. Her duties also include mailing surveys, and office correspondence.
Carolyn Morris, MPH
Ms. Morris is the Biostatistician for Dr. Drossman’s research group and the Biometry Core. She performs statistical analyses on clinical data arising from the numerous studies in which the Center is involved.

Kirsten Nyrop, MACT
Ms. Nyrop is Co-Coordinator for the Center, focused on research activities and administration of the Center’s NIH Mind-Body Infrastructure Grant. Ms. Nyrop is enrolled part-time in the PhD program at the UNC School of Social Work, where her research interest is medical care issues affecting the elderly and interventions to influence physician attitudes and behavior.

Ceciel Rooker
Ms. Rooker is Co-Coordinator for the Center and Director of Public Relations, Development and Clinical Services. In this capacity, she assists with sponsorship recruitment as well as development and marketing of the Center’s research and clinical programs. Mrs. Rooker also works for the Rome Foundation as a consultant for Marketing and Public Relations.

Ann Selph
Ms. Selph is administrative assistant to Dr. Drossman. She has 26 years of UNC experience in various capacities that include grants management, accounting, and administrative support. She has completed her associate in arts degree from Central Carolina Community College and continues to take classes through Continuing Studies at UNC Chapel Hill.

Jill Williams, GCRN
Ms. Williams performs diagnostic tests in the GI Motility Lab on both pediatric and adult patients. These tests are inclusive of manometry testing, pH & pH/Impedance studies, and hydrogen breath tests. Ms. Williams relocated from Sayre, Pennsylvania were she was employed at the Guthrie HealthCare System in the GI Endoscopy Unit, and has experience with endoscopy and motility procedures.

Marsha Turner, MS
Ms. Turner is the Research Coordinator for Dr. Whitehead’s research program. She is involved with the planning and preparation of new projects in the program, including NIH grant submissions and industry-sponsored outcomes research. She also manages all aspects of current studies including budgeting and is responsible for correspondence with the Biomedical IRB and Clinical and Translational Research Center. Ms. Turner furthermore coordinates activities within the national and international research network of collaborating institutions affiliated with the Gastrointestinal Biopsychosocial Research Center. Ms. Turner has a B.A. in Psychology/Anthropology and a M.S. in Early Childhood Education. She has extensive experience in psychophysiological testing, behavioral medicine research and biofeedback. In the past, she performed quantitative EEG, psychological and neuropsychological assessments, and neurofeedback training with children with ADHD. She recently co-authored a guided imagery program to treat children with chronic abdominal pain. Ms Turner has also participated in the invention of new mind-body technologies and currently has a biofeedback patent pending in collaboration with scientists at NASA’s Langley Research Center. She is a co-author on 11 journal articles and more than fifty research abstracts.

Jane Tucker, RN
Ms. Tucker is a Research Nurse with Dr. Whitehead’s group. She performs anorectal motility testing and administers questionnaires to the study participants. Her other responsibilities include barostat procedures, lab procedures, recruiting/screening as well as scheduling participants for the studies. She works closely with the research pharmacy if studies require medication and monitors the participant’s response to the medication, and she works closely with the Principal Investigators of each study to keep them abreast of any concerns.
Training and educational activities of the UNC Center for Functional GI & Motility Disorders are supported through donations from individuals in the community and through educational grants from private corporations and foundations. We wish to give special thanks and recognition to the following individuals for their generous donations to the Center in 2008:

Robert Johnson
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