



# Digest

Our mission is to advance the biopsychosocial understanding and care of patients with functional GI & motility disorders through research, training and education.

## CHRONIC ABDOMINAL WALL PAIN: A MISSED DIAGNOSIS

**Madhusudan Grover, MD**



- 1 Chronic Abdominal Wall Pain
- 4 Faculty Profile:  
*Douglas Morgan, MD, MPH*
- 6 Research Day 2007
- 8 *Ask the Expert*  
Why am I seeing a Physician Assistant?
- 9 Research Subjects Needed
- 10 Center Visitor
- 11 Visiting Scholar
- 12 ACG Posters
- 14 Center News

Chronic abdominal wall pain (CAWP) refers to the pain originating from the abdominal wall which is often misdiagnosed as arising from a source inside the abdominal cavity, often resulting in inappropriate diagnostic investigations, unsatisfactory treatment, and considerable costs. In spite of being implicated in as many as 10% of patients with chronic abdominal pain of unknown cause seen by gastroenterologists, this condition has received little research and clinical attention (1). Thompson et al estimated that about 1% of all referrals for chronic abdominal pain made to a general surgeon were eventually considered to be CAWP (2). In a study of patient referrals to gastroenterologists over a 5-year period, Costanza et al showed that CAWP comprised 7.8% (133 of 1708) patients referred with abdominal pain. Referring physicians were able to suspect CAWP in only 3% of their patients, which suggests the relative unawareness of this condition (3). By contrast, physicians aware of this condition have reported seeing between one to two such patients in a week to three per day (4). Even in 1926, when Carnett first described the examination process to differentiate pain of abdominal wall origin from intra abdominal pain, he commented on CAWP being a frequently missed diagnosis (5).

### WHAT IS WITHIN THE ABDOMINAL WALL?

The most important cause of CAWP is entrapment of a branch (anterior cutaneous) of one of the lower thoracic (T 7-T 12) intercostal (rib cage) nerves in its tortuous course through the abdominal wall muscle. After turning at a 90° angle, the nerve passes from the posterior sheath of the abdominal wall muscle (rectus abdominis) through a fibrous opening and then branches at right angles while passing through its anterior sheath. It has been thought that the underlying problem is nerve compression with resulting ischemia or lack of blood supply, explained by the nerve's course through the muscle. Applegate termed the condition as "anterior cutaneous nerve entrapment syndrome" and suggested the entrapped nerve may also be pushed by intra- or extra-

abdominal pressure or pulled by a scar causing pain in the abdominal wall (6). Other diseases affecting the nerves such as diabetes, herpes zoster, trauma, and rarely cancer may also cause symptoms of CAWP (1). Occasionally abdominal wall hematomas (blood filled collections), hernias and painful rib (“slipped rib”) may account for abdominal wall pain (7).

### HOW IS ABDOMINAL WALL PAIN DIAGNOSED?

CAWP is most commonly diagnosed on the basis of a patient’s history and a physical examination. CAWP more commonly involves right side of the abdomen and may be at or close to an old surgical scar or, in the absence of a scar, it is frequently at the outer edge of the abdominal muscle (rectus abdominis). The pain experienced is usually sharp and there is often extreme tenderness upon gentle stroking or pinching in that area of the skin. The patient may guard the area from light touch, sometimes by seizing the examiner’s hand. The pain may extend backwards and up to the vertebral body if its origin is related to nerve root in the spinal cord. An important finding is that the pain may be so sharply localized that a patient can cover the tender spot with a fingertip, and the area of severe tenderness is often no more than 2cm in diameter, although mild discomfort may be more dispersed. This almost always indicates that the pain originates in the abdominal wall, since intra abdominal pain is usually not as sharply localized (8). The pain may be exacerbated by conditions that can cause nerve pressure or traction, such as tight clothing, obesity or post-operative scarring. Relief may be obtained by sitting, lying or relatively frequently by hand-splinting the affected area. Patients may report that standing, lifting, stretching, and coughing worsens the pain. Other things such as nausea, bloating, overeating, and menstruation can make pain worse by causing congestion of blood vessels and further nerve compression (1). Oral contraceptives and pregnancy have also been reported to increase abdominal wall pain, probably from hormone induced tissue swelling (9).

Carnett’s test is the key in a physical examination for diagnosing abdominal wall pain. A positive test is demonstrated by palpating the tender region in the prone (lying down) relaxed patient and observing continuing or often increased tenderness as the patient tenses the abdominal wall by elevating the head and shoulders or raising their legs. When pain arises from an intra abdominal source, the tensed muscles in the abdominal wall guard the underlying bowel, thus reducing the discomfort (negative test). However, when the pain arises from the abdominal wall, the muscle contraction will accentuate the pain (positive test) (5). The criteria for diagnosing CAWP proposed by Greenbaum et al, when tested in 33 patients with CAWP as compared with 62 patients with intra abdominal pain, had sensitivity of 85% and specificity of 97% which usually means that the clinical methods used were good enough to diagnose CAWP in most of cases and to rule out other possible diagnoses (Table 1) (10). Sometimes, intra abdominal disease with involvement of peritoneum (membrane lining of the abdominal cavity) may give a false positive Carnett test. It is also not very useful to apply this test to individuals with widespread abdominal pain rather than localized area of pain to avoid misdiagnosis.

The reliability of CAWP diagnosis is high if the patient history and physical examination are highly suggestive. In addition, significant (> 50%) pain relief after an accurately placed nerve block or trigger point anesthetic injection (to numb the area) is considered confirmatory of CAWP diagnosis. Various reports have found 70-90 % pain relief after a correctly placed nerve injection (1). Sharpstone et al concluded that a successful injection after a positive Carnett sign (to diagnose CAWP) “must be one of the most cost effective procedures in gastroenterology” (8). However, this approach is not completely flawless because of the high (30%) placebo effect with injections (11), and is beneficial only in settings where appropriate diagnosis of CAWP using other clinical criteria can be made.

It is important to recognize that the presence of CAWP does not always rule out an existing intra abdominal source of pain and misdiagnoses have been reported. For example, Thompson et al noted that 4 of 62 (6%) patients diagnosed with CAWP were later found to have an intra-abdominal cause of pain (2). Gray et al reported that 5 of 53 (9.4%) patients with positive Carnett test actually had appendicitis (12). Of interest, one study also demonstrated the presence of irritable bowel syndrome and functional dyspepsia (indigestion) in 29% and 11% of patients with CAWP, respectively (3).

### WHAT CAN BE DONE ABOUT ABDOMINAL WALL PAIN?

The management of CAWP depends on the severity of symptoms. In cases of mild pain, minimizing activities that aggravate the pain may be sufficient. An abdominal binder may be useful if gentle hand pressure helps ease the pain. Local nerve blocks or trigger point injections using anesthetic/steroid injections are the treatment of choice for patients with moderate to severe abdominal wall pain. To have optimal results, the patient is asked

to precisely localize the area of maximum tenderness to determine the site of injection. The patient should also be told that intensification of pain would occur when the needle tip reaches the pain source, demonstrating the needle has been accurately placed. The injections are usually done with a 26-gauge 1.5 inch needle passed perpendicularly through the mark. The medication usually used is 2 ml of 0.25% bupivacaine (anesthetic-to numb) with 20-40 mg of triamcinolone (steroid), and no more than 10 ml of anesthetic should be used in one sitting to avoid side effects. Pain improvement usually occurs within a few minutes, but maximum effect may take up to 72 hours. Failure to obtain relief after injection may be due to (1) inaccurate placement of the needle tip, (2) nerve related pain arising from a different site, or (3) an alternative diagnosis (13). Up to 1/3rd of the patients may require a reinjection for pain recurrence, days to months later (1). Occasionally, in absence of relief from injections, nerve block injections with a different medication (5-6 % phenol) may be tried (14). Rarely, surgical procedures like sectioning or freezing the entrapped nerve may be required to obtain relief.

## CONCLUSIONS

CAWP should be suspected when chronic abdominal pain is narrowly confined to a small area. Its most common cause is an entrapped anterior branch of one of the thoracic nerves but it may also result from surgical scars, hernias etc. The diagnosis is made by patient history and physical examination, especially Carnett test, and there is pain relief after a properly placed anesthetic/steroid injection in more than 2/3rds of patients. Intra-abdominal disease is infrequently missed if patients are closely followed after an initial diagnosis is made, but CAWP may co-exist with intra-abdominal disease processes. The diagnosis of CAWP is uncommonly made by physicians, despite its relative frequency in general practice. The condition should be considered as one of the possibilities in a patient with chronic abdominal pain.

Table 1: Abdominal Wall Pain Diagnostic criteria (1)

- |   |
|---|
| <ul style="list-style-type: none"> <li>• Patient indicates very localized pain (severest component covered by fingertip), OR</li> <li>• Fixed location of tenderness.</li> </ul> <p style="text-align: center;">AND</p> <ul style="list-style-type: none"> <li>• Superficial tenderness (at the level of or anterior to abdominal wall muscles), OR</li> <li>• Point tenderness diameter no greater than 2.5 cm OR</li> <li>• Increased point tenderness on abdominal wall muscle tensing (positive Carnett test).</li> </ul> |
|---|

*Acknowledgement: Dr. Grover would like to thank Dr. David S. Greenbaum, MD, professor emeritus at Michigan State University for his guidance in preparing this review.*

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## FACULTY PROFILE

*Douglas Morgan, MD, MPH*

*Douglas Morgan, MD, MPH, is a member of the UNC Division of Digestive Diseases and Director of the nascent Center for Latino Regional and Global Health at UNC. His research interests include the epidemiology of functional gastrointestinal disorders (FGIDs) and gastric cancer, and Latino digestive health. Dr. Morgan's UNC research team includes Paris Heidt-Davis (Program Manager), Lesby Castellanos (RA), Jacqueline Fajardo (RA), and collaborators Dr. Ricardo Dominguez, Dr. Loreto Cortes, and Dr. Rodolfo Peña.*

***Q: Let's start at the beginning, with your time in the Peace Corps.***

**A:** After graduating with a degree in Engineering, I had the opportunity to serve in the Peace Corps. For volunteers, the mixture of motivations for Peace Corps is complex, similar to entering Medicine, running the gamut from Bono to Belushi. I worked with a team of engineers within the Honduran government, and was responsible for designing and managing village rural electrification systems. The training in the Peace Corps evolved from a focus on the physical aspects of the experience, with "Outward Bound" training, to a full investment in language training. Communication is imperative in all cultures and certainly a potential source of frustration. For example, it seems the expression of one's sense of humor is the last thing to "return" in the assimilation process. In the end, our contributions to the Peace Corps and volunteerism in general, as in Medicine, are probably a "drop in the ocean" ... and that's OK.

***Q: How did you continue your interests in developing nations and global health during medical training?***

**A:** The Peace Corps experience triggered an interest in global health, which led to medical school at Case Western University, which has a longstanding program in international health. This was followed by postgraduate training in Internal Medicine and Gastroenterology at the University of California, San Francisco, and a Masters in Public Health in Epidemiology at the University of California, Berkeley.

While in medical school, there were several opportunities relevant to international health. After the first year of medical school, a grant facilitated an AIDS prevention education project with the underground prostitute and gay communities in Honduras. Fourth year electives included a rotation in the Public Health Service migrant farm worker clinics in the Rio Grande Valley, and also in a rural hospital in Zambia with ongoing investigations into the role of iron in cerebral malaria and African hem siderosis.

The devastation of Hurricane Mitch in Honduras and Nicaragua in the late 1990s brought an element of serendipity. Returning as a volunteer physician to this area of the world, the focus of the early trips was service: patient care, teaching and training, and pursuit of endoscopy equipment donations. As an aside, most of us are repeatedly humbled by the talent and breadth of accomplishments of our collaborators in these resource-limited settings.

***Q: What was your initial research focus when you joined the faculty of the UNC School of Medicine?***

**A:** The collaborations in Honduras and Nicaragua rapidly evolved into research initiatives. In western Nicaragua, a collaboration developed with Drs. Rodolfo Peña and Loreto Cortes at the University of Nicaragua, León. Based on the regional clinical experience and the presence of an impressive epidemiology surveillance system, we initiated the first population-based study of the functional gastrointestinal disorders (FGIDs) with the Rome criteria in Latin America. We received funding from the Rome Foundation to study the prevalence of the FGIDs in this Latino population and examine postulated risk factors, such as poverty, parasite burden, intimate partner violence, and war trauma related to the Sandinista revolution. We observed comparable FGID prevalence rates, relative to western populations, with important risk associations. Comparative studies in the FGIDs in diverse populations can provide insight into disease etiology and pathophysiology, as suggested by Kang, (APT, 2005).



In parallel, in Honduras, a collaborative relationship and friendship arose with Dr. Ricardo Dominguez, the sole gastroenterologist in western Honduras. It was clear that gastric cancer, the second leading cause of global cancer mortality, was distinct in the region with probable genetic factors operative, based on the aggressive nature of the cancer in young patients. The region also provided a unique “epidemiology niche” for the rigorous investigation of gastric cancer. A seed grant from the UNC Center for Gastrointestinal Biology & Disease (CGIBD) helped initiate the investigations and generated strong pilot data. This facilitated several other scientific sector grants (e.g., GIDH), ultimately leading to a career development award (K07). In a high incidence region, we hope to gain insight into gastric cancer epidemiology, ultimately moving towards a prevention program.

***Q: I understand you are leading a consortium for the Spanish translation and validation of the Rome III Diagnostic Questionnaire for the Adult Functional GI Disorders?***

**A:** The purpose of this work is to perform a multinational translation and validation of the Spanish Rome III adult instrument. We have postulated that a single core translation is feasible, with a subset of questions utilizing “synonyms” (single word substitutions) to account for regional dialect and educational differences. Nonetheless, this is a challenge, given the tremendous diversity of the populations in Mesoamerica, the Caribbean, the Andean Cordillera, and South America. This approach is best for the scientific community, because multiple different translations, locally validated, make cross-country comparisons difficult.

The consortium includes Mexico (Dr. Max Schmulson), Spain (Drs. Fermín Mearin, Enrique Rey), Chile (Dr. Freddy Squella), and Central America (Drs. Loreto Cortes, Enrique Martinez, Hector Blanco). In the second phase, we will investigate the epidemiology of the FGIDs in Latin America and expand with collaborators in other countries in Latin America. The instrument will serve as a platform for investigations throughout the hemisphere. The effort is supported by the Rome Foundation. One outgrowth is the compilation of the first ever textbook in Spanish on the FGIDs in Latin America, an effort spearheaded by Dr. Hector Blanco.

***Q: At the same time, you have been pursuing research projects pertaining to Hispanic-Latino Digestive Health in the U.S.***

**A:** The surge in the Hispanic–Latino population in the U.S. is well recognized. Projections suggest that the Hispanic population will increase to nearly one-quarter of the overall U.S. population in the next several decades. The southeast, particularly North Carolina and Georgia, has had the highest growth rate of the Latino population in the U.S. over the past decade, nearly 400% from 1995 to 2005. Spanish speakers in the U.S. have often been ignored in studies due to the language barrier, either real or perceived. Latino-specific investigations are reasonable to “catch-up” to the historical under representation in studies and the demographic reality. One example is the NIH-NHLBI Hispanic Community Health Study, a “Latino Framingham”: an eight-year prospective study with four diverse cohorts of 4,000 Hispanics each.

We were fortunate to recently receive funding to create a Center for Latino Regional and Global Health at UNC. The multidisciplinary subspecialty clinic, linked to community providers in the region, will serve our patients. We hypothesize that this is a reasonable model for health systems in transition, in areas of the country with a large increase in the Latino population but a lack of depth of bilingual providers and support staff. The Center will also provide a teaching and research infrastructure, which can facilitate partnerships, for example, with the UNC Center for Functional Gastrointestinal & Motility Disorders. The research and teaching efforts extend to Latin America through the UNC Institute for Global Health. We are grateful for the support to date, and look forward to the journey, and hopefully, a “drop in the ocean”.



# RESEARCH DAY 2007

## *Gastrointestinal Biopsychosocial Research at UNC*

*September 28-29, 2007*

In October 2004, the UNC Center for Functional GI & Motility Disorders was awarded a grant (R24 DK067674) from the National Institutes of Health (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 gastrointestinal disorders. As part of this NIH grant, the Center hosted the third of what has now become an annual Research Day on September 28-29, 2007, on the campus of the University of North Carolina at Chapel Hill.

The program for this non-CME symposium was focused on six areas of research: (1) Brain-Gut Axis, (2) Gut Physiology, (3) Pelvic Floor (4) Pediatric Functional GI Disorders, (5) Complementary and Alternative Medicine Treatments, and (6) Psychosocial Assessment. The format was 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. A booklet summarizing all presentations is available on the Center's website at [www.med.unc.edu/ibs](http://www.med.unc.edu/ibs).

Research Day 2007 was held this year in association with the UCLA Center for Neurovisceral Sciences and Women's Health (CNS) and the UNC Center for Gastrointestinal Biology & Disease (CGIBD), UNC Division of Gastroenterology & Hepatology. We greatly appreciate the educational grants from Sucampo Pharmaceuticals, Takeda Pharmaceuticals, Microbia Pharmaceuticals, Novartis Pharmaceuticals, The Procter & Gamble Company, and AstraZeneca Pharmaceuticals that provided additional support for this event.

## FRIDAY, SEPTEMBER 28

### TOPIC: Brain-Gut Axis

**Emeran Mayer, MD** -- State of the Art: New directions in brain imaging

Professor, Depts. of Medicine, Physiology, Psychiatry and Biobehavioral Sciences, David Geffen School of Medicine, UCLA; Director, UCLA Center for Neurovisceral Sciences & Women's Health (CNS/WH), UCLA Division of Digestive Diseases; Chair, UCLA Collaborative Centers for Integrative Medicine; Los Angeles, CA

**Douglas A. Drossman, MD** -- Brain imaging: effects of IBS and abuse history

Professor of Medicine & Psychiatry, UNC School of Medicine  
Co-Director, UNC Center for Functional GI & Motility Disorders, Chapel Hill, NC

**Steve Heymen, PhD** -- CNS modulation of somatic pain in IBS: diffuse noxious inhibitory control

Instructor of Medicine, UNC School of Medicine, Chapel Hill, NC

### TOPIC: Gut Physiology

**Peter Whorwell, MD** -- State of the Art: Probiotics

Professor of Gastroenterology, Academic Dept. of Medicine, Education and Research Centre, Wythenshawe Hospital, West Didsbury; Manchester, England

**Yehuda Ringel, MD** -- Intestinal microflora in IBS

Assistant Professor of Medicine, UNC School of Medicine, Chapel Hill, NC

**Madhusudan Grover, MD** -- Small intestine bacterial overgrowth and irritable bowel syndrome

PGY-2 Internal Medicine, School of Medicine, Michigan State University; East Lansing, Michigan

**William E. Whitehead, PhD** -- Genetics of IBS

Professor of Medicine & Adjunct Professor of OBGYN, UNC School of Medicine  
Co-Director, UNC Center for Functional GI & Motility Disorders, Chapel Hill, NC

## RESEARCH DAY 2007

## SATURDAY, SEPTEMBER 29

**TOPIC: Pelvic Floor**

**Steve Heymen, PhD** -- Biofeedback treatment of fecal incontinence  
Instructor of Medicine, UNC School of Medicine, Chapel Hill, NC

**Yolanda Scarlett, MD** -- Education and medical management of fecal incontinence  
Assistant Professor of Medicine, UNC School of Medicine, Chapel Hill, NC

**Jane Leserman, PhD** -- Health status and abuse/trauma history in chronic pelvic pain  
Professor of Medicine & Psychiatry, UNC School of Medicine, Chapel Hill, NC

**TOPIC: Pediatric Functional GI Disorders**

**Rona Levy, PhD** -- Update on cognitive behavior therapy for functional abdominal pain and proposed study of CBT for inflammatory bowel disease in children  
Professor, School of Social Work, University of Washington, Seattle, WA

**Miranda Van Tilburg, PhD** -- Home based guided imagery to treat functional abdominal pain  
Assistant Professor of Medicine, UNC School of Medicine, Chapel Hill, NC

**Denesh Chitkara, MD** -- Recollection of childhood abdominal pain in adults with functional gastrointestinal disorders  
Assistant Professor of Pediatrics, UNC School of Medicine, Chapel Hill, NC

**TOPIC: Complementary and Alternative Medicine Treatment**

**Susan Gaylord, PhD** -- Mindfulness meditation treatment for IBS  
Assistant Professor of Physical Medicine & Rehabilitation, UNC School of Medicine, Chapel Hill, NC

**Miranda Van Tilburg, PhD** -- Ginger for IBS: a new treatment alternative?  
Assistant Professor of Medicine, UNC School of Medicine, Chapel Hill, NC

**TOPIC: Psychosocial Assessment**

**Bruce Naliboff, PhD** -- State of the Art: Development of the Visceral Sensitivity Index  
Professor, UCLA Dept. of Psychiatry & Biobehavioral Sciences, David Geffen School of Medicine, UCLA: Co-Director-Human Research, UCLA Center for Neurovisceral Sciences & Women's Health (CNS/WH), UCLA Division of Digestive Diseases; Los Angeles, CA

**Olafur Palsson, PsyD** -- Investigating the role of co-morbidity in IBS  
Associate Professor of Medicine, UNC School of Medicine, Chapel Hill, NC

**Spencer Dorn, MD, MPH** -- Biopsychosocial predictors of health status in celiac disease  
Clinical Fellow in Digestive Diseases, UNC School of Medicine, Chapel Hill, NC

**Steve Weinland, PhD** -- Ecological Momentary Assessment  
Instructor of Medicine, UNC School of Medicine, Chapel Hill, NC

**Madhusudan Grover, MD** -- The use of atypical antipsychotic quetiapine for refractory functional GI disorders  
PGY-2 Internal Medicine, School of Medicine, Michigan State University, East Lansing, Michigan



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## ASK THE EXPERT

*Lynn Eckert, PA*  
*UNC Functional GI & Motility Clinic*

**QUESTION** Why am I seeing a Physician Assistant?

There may be some patients who are seeking treatment for various functional gastrointestinal disorders (FGID's) who have never seen a Physician Assistant (PA) before or may not be very familiar with who we are and what we do. As our Functional GI Clinic has grown with new referrals and patient appointments, it has become important to extend our work in ways that maintain our high standards of care. Therefore, it is important for patients to understand that if they are scheduled to see a PA, it is really as if they will be seeing an extension of that physician.

The PA works very closely with his or her supervising physician and is thoroughly trained and qualified to perform many of the usual tasks of the physician, specifically medical history taking, physical exams, formulating diagnoses, and constructing treatment plans. We are also able to prescribe medications and order diagnostic tests. At the same time, our supervising physicians are always available to discuss any of these aspects in greater detail. We communicate with them, so that they become familiar with our mutual patient and all that has transpired during any given office visit. Physician Assistants are accustomed to working closely with their supervising physicians, and it is through this collaboration that we are able to provide excellent, compassionate patient care in the most timely manner possible.

Most PA's have completed Bachelor's degrees and have varying levels of experience in some other capacity in the medical field before attending a Physician Assistant Program. PA training is accredited and standardized, usually taking a total of two years, without summer breaks. It is a very intense and fast-paced two years, with one-half spent in the classroom while starting to learn the art and technique of seeing patients and the other half spent in various rotations, which represent basic medical and surgical disciplines. There are a couple of electives that we can choose, as well. Today, most PA's maintain their national certifications through regular exams and continuing medical education. Many also go on to earn Master's degrees when they have finished their training and may be found working in just about any medical or surgical specialty. Many PA's are also in primary care, so many patients who come to our clinic are already familiar with PA's.

It may be that a patient is seeing a PA first in order to be seen sooner, instead of waiting up to several months to see a physician. PA's are dedicated patient advocates and often have more time to spend with their patients, as well as being available for any questions or problems that may be handled over the phone in between visits. There may also be times when, for return visits, a patient will see the PA first, followed by the physician.

In many ways, PA's are also physician "extenders". For example, you might see your physician with the PA and the physician might see you again in 6 months but, in addition, the PA is more often available to return phone calls, handle prescriptions, and see the patient before the physician appointment, when needed. All of this is under constant communication with and supervision by the physician.

So, if you are seeing a PA, you are in actuality being seen by a medical team determined to provide the best care possible. Together, we look forward to working towards getting you feel better as soon as possible!



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## RESEARCH SUBJECTS NEEDED

### CAUSES OF SYMPTOMS STUDIES

- Steve Heymen (919) 966-2544 *Hormones, symptoms of fullness and functional dyspepsia.* This study is designed to evaluate the relationship of hormones that regulate feelings of hunger and satiety to gastric emptying rate and to symptoms of fullness and discomfort after meal intake in patients who have functional dyspepsia and in matched healthy controls. [\$150 for completing the study plus parking reimbursement]
- Lenore Keck (919) 966-8329 *Men and women with IBS needed. Determining factors that cause or influence IBS – free diagnostics, \$250 compensation, one visit required.* This study involves measurement of bowel functioning and various psychological and health factors. Participation includes filling out questionnaires, physiological testing, and having blood drawn. We also screen for bacterial overgrowth and celiac disease. Individuals who meet the study criteria will require one overnight visit in the General Clinical Research Center at UNC Hospital. [Participants completing the study will receive up to \$250]

### TREATMENT STUDIES

- Jane Tucker, RN (919) 843-4906 *Lubiprostone Effects on Visceral Pain Sensitivity.* Clinical trials of Lubiprostone have shown that this medication decreases clinical pain associated with IBS. This study is designed to determine how this medication works to decrease pain. It is predicted that it works by decreasing pain sensitivity. [Subjects will be paid up to \$500 for completing this study. If interested, subjects may also choose to participate in another add-on study with additional compensation.]
- Becky Coble (919) 966-8586 *Mindfulness for Women with IBS.* This study compares the effects of two group treatments for IBS. The first group, a support group, will center on sharing information about successful strategies for coping with and reducing symptoms of IBS. The second, the mindfulness group, combines gentle yoga with a meditation technique. Both programs have shown promise for helping people with long-standing illnesses. Participation will include attending group meetings two hours per week for 8 weeks, with a longer session on a Saturday after the 6th group meeting. Study participants will also be asked to complete questionnaires. A total of 20 subjects with IBS will be invited to participate in this study. [Participants completing the study will receive UNC parking vouchers and \$60]
- Kim Meyer (919) 966-8328 *Need women with IBS.* The purpose of this research study is to provide relief from abdominal pain and discomfort. [\$250 - \$275 depending on the study]
- Kim Meyer (919) 966-8328 *Need women with constipation predominant IBS.* The purpose of this research study is to determine the efficacy of an investigational medication on constipation predominant IBS. [\$50 per visit to UNC, up to \$250 total]
- Kim Meyer (919) 966-8328 *Need women with diarrhea predominant IBS.* The purpose of this research study is to determine the efficacy of an investigational medication on diarrhea predominant IBS. [\$125 to \$250 depending on the study]
- Jane Hankins (919) 966-0147 *Need men and women 18-70 years old with diarrhea-predominant IBS who are overweight.* The purpose of this study is to examine the impact of a low-carbohydrate diet (the Atkins diet) on Irritable Bowel Syndrome (IBS). [\$150 for completing the study and all free meals for 6 weeks]





## CENTER VISITOR

*Maria Tomekova*  
 Doctoral Student, Department of Psychology  
 Trnava University, Trnava, Slovakia

I learned about the UNC Center for Functional GI & Motility Disorders the very first time when I decided to dedicate my MA diploma work to the Irritable Bowel Syndrome – its psychological and psychosocial aspects. It is actually not surprising because this centre holds the leading role in FGIDs research and practice with regard to psychosocial issues. In addition, its co-directors are experts in this field, promoting the bio-psycho-social model and approach. Their names have been written in many excellent articles that I have read for my diploma work. When I got an opportunity to visit a foreign institution for a short time period, I did not hesitate a second and wrote to Drs. Drossman and Whitehead. I was very pleased when they accepted me. It was exciting even to think about working with those “big names”.

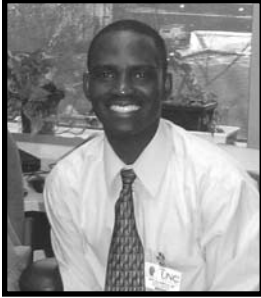
My intended activities were focused on patient interviewing skills, observing clinical practice, and learning about the conduct of research studies. The important issue for me was also access to articles and online journals as well as books and educational videotapes from the library at the Center and the university. The opportunity to talk with all of the experts working in the Center and also a chance to introduce and discuss my own research study were priceless. I have shared my time mainly between studying educational materials and observing patients, which was ideal. I also took part in a couple of different meetings and conferences. Particularly interesting was Research Day 2007. I met other experts from different institutions in the U.S and England. It was very interesting to listen to their presentations and to get a brief summary of current research studies.

Equally valuable for me was clinical experience – a chance to observe the bio-psycho-social model and approach in practice. I must say that not only Dr. Drossman, but also his PAs Chris Dalton and Lynn Eckert follow it excellently. This approach is emphasized by the work of two psychologists at the department (Charles Burnett, PhD, DrPH, and Stephan Weinland, PhD). I was very lucky to attend a couple of psychological sessions with both of them. I will certainly benefit from observing their work. This is definitely the approach I want to follow in my own future practice, hoping that I will be at least half as good as Dr. Drossman and his colleagues.

I would like to thank Dr. Drossman for teaching me so much, Dr. Whitehead for introducing me to his research group, Chris and Lynn for introducing me patiently to every patient, Stephan for giving me valuable advice for my future psychological practice, and Kirsten and Shannon for answering all my questions. And I would like to truly thank everybody for making me feel very welcome.

*Steve Weinland, PhD,  
 Douglas Drossman,  
 MD, Sharon Jedel,  
 PhD, Chris Dalton, PA,  
 Lynn Eckert, PA, and  
 Maria Tomekova*





## VISITING SCHOLAR

**Ben Ogunwale, MD**

*Dept. of Gastroenterology, MetroHealth Medical Center, Cleveland, Ohio*

*ANMS Visiting Scholar*

*Note: The American Neurogastroenterology and Motility Society (ANMS) recently created a program for trainees and junior faculty to provide advanced clinical training in neurogastroenterology and GI motility at three centers of excellence. The UNC Center for Functional GI & Motility Center was selected as one of the centers of excellence, and Dr. Ogunwale was the first scholar to come to UNC for this opportunity. (The program is made possible through a grant to ANMS from Sucampo Pharmaceuticals and Takeda Pharmaceuticals North America).*

During my second year of GI fellowship, I found some patient encounters more challenging and frustrating than others. They are encounters with patients battling chronic constipation, unexplained abdominal pain, chronic diarrhea, chronic nausea and vomiting, or non-cardiac chest discomfort who usually have failed previous treatments prescribed by their primary care physician (PCP) and/or other specialists. I knew that I needed further experience and a deeper understanding of motility disorders to better manage these patients, and knew a rotation at the UNC Center for Functional GI & Motility Disorders, under the direction of Drs. Drossman and Whitehead, would behoove me as a Gastroenterology Fellow and future Gastroenterologist.



While attending the 2007 DDW, I met Dr. Pasricha of UTMB, Galveston (University of Texas Medical Branch) who informed me of the scholarship opportunity with the American Neurogastroenterology and Motility Society. I therefore applied and was awarded an ANMS scholarship and given the opportunity I desired at UNC. My goal and expectations for this rotation were to broaden my scope of practice in the areas of GI motility and functional diseases while further learning the basis for motility/gut sensitivity testing and state-of-the-art management of patients with functional GI disorder.



My experience at UNC as an ANMS Fellow during the month of January has been very educational. The faculty, fellows and all of the GI Division staff have graciously invested in my education during this month rotation. I have had the opportunity of one-on-one learning with Drs. Drossman, Whitehead, Shaheen, Scarlett, Madanick, Morgan, Ringel, Grimm, Heymen, Weinland, and van Tilburg. The love of teaching by the GI Division faculty has been clearly demonstrated. The GI lab team of Sheila Crawford and Jill Williams was very helpful and friendly, as well. The collegial atmosphere and the opportunity for learning and research at the UNC Center for Functional GI & Motility Disorders is impressive and I am honored to have had this academic experience.



My rotation has gone by quickly but my goals have been met, as I am now comfortable with the interpretation of GI motility tracings, pH/impedance studies, and better understand the basis for the biopsychosocial model of illness and approach to the management of patients with motility disorders. My academic experience here will be memorable and upon returning to my program at Metrohealth Medical Center, Case Western Reserve University in Ohio, I will embark on sharing what I have learned with fellows and coworkers. I also wish to continue to collaborate with the UNC Center for research and to further advance my interest in GI motility and functional disorders.

I would like to thank the ANMS, Dr. Whitehead, Dr. Drossman and Kirsten Nyrop for making this much-desired rotation a reality. The skills I have learned from each of you will assist me in providing better quality care for my patients.



## ACG POSTERS

## PREVALENCE AND PREDICTORS OF NON-CONSULTING FOR CHRONIC CONSTIPATION

Olafur S Palsson, PsyD<sup>1</sup>, Marsha J Turner, MS<sup>1</sup>, Rona L Levy, PhD<sup>F2\*</sup>, Andrew D Feld, MD<sup>F2\*</sup>, Michael von Korff, ScD<sup>3</sup> and William E Whitehead, PhD<sup>F1\*</sup>

<sup>1</sup>University of North Carolina at Chapel Hill, NC; <sup>2</sup>University of Washington, Seattle; and <sup>3</sup>Group Health Cooperative of Puget Sound, Seattle

**Purpose:** It is unknown what proportion of U.S. health maintenance organization (HMO) subscribers have chronic constipation but do not consult health care providers about this problem. This work evaluated the prevalence and predictors of non-consulting constipation, and the quality of life (QoL) and psychological symptoms in these individuals.

**Methods:** Adults enrolled in a large West Coast U.S. HMO with one or more visits associated with a diagnosis of constipation (564.0X) in the electronic medical record of the past year, and a comparison sample matched for age and gender with no constipation-related visits to the HMO in the past 5 years, completed a mail survey including: Demographics; Rome III IBS and constipation modules; PAC-QOL and SF-12 quality of life questionnaires; and Brief Symptom Inventory-18. Patients in the comparison sample who responded to the survey were sub-divided, based on their Rome III responses, into CC Non-Consulters and Non-GI Control sub-groups for the purposes of data analysis.

**Results:** (1) Participants: 1,705 of 2,800 invited study participants completed the survey (60.9% participation rate), including 676 respondents from the CC Consalter sampling group and 1,029 subjects from the control sampling group (no constipation diagnoses on record). Of the control sampling group, 51.1% (n=524) met neither CC nor IBS criteria, and served as the Non-GI Control group in some of the analyses presented below. The demographics of respondents in the two sampling groups were statistically equivalent. (2) Prevalence of Non-Consulting Chronic Constipation: 40.5% of patients in the control sample (no constipation-related HMO visit on record in past 5 years) were found to currently meet Rome III Chronic Constipation (CC) criteria. In comparison, 77.5% of the CC Consalter sample currently met Rome III CC criteria. (3) Comparison of characteristics of CC Consalters and CC Non-Consulters: (a) Psychological symptoms -- BSI-18 psychological symptom scores were not statistically different between CC Consalters and Non-Consulters, but both groups had elevated psychological symptoms on all BSI-18 scales in comparison to Non-GI Controls. (b) Quality of Life -- Compared to CC Consalters, the CC Non-Consulters had higher SF-12 physical composite quality of life scores, and lower constipation-related quality of life impairment on the PAC-QOL. The two CC groups did not differ in their mental composite scores. Both constipation groups had lower SF-12 physical and mental composite scores (worse quality of life) than the Non-GI Control group. (c) Bowel symptoms -- Compared to CC Consalters, CC Non-Consulters reported less frequent constipation, abdominal pain and bloating in the past 3 months, and were less likely to meet Rome III criteria for IBS.

**Conclusions:** (1) Our results indicate that 4 out of 10 adult HMO patients have chronic constipation (CC) without consulting health care providers about it. (2) Whether patients consult doctors about constipation is unrelated to demographic or psychological characteristics. (3) Consultation for CC is related to constipation frequency, amount of associated abdominal pain and bloating, and how much the problem impacts life functioning. (4) Patients who have CC but do not consult doctors about it have significantly poorer quality of life and more psychological symptoms compared to individuals without bowel problems.

[Supported by Novartis Pharmaceuticals and R24 DK69674]

## ACG POSTERS

## SATISFACTION WITH LAXATIVES IN CHRONIC CONSTIPATION AND IRRITABLE BOWEL WITH CONSTIPATION

T. Nguyen, MD<sup>1</sup>, O. Palsson, PsyD<sup>1</sup>, M. Von Korff, PhD<sup>3</sup>, A. Feld, MD, FACP<sup>2,3</sup>, R. Levy, PhD, FACP<sup>2</sup>, M. Turner, MS<sup>1</sup>, W. Whitehead, PhD, FACP<sup>1</sup>

<sup>1</sup>University of North Carolina at Chapel Hill, <sup>2</sup>University of Washington & <sup>3</sup>Group Health of Puget Sound

**Objectives:** Determine frequency of using laxative regimens, perceptions of effectiveness, side effects (SE) severity and satisfaction with laxative treatment in patients with chronic constipation (CC) and irritable bowel with constipation (IBS-C).

**Methods:** HMO patients were recruited into 2 groups: those with a clinical diagnosis of constipation (564.0X) in the last year vs. those without a diagnosis of constipation for the previous 5 years. Postal questionnaires were used to identify subjects in both groups meeting Rome III criteria for CC or IBS-C. Subjects with CC or IBS-C but without a medical diagnosis of constipation were designated non-consulters.

**Results:** There were 447 CC and 320 IBS-C subjects (consulters and non-consulters pooled). Groups were similar in race, education and income. However, CC were older (mean age 70 vs. 61 years,  $p < 0.001$ ), more likely to be male (34% vs. 21%,  $p < 0.001$ ) and widowed (20% vs. 13%,  $p = 0.01$ ). CC were less likely than IBS-C to consult physicians (47% vs. 59%,  $p = 0.001$ ) and less likely to use laxatives (33% vs. 47%,  $p = < .001$ ). When they did use laxatives, CC reported less SE (mean rating 0 vs. 1 on a 0-4 scale,  $p < .001$ ) and greater satisfaction (5 vs. 4 on a 1-6 scale,  $p < .001$ ) compared to IBS-C. There were no differences in effectiveness rating (2 vs. 2 on a 0-4 scale,  $p = 0.36$ ). Ordinal regression tested the combined effects on satisfaction with laxatives of age, gender, race, consultation, diagnosis (CC vs. IBS-C), SEs severity and perceived effectiveness. Significant predictors were perceived effectiveness ( $p < .001$ ), less SE severity ( $p < .001$ ) and CC diagnosis by Rome III criteria ( $p = 0.049$ ). Total variance explained was 58.4%.

**Conclusions:** Laxatives were equally effective in CC and IBS-C, but subjects with CC had less severe SEs and were more satisfied with laxative treatment.





## CENTER NEWS

**William E. Whitehead, PhD** served on an NIH consensus panel of experts that issued a report titled "Consensus Development Conference on Urinary Incontinence in Adults". Consensus conferences bring together researchers, practicing physicians, representatives of public interest groups, consumers, and others to conduct scientific assessments of the safety and effectiveness of drugs, devices and procedures. A copy of this report is available through the Director of Communications, Office of Medical Applications of Research, National Institutes of Health, Bldg. 1, Room 257, Bethesda, MD 20892.



**Olafur Palsson, PsyD**, is giving a keynote speech at the 50th anniversary meeting of the American Society of Clinical Hypnosis in March in Chicago. **Miranda Van Tilburg, PhD** will also be presenting at this meeting, regarding her work on guided imagery treatment for children with functional abdominal pain.

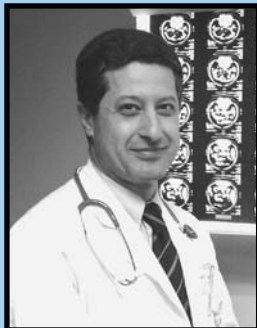


**Douglas A. Drossman, MD** has served on an Institute of Medicine Committee on Gulf War and Health: Physiologic, Psychologic, and Psychosocial Effects of Deployment-Related Stress, which released its final report on November 17, 2007. Among other findings, the report notes that gastrointestinal symptoms may be associated with the stresses of war, but clear evidence to support this link is weak. Information about the report and how to get copies can be found at [http://www.nap.edu/catalog.php?record\\_id=1922](http://www.nap.edu/catalog.php?record_id=1922).



**Kant Bangdiwala, PhD** was recently approved by Karolinska Institute in Stockholm as a 'Visiting Professor'. This is like getting an appointment there, having submitted an application and review by an appointments committee. Karolinska is the largest Medical School in Sweden and recognized as

the place where the Nobel in Medicine & Physiology is given.



**Yehuda Ringel, MD** was invited to join the editorial board for the Journal of Clinical Gastroenterology

**Mark Duncan** has accepted a full-time position with the Center for Gastrointestinal Biology & Disease (75% of time) and the Center for Functional Gastrointestinal & Motility Disorders. His primary responsibilities are coding dynamic, database-driven web applications, surveys and forms and maintaining the REGISTRY database of potential research study subjects. On a personal note, Mark enjoys playing guitar in locations around the Triangle, produces independent films when a good script finds his email, is married to the woman of his dreams, and shares his home with three beautiful mutt dogs.



## CONGRATULATIONS...

**Jennifer Boos** has been accepted into the Physician Assistant (PA) program at Duke University and will start the program in fall 2008.



**Sarah Juhl** was married on November 3, 2007 and became Mrs. Sarah McGee.

**Oli Palsson, PsyD** and his wife Marsha ran a 10 mile race in Reykjavik, Iceland.

**Madhusudan Grover, MD** and Ashima Makol, MD were married on October 27, 2007.

**Miranda Van Tilburg, PhD** is in training and competing in mini-triathlons.

**Danielle Maier, PAC-MA** and her husband Chris had a baby girl – Alexandra -- on August 22, 2007.



## OUR SPONSORS

We greatly appreciate the continued support for the Center's activities in clinical care, research, training and public education provided through educational grants from our sponsors.

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The Center's co-directors are Dr. Douglas Drossman, MD, Professor of Medicine and Psychiatry, and Dr. William Whitehead, PhD, Professor of Medicine and Gynecology. For more information about the Center, please visit our website at [www.med.unc.edu/ibs](http://www.med.unc.edu/ibs).



<http://www.med.unc.edu/ibs>

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#### Memorial Research Fund

The Alan Wayne Ducoff Memorial Fund provides an opportunity for families and friends to remember and honor their loved ones by making a designated contribution to the Center's research program. To make a donation to the Alan Wayne Ducoff Memorial Fund, please check off the appropriate box on the donation form.