Dr. Sarina Pasricha. Her clinical interests include upper and lower motility disorders, anorectal disease, constipation, fecal incontinence, hemorrhoid management and treatment, women’s health, and nutrition.

She received her undergraduate degree cum laude from Harvard University and her medical degree from Northwestern Feinberg School of Medicine. She completed her residency in internal medicine and received her Masters of Science in Clinical Research (MSCR) in epidemiology at the University of North Carolina at Chapel Hill.

The body goes through enormous modifications during pregnancy. In particular, the gastrointestinal tract is susceptible to alterations due to structural and hormonal changes. Given my own recent pregnancy, I decided to discuss some common lower gastrointestinal symptoms that are often inevitable during pregnancy. I hope to use my medical background to help demystify some of the gastrointestinal pathophysiologic changes that are natural during pregnancy.

**Constipation:**

Constipation is extremely common during pregnancy. Nearly 40% of women deal with symptoms of constipation during or after pregnancy. The fetus places pressure on the rectosigmoid colon causing a physical obstruction that can lead to constipation. Additionally, the hormone progesterone can cause slowing of both small and large bowel motility (slow transit constipation). Another possible cause for constipation includes increased abdominal pressure resulting in levator ani dysfunction. The levator ani muscle is the primary muscle that forms most of the pelvic floor. Levator ani dysfunction is more commonly seen in multiparous women with a history of a prolonged second stage of labor (pushing). A combination of these factors, as well as potentially decreased intake of water and dietary fiber...
Over the past decade, the UNC Center for Functional GI and Motility Disorders has enjoyed significant grant support from a number of private foundations and corporations. These grants have ranged from sponsorships of specific events (symposia or CME courses) to unrestricted grants in support of fellowships and the Center’s education and training effort.

This activity is supported by an educational grant from Takeda Pharmaceuticals U.S.A., Inc. and Sucampo.
# DIGEST

**Center Director**
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Spencer Dorn, MD, MPH
Steve Heymen, PhD
Temitope O. Keku, PhD
Jane Leserman, PhD
Ryan Madanick, MD
Olafur S. Palsson, PsyD
Yolanda Scarlett, MD
Lisa Gangarosa, MD
Nicholas J. Shaheen, MD, MPH
Miranda van Tilburg, PhD
Danielle Maier MPAS, PA-C

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**Center Webmaster**
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<th>Cover</th>
<th>LOWER GI CHANGES IN PREGNANCY</th>
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<td>BURDEN OF GASTROINTESTINAL DISEASE IN THE UNITED STATES</td>
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<td>FACULTY AND STAFF AT THE CENTER</td>
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http://med.unc.edu/ibs
DIGESTIVE DISEASE WEEK:
ACCEPTED PUBLICATIONS AND PRESENTATIONS

DDW 2016
Center faculty and investigators will be well represented in presentations and posters at Digestive Diseases Week 2016
May 22 - 24, 2016 in San Diego, California

DDW is the premier research and clinical forum for scientists and clinicians within digestive diseases which includes gastroenterology, liver disease and gastrointestinal surgery. The American Gastroenterology Association (AGA) represents gastroenterologists. The UNC Center develops programs that focus on research and education for those with functional gastrointestinal disorders.

SUNDAY, MAY 22

CONTROL ID: 2444395
SESSION TYPE: Research Forum
SESSION TITLE: Esophageal and Gastric Dysmotility: What is New?
TITLE: Additive Effect of Pathophysiological Mechanisms in Determining Symptom Severity in Functional Dyspepsia.
AUTHORS: Jan F. Tack, Lukas Van Oudenhove, Hanne Vanheel, Florencia Carbone, Hans Törnblom, Olafur S. Palsson, Miranda A. van Tilburg, William E. Whitehead, Magnus Simren
TIME AND LOCATION: 9:15AM, 32
San Diego Convention Center (SDCC)

SUNDAY, MAY 22

CONTROL ID: 2443962
SESSION TYPE: Research Forum
SESSION TITLE: Pediatric Functional and Motility Disorders
TITLE: Seasonal Variation in Functional Abdominal Pain Is Associated With Changes in Anxiety
AUTHORS: Katie Pollard, Christina Campbell, Megan M. Squires, Olafur S. Palsson, Miranda A. van Tilburg
TIME AND LOCATION: 5:16 PM  26 (SDCC)

SUNDAY, MAY 22

CONTROL ID: 2442768
SESSION TYPE: Research Forum
SESSION TITLE: Internet-Delivered Cognitive Behavior Therapy for Adolescents With Irritable Bowel Syndrome: A Randomized Controlled Trial
AUTHORS: Marianne Bonnert, Ola Olen, Maria Lalouni, Erik Hedman, Sarah Vigerland, Fabian Lenhard, Marc A. Benninga, Magnus Simren, Eva Serlachius, Brjann Ljotsson
TIME AND LOCATION: 4:48 PM  26 (SDCC)

SUNDAY, MAY 22

CONTROL ID: 2441554
SESSION TYPE: Research Forum
SESSION TITLE: Microbiota, FODMAP Diet and IBS
TITLE: Alterations in the Microbiota in Irritable Bowel Syndrome; A Comparison of Two Geographically Distinct Cohorts
AUTHORS: Ian Jeffery, Paul O'Toole, Marianne Fraher, Orla Craig, Magnus Simren, Lena Ohman, Marcus J. Claesson, Fergus Shanahan, Timothy Dinan, Eamonn M. Quigley
TIME AND LICAITON: 8:36 AM  25 (SDCC)
<table>
<thead>
<tr>
<th>MONDAY, MAY 23</th>
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</table>
| **CONTROL ID:** 2439615  
**SESSION TYPE:** Poster Session  
**SESSION TITLE:** Irritable Bowel Syndrome: Clinical  
**TITLE:** Fecal incontinence in irritable bowel syndrome (IBS): Prevalence and associated factors in Swedish and American patients  
**AUTHORS:** Magnus Simren, Olafur S. Palsson, Steve Heymen, Antal Bajor, Hans Törnblom, William E. Whitehead  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC) |

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</table>
| **CONTROL ID:** 2440057  
**SESSION TYPE:** Poster Session  
**SESSION TITLE:** Irritable Bowel Syndrome: Clinical  
**TITLE:** Age but Not Sex Affects the Sensitivity of the Rome IV Diagnostic Criteria for IBS  
**AUTHORS:** William E. Whitehead, Olafur S. Palsson, Miranda A. van Tilburg, Magnus Simren  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC) |

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| **CONTROL ID:** 2441637  
**SESSION TYPE:** Poster Session  
**SESSION TITLE:** Irritable Bowel Syndrome: Clinical  
**TITLE:** Population Prevalence of Rome IV and Rome III Irritable Bowel Syndrome (IBS) in the United States (US), Canada and the United Kingdom (UK)  
**AUTHORS:** Olafur S. Palsson, Miranda A. van Tilburg, Magnus Simren, Ami D. Sperber, William E. Whitehead  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC) |

<table>
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<th>MONDAY, MAY 23</th>
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| **CONTROL ID:** 2434097  
**SESSION TYPE:** Poster Session  
**SESSION TITLE:** Pediatric IBD: Clinical and Translational Studies  
**TITLE:** Fatigue in Pediatric Inflammatory Bowel Disease: Associations With Disease Activity and Psychological Factors  
**AUTHORS:** Miranda A. van Tilburg, Robyn Claar, Shelby Langer Joan Romano, William E. Whitehead, Abdullah Bisher, Melissa DuPen, Tasha Murphy, Rona L. Levy  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC) |

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<th>MONDAY, MAY 23</th>
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| **CONTROL ID:** 2433951  
**SESSION TYPE:** Poster Session  
**SESSION TITLE:** Pediatric IBD: Clinical and Translational Studies  
**TITLE:** Chronic Age When Health Care Transition Skills Are Mastered in Adolescents/Young Adults With Inflammatory Bowel Disease  
**AUTHORS:** Miranda A. van Tilburg, Yi Zhong, Donna Gilleskie, Meaghan L. Nazareth, Karina Javalkar, Sandra C. Kim, Maureen Kelly, Steven Lichtman, Maria Ferris  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC) |

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| **CONTROL ID:** 2439593  
**SESSION TYPE:** Poster Session  
**SESSION TITLE:** Probiotics/Novel Therapeutics in Intestinal Disease (III)  
**TITLE:** Effect of a Fermented Milk Product Containing Bifidobacterium lactis CNCM I-2494 in Patients With Irritable Bowel Syndrome (IBS): A Randomized, Double-Blinded, Placebo-Controlled Trial  
**AUTHORS:** Boris Le Nevé, Rémi Bazeilles, Denis Guyonnet, Lena Ohman, Hans Törnblom, Magnus Simren  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC) |

<table>
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| **CONTROL ID:** 2438787  
**SESSION TYPE:** Poster Session  
**SESSION TITLE:** Irritable Bowel Syndrome: Clinical  
**TITLE:** Patient Satisfaction With IBS-Care Correlates With the Physician’s Confidence in Managing IBS-Patients: A Preliminary Investigation  
**AUTHORS:** Perjohan Lindfors, Guadalupe Fuentes, Airene Lindfors, Hans Törnblom, Magnus Simren, Brjann Ljottsson  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC) |
### TUESDAY, MAY 24

**CONTROL ID: 2439803**  
**SESSION TYPE: Poster Session**  
**SESSION TITLE: Anorectal Dysmotility (Including Fecal Incontinence, Dyssynergia and Pelvic Floor Disorders)**  
**TITLE: Electromyography (EMG) From the Anal Canal Is a Stronger Predictor of Dyssynergic Defecation Than Anal Canal Pressure Measured by High Resolution Anorectal Manometry**  
**AUTHORS:** Krista M. Edelman, Sarina Pasricha, Sheila Crawford, Magnus Simren, William E. Whitehead  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC)

**CONTROL ID: 2440359**  
**SESSION TYPE: Poster Session**  
**SESSION TITLE: Anorectal Dysmotility (Including Fecal Incontinence, Dyssynergia and Pelvic Floor Disorders)**  
**TITLE: Conservative Treatment for Fecal Incontinence: Predictors of Treatment Completion and Symptom Improvement**  
**AUTHORS:** Steve Heymen, Olafur S. Palsson, Magnus Simren, William E. Whitehead  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC)

### TUESDAY, MAY 24

**CONTROL ID: 2440325**  
**SESSION TYPE: Poster Session**  
**SESSION TITLE: Irritable Bowel Syndrome: Pathophysiology**  
**TITLE: Families of Irritable Bowel Syndrome (IBS) Patients Have Elevated Prevalence of Chronic Medical Conditions**  
**AUTHORS:** Olafur S. Palsson, Miranda A. van Tilburg, William E. Whitehead  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC)

**CONTROL ID: 2440637**  
**SESSION TYPE: Poster Session**  
**SESSION TITLE: Irritable Bowel Syndrome: Pathophysiology**  
**TITLE: Additive Effect of Pathophysiological Factors on Patient Reported Outcomes in IBS**  
**AUTHORS:** Magnus Simren, Hans Törnblom, Olafur S. Palsson, Miranda A. van Tilburg, Lukas Van Oudenhove, William E. Whitehead, Jan F. Tack  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC)

### TUESDAY, MAY 24

**CONTROL ID: 2443637**  
**SESSION TYPE: Poster Session**  
**SESSION TITLE: Irritable Bowel Syndrome: Pathophysiology**  
**TITLE: Distinct Subtypes of Irritable Bowel Syndrome Are Defined By Psychological Symptoms, Visceral Pain Sensitivity, Stool Consistency, and Motility**  
**AUTHORS:** Miranda A. van Tilburg, Magnus Simren, Olafur S. Palsson, Hans Törnblom, William E. Whitehead  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC)

**CONTROL ID: 2443158**  
**SESSION TYPE: Poster Session**  
**SESSION TITLE: Pediatric Functional and Motility Disorders**  
**TITLE: Maternal Inheritance of Functional Symptoms Is Common in Functional Abdominal Pain**  
**AUTHORS:** Lindsey Lewis, Miranda A. van Tilburg  
**TIME AND LOCATION:** 9:30 AM Hall C (SDCC)
TUESDAY, MAY 24
CONTROL ID: 2434874
SESSION TYPE: Poster Session
SESSION TITLE: Pediatric Functional and Motility Disorders
TITLE: Parental Protectiveness Partially Mediates the Association Between Parent-Reported Child Self-Efficacy and Child Health Outcomes in Pediatric Functional Abdominal Pain
AUTHORS: Melissa DuPen, Shelby Langer, Tasha Murphy, Miranda A. van Tilburg, Joan Romano, Rona L. Levy
TIME AND LOCATION: 9:30 AM Hall C (SDCC)

TUESDAY, MAY 24
CONTROL ID: 2434783
SESSION TYPE: Poster Session
SESSION TITLE: Pediatric Functional and Motility Disorders
TITLE: Evidence for Neuro-Immune Activation and Its Relationship to Abdominal Pain in Children With Irritable Bowel Syndrome (IBS)
AUTHORS: Robert Shulman, Lena Ohman, Magnus Simren, Mats Stridsberg, Margaret Heitkemper
TIME AND LOCATION: 9:30 AM Hall C (SDCC)

UNC HOSTS VISITING SURGEON FROM UK

Dr. Emma Carrington is an Honorary Senior Clinical Fellow in General / Colorectal Surgery at the Wingate Institute of Neurogastrenterology within the National Centre for Bowel Research and Surgical Innovation at Queen Mary’s University of London. She received her MBBS and MSc from the Imperial College School of Science, Technology and Medicine at the University of London and received her PhD in Surgery from Queen Mary University of London in March 2015.

Drs. William Whitehead, Olafur Palsson, and Steve Heymen will mentor Dr. Carrington while she is at UNC. While here, she will observe and learn more about pelvic floor biofeedback training. She will also receive training on a study design for randomized controlled trials of surgical and behavioral interventions.

Dr. Carrington will also meet with faculty from urogynecology and colorectal surgery to discuss surgical and behavioral treatments for fecal incontinence.

In addition, she will be working alongside UNC faculty and disease specialist, Dr. Magnus Simren, to learn about current research and medical management of irritable bowel syndrome and fecal incontinence.
The National Institutes of Health (NIH) is a federally funded governmental organization that funds research endeavors across the United States, many of which are awarded to the University of North Carolina at Chapel Hill. After several years of flat funding, the recent omnibus budget that was signed into law by President Obama includes a $2 billion dollar increase for NIH. This puts the current funding level of the NIH close to $32 billion. This important increase in funding will impact multiple facets of research into the etiology and treatment of a variety of medical conditions, and creates a brighter future for new and midlevel researchers.

Common goals of medical research include curing diseases, testing medical devices and novel pharmaceuticals, improving quality of life, and identifying the causes of functional gastrointestinal disorders so that prevention is possible. The first step in bringing these discoveries to the public is for the investigator to have their project funded. Thousands of vital research grants submitted to the NIH are funded each year, but there is only enough money to fund a small fraction of them. According to the 2014 NIH record, 54,519 applications, including resubmissions, were submitted to the NIH but only 9,241 grants were funded, calculating the success rate of being funded at 17%.[1] Many of the grants that did not receive funding were recommended by review committees for funding because they had the potential for advancing treatment.

Looking at the graph, it is easy to see how there has been a direct correlation between the decline in NIH research funding and the number of researchers receiving grants for critical research. This also has a direct impact on whether young people decide to become scientists or choose other fields. There has been a decline in “new blood” (i.e., the number of applications submitted by new graduates and first time applicants) over the past few years due to the fierce competition for dwindling funds. The recent increase in NIH funding opens the doors for new researchers to establish themselves and help take the place of retiring academics and researchers.

In the past several years, multiple research projects supported by NIH were conducted at UNC or in collaboration with other institutions, which have led to new medical discoveries on etiology and treatments/therapies for functional GI disorders. Below is an abbreviated list:


<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Award Rate</th>
<th>Success Rate</th>
<th>Funding Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>40.0%</td>
<td>35.0%</td>
<td>30.0%</td>
</tr>
<tr>
<td>2000</td>
<td>25.0%</td>
<td>20.0%</td>
<td>15.0%</td>
</tr>
<tr>
<td>2010</td>
<td>10.0%</td>
<td>5.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

*Excludes awards made with American Recover and Reinvestment Act (ARRA) funds, and ARRA-solicited applications.


A current NIH research grant awarded to the Center is an interactive patient utilized website for the conservative management of accidental bowel leakage. This is currently being tested by research volunteers, and the goal of this project is to provide physicians and patients another treatment tool to help patients conservatively manage their accidental bowel leakage. Previous research conducted at the Center has shown that conservative therapies can help delay admission to a skilled nursing facility, which has a drastic impact on a patient's financial burden, quality of life, and the potential financial encumbrance of Medicaid and/or Medicare.[2,3] This research showed that individuals with accidental bowel leakage had on average $2800+ per year higher health care costs than those without accidental bowel leakage.[3]

The increase in NIH funding for medical research is very likely to lead to increases in our understanding of the etiology and treatment for medical disorders such as gastroparesis, irritable bowel syndrome, pelvic floor disorders, accidental bowel leakage, functional dyspepsia, functional abdominal pain, and several other functional gastrointestinal disorders. President Obama stated in his State of the Union Address, “Medical research is critical.” That could not be more potent as we reflect on the accomplishments of previous medical discoveries and await the discoveries yet to come.

References


Article written by Stefanie Twist
Prevalence and Health Care Outcomes Regarding Fecal Incontinence Amongst Individuals Who Participate in Anal Intercourse

A less often talked about risk factor for accidental bowel leakage is anal intercourse. Though it is not the easiest topic to discuss, it is important to acknowledge the implications this has on internal and external sphincter tone and the increased risk for developing accidental bowel leakage among both women and men.

The National Health and Nutrition Examination Survey (NHANES) database is a national sample of non-institutionalized adults in the United States that combines questionnaire and physical examination data. Data collected is used by researchers to better understand the health status of the general population. The information collected covers a variety of topics from gastrointestinal health, sexual health, cardiovascular health, metabolic and diabetic health, and many more data points. Though data collection has been ongoing, the specific year of data collection for this study was 2009-2010. Roughly 6,000 individuals aged 20 and older participated in the survey for those particular calendar years.

Before reviewing the findings of the data, it should be said that the questions used to measure rates of anal intercourse of men and women varied, as the male population was asked about oral and anal sex in the same question. This makes it hard to definitively identify how many true positives for this question really exist.

The publication by Markland et al. found that anal intercourse was more frequently reported in women (up to 42%) than men (up to 6%).[1] Of the women interviewed, the most frequent age group to report anal intercourse was women aged 20-49. Women who engaged in anal intercourse also reported higher rates of depression than men as well as higher rates of accidental bowel leakage (women: 8.3%; and men: 5.6%).[1] An important revelation found in the data was that both men and women who had reported having anal intercourse also reported similar scores for fecal incontinence severity as measured by the Fecal Incontinence Severity Index (FISI) scores.

For women specifically, questions remain unanswered regarding what factor(s) led them to have a higher prevalence of anal intercourse than men. Interestingly enough, women who had never had a vaginal birth had higher rates of anal intercourse than women who reported 1 or more vaginal birth.[1] Could the prevalence in this population be explained as a form of birth control or are there other unknown factors contributing to the frequency of anal intercourse? The study also provoked many additional questions about populations engaging in anal intercourse. Women who had not attended college and were at or below the poverty level endorsed higher rates of anal intercourse.[1]

The bigger concern is how anal intercourse affects the anal sphincter muscles. Of the research conducted in males, there were no defects noted in the internal or external anal sphincters as noted by endoanal ultrasound, but those who engaged in anal intercourse had significantly lower resting pressures in the anal canal as measured by manometric perfusion catheter [2,3] Research also suggests that anal intercourse reduces the maximum squeeze pressure in the anal canal.[3] The loss in resting tone as well as maximum squeeze pressure increases the risks for accidental bowel leakage, and multiple studies have shown anal intercourse is a direct risk factor for accidental bowel leakage.[1,3]

As with most research, with every question answered, new unexplained phenomenon come to light. Information presented in the findings should be considered as a primer for health care providers to educate their patients on the risks of anal intercourse, and should alert them to screen for accidental bowel leakage in patients with alternative lifestyles.


Article written by Stefanie Twist
Save the Date

June 25, 2016

The UNC Center for Functional GI and Motility Disorders is currently developing a continuing medical education (CME) program “Introduction to Rome IV and Update on Diagnostic and Treatment Algorithms for IBS and other Functional Gastrointestinal Disorders.”

This program is unique in that it will be held online as well as in person. The program has been approved for 7.25 AMA PRA Category 1 Credit™ for physicians and 0.725 Continuing Education Units (CEU’s) / 7.25 contact hours for other health care professionals. This event will be attended in-person and live streamed on UNC Chapel Hill’s campus in the Bioinformatics Building. The live video feed will be streamed all day (8:30am – 5:30pm) based on Eastern Standard Time. The course will identify and apply new Rome IV Diagnostic Criteria, discuss current methodology in treatment for Irritable Bowel Syndrome (IBS) and other functional gastrointestinal disorders (FGIDs). Additional topics will include (1) What's new in Rome IV, (2) Clinical Management of FGIDs, (3) IBS Disease Mechanism, (4) Treatments for IBS including centrally and peripherally acting pharmaceuticals, psychological treatments, and dietary advice for IBS, (5) Etiology and treatment of upper GI disorders, and (6) Etiology and treatment of lower GI disorders.

If you are interested in participating, please visit http://bit.ly/1UduSLq.

We are still in the process of finalizing the course, but expect to hold this event in conjunction with the Center’s patient day the following day, Sunday June 26. There is a charge to participate in the continuing education program, however patient day is free to participate in.

Patient day will be available to participate in online and in person. We strive to offer patients all across the state, country, and world the opportunity to participate from the comfort of their homes. The live video feed will be streamed all morning into mid-afternoon (8:00am – 1:00pm) based on Eastern Standard Time. As in previous years, you will be able to submit your questions online either through the websites forum or through Twitter. We will try to address as many questions as possible during the panel discussions after each section of speakers. Topics to be discussed include (1) an overview of Irritable Bowel Syndrome (IBS), (2) IBS Symptoms and Constipation (3) IBS, Diarrhea, and Fecal Incontinence, (4) Upper GI Disorders including gastroparesis, heartburn, and esophageal disorders, and (5) Non-Drug Treatments including diet, biofeedback, mindfulness, cognitive behavioral therapy (CBT), and hypnosis for the treatment of functional gastrointestinal disorders (FGIDs).
Researchers in the UNC Center for Functional GI & Motility Disorders are finishing development of a complete 6 week online self-help program designed to enable individuals to reduce or get rid of accidental bowel leakage (fecal incontinence) on their own.

If you have been experiencing accidental bowel leakage, then the researchers would like your help to evaluate their new program in a research study that you can participate in entirely through your own computer.

You may be able to take part in this research study if you:
1. Have experienced accidental bowel leakage at least once a week in the past 6 months.
2. Are able and willing to log into a website and complete the learning tasks and answer diary questions for a few minutes each night for a six week period.
3. Live in North Carolina or Virginia.
4. Speak and write fluent English.

No study visits will be required.

You will be reimbursed up to $200 for completing the 6 week study participation. For more information or to enroll in the study, go to the online consent form:

http://bit.ly/1PFBv18

In 2010, the four top symptoms reported for ambulatory treatment were:
1. Abdominal pain
2. Diarrhea
3. Vomiting
4. Nausea

Of the diagnosis codes used in 2012 for emergency department visits in 2012, patients coded for functional and motility disorders topped the list with 941,202 visits. Compared to 2006, this was a 39% increase in the number of ED visits.


### Leading Gastrointestinal Symptoms Prompting and Ambulatory Visit, 2010 (Estimated # of visits)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Symptom</th>
<th>Office Visits</th>
<th>Emergency Department</th>
<th>Hospital Outpatient</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Abdominal Pain</td>
<td>15,028,011</td>
<td>10,416,899</td>
<td>1,655,073</td>
<td>27,099,983</td>
</tr>
<tr>
<td>2</td>
<td>Diarrhea</td>
<td>4,454,522</td>
<td>795,543</td>
<td>5,629,238</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Vomiting</td>
<td>2,681,315</td>
<td>5,459,103</td>
<td>351,709</td>
<td>5,492,127</td>
</tr>
<tr>
<td>4</td>
<td>Nausea</td>
<td>2,343,409</td>
<td>2,187,272</td>
<td>184,238</td>
<td>4,714,919</td>
</tr>
</tbody>
</table>

Peery, et al. 2015

### Treatment Studies

Researchers in the UNC Center for Functional GI & Motility Disorders are finishing development of a complete 6 week online self-help program designed to enable individuals to reduce or get rid of accidental bowel leakage (fecal incontinence) on their own.

If you have been experiencing accidental bowel leakage, then the researchers would like your help to evaluate their new program in a research study that you can participate in entirely through your own computer.

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4. Speak and write fluent English.

No study visits will be required.

You will be reimbursed up to $200 for completing the 6 week study participation. For more information or to enroll in the study, go to the online consent form:

http://bit.ly/1PFBv18

Principal Investigator:
Dr. William Whitehead

Contact Information
Stefanie Twist
919-843-6961
sjeremia@med.unc.edu
from nausea and vomiting, can lead to constipation symptoms in pregnancy.

**Treatment:**

Fortunately, there are treatment options for constipation. First, make sure you are staying hydrated and having adequate fiber intake by supplementing with 20-35 grams daily. Second, osmotic laxatives are generally safe to use in pregnancy and are the most commonly prescribed medications for constipation during pregnancy. Lactulose (15-30 ml/day) has a pregnancy category B (per the FDA, animal reproduction studies have failed to demonstrate a risk to the fetus). Polyethylene glycol, also known as Miralax (8-25 mg/day), has a pregnancy category C (per the FDA, there are no adequate studies in humans, but potential benefits may outweigh any potential risks). Lactulose and polyethylene glycol work by an osmotic effect of attracting water into the colon. Both of these medications are minimally absorbed and therefore thought to be generally safe during pregnancy.

**Fecal Incontinence:**

Up to 25% of first-time mothers report having symptoms of fecal incontinence for up to 6 weeks after delivering, but most women recover. Fecal incontinence is often an under-reported symptom, so the prevalence is likely to be higher. Typically however, patients who injure their pelvic floor muscles during childbirth do not develop fecal incontinence from delivery later in life, often in their 60s and 70s. Symptoms of fecal incontinence likely occur from damage to the anal sphincters during delivery and age, both of which can cause weakness of the pelvic floor muscles. Damage to the sphincters can also occur during an episiotomy, tearing (especially 3rd or 4th degree tears), or from pudendal nerve damage. If patients have pudendal nerve damage they may have decreased sensation and an inability to tell if they need to pass gas or stool, resulting in fecal leakage.

**Treatment:**

Fecal incontinence is often a multifactorial issue, therefore there are multiple treatment modalities. Medications to firm the stool are often the first-line treatment. These include Imodium, Lomotil and fiber. If symptoms persist, then patients are advised to complete anorectal physiologic testing and undergo pelvic floor retraining and biofeedback. Often times, an anal ultrasound is also preformed to identify any residual sphincter damage. Surgery for sphincter repair is an option for patients who fail biofeedback. Lastly, sacral nerve stimulators are now being used to treat fecal incontinence and may also be a potential option for patients with ongoing fecal incontinence.

**Hemorrhoids:**

Hemorrhoids are inflamed and swollen veins in the anus and lower rectum, and they are common during pregnancy. Symptomatic hemorrhoids can cause pain, bleeding, and pruritis. Hemorrhoids during pregnancy are a result of straining during defecation and increased vascular engorgement from the enlarged gravid uterus. Many people also notice symptomatic hemorrhoids after delivery. This is often a result of pushing during the second stage of labor.

**Treatment:**

Treatment of hemorrhoids during pregnancy is similar to treatment in non-pregnant women. Initial management includes increasing dietary fiber and water. Medications, such as stool softeners, that target constipation can be used. Hydrocortisone suppositories are safe to use during pregnancy and can help reduce swelling. If medical management fails, then hemorrhoidal banding, infrared coagulation and surgical hemorrhoidectomy are potential safe options during pregnancy.

**References:**


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